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THE

CYCLOPÆDIA;

OR,

Universal Dictionary

OF

ARTS, SCIENCES, AND LITERATURE.

VOL. X.

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THE

CYCLOPÆDIA;

OR,

UNIVERSAL DICTIONARY

OF

Arts, Sciences, and Literature.

BY

ABRAHAM REES, D.D. F.R.S. F.L.S. *S. Amer. Soc.*

WITH THE ASSISTANCE OF

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OF

ARTS and SCIENCES.

CORNEA.

CORNEA Tunica, in *Anatomy* and *Optics*, is a denſe, ſtrong, and tranſparent membrane, occupying the vacancy which is left by the ſclerotica in the front of the eye-ball. See Eye.

It is ſituated in the ſclerotica. Dr. Porterfield conſiders both theſe as one and the ſame tunicle, expanded from the external coat of the optic nerve about the whole globe. It has a greater convexity than the reſt of the globe of the eye, forming, according to M. Petit, a portion of a ſphere, whoſe diameter is uſually 7, $7\frac{1}{4}$, or $7\frac{1}{2}$ lines; its chord, or, which is the ſame thing, the diameter of the iris, including the thickneſs of the cornea, commonly meaſures 5, $5\frac{1}{4}$, or $5\frac{1}{2}$ lines. The diſtance betwixt the centre of the cornea and the cryſtalline lens, meaſured on the axis of the eye, from the outſide of the cornea, is $1\frac{5}{12}$, from which deducting $\frac{2}{12}$, which is the thickneſs of the cornea itſelf, there remains $1\frac{1}{4}$ for the thickneſs of both chambers of the aqueous humour. Others have given to the cornea the figure of the vertical part of a parabolic or hyperbolic ſpheroid. Although the cornea is more protuberant than the other parts of the eye and elevated above the ſpherical ſurface of its opaque portion called ſclerotica, this protuberancy is different in different animals. In birds it is much more elevated and convex than in either man or quadrupeds. This convexity of the cornea ſerves like that of a convex lens, as it is part of a leſſer or greater ſphere, to make objects appear greater or leſs, more remote or nearer. But as it is the uſe of the cornea, and of the aqueous humour which lies behind it, to commence the refraction of the rays of light, which is afterwards completed by the cryſtalline and vitreous humours, it may be aſked how it comes to paſs, that the great convexity of the cornea in birds does not render their ſight confuſed and indiſtinct, by increaſing the refraction, and making the rays meet at ſome point before the retina, juſt as in the caſe of myopes or ſhort-ſighted perſons, who never ſee objects diſtinctly at an ordinary diſtance, becauſe the cornea, by its too great convexity, makes the rays convene too ſoon behind the cryſtalline? To this inquiry it is replied, that this great convexity of the cornea of birds is abſolutely neceſſary for diſtinct viſion; becauſe, as in men and quadrupeds the figure of the eye is almoſt ſpherical, ſo in birds, as well as in fiſhes, it is flat and depreſſed, both in its fore and back parts, by which means the retina is placed near the cryſtalline humour; and, therefore, if the convexity of the cornea did not correſpond to the flatneſs of their eyes and the diſtance of the retina, the diſtinct image of viſible objects would fall behind it, and the ſight would thus be rendered confuſed and imperfect, like that of the preſbytæ or old men, who cannot ſee objects diſtinctly, eſpecially at a ſmall diſtance, on account of the flatneſs of their eyes in proportion to the diſtance of the retina; and therefore nature has wiſely provided, with a view to the perfection of the organs of animals, that the convexity of the cornea ſhould be increaſed in thoſe creatures which have the retina brought near to the cryſtalline by the flatneſs of their eyes; for, being thus enabled to ſee objects diſtinctly at an ordinary diſtance, they can, by changing the conformation of their eyes, adapt them to all other diſtances, as neceſſity requires. In men and quadrupeds, both the ſclerotica and cornea, though of a denſe compact ſubſtance, are nevertheleſs ſoft, flexible, and yielding, like other membranes. But in birds and fiſhes the ſclerotica is altogether inflexible, being generally harder than a cartilage, and in ſome quite bony; whence it ſeems manifeſt, that in theſe creatures the change of the conformation of the eye, by which it is adapted to the different diſ-

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tances of objects, does not ariſe from any change in the figure of the eye itſelf proceeding from the action of its muſcles, as Dr. Porterfield imagines, though many have thought otherwiſe; the hardneſs and inflexibility of the ſclerotica being repugnant to any ſuch change of figure. This change of conformation therefore muſt proceed, as he conceives, from ſome other cauſe, ſuch as the contraction of the ligamentum ciliare. In fiſhes, inſects, and all animals that want eye-lids to cover and defend their eyes, the cornea alſo is of a firm hard ſubſtance, as Fabricius ab aquapendente has obſerved; and this was neceſſary, that it might not be hurt by particles to which, for want of eye-lids, they are expoſed. This is particularly to be obſerved in cruſtaceous animals, ſuch as the locuſta, gammarus, cancer, &c. to which eye-lids, inſtead of being neceſſary, would have been hurtful, and an impediment to their ſight, on account of their hardneſs and difficulty of motion; and therefore nature has contrived another method for ſecuring their eyes againſt external injuries, by the hardneſs of the cornea, which, in theſe animals, exactly reſembles the form of a lanthorn. In other animals that want eye-lids, the cornea is alſo firm and hard, though not ſo firm as in cruſtaceous animals. But, in all animals that are provided with eye-lids for guarding and defending their eyes, ſuch as men, quadrupeds, and fowls, their cornea is more ſoft and delicate.

The cornea is compoſed of ſeveral parallel laminæ, which are nouriſhed by many blood-veſſels, ſo fine, as not to hinder even the ſmalleſt rays of light from entering the eye. It has a moſt exquiſite ſenſe, to the end that, upon the leaſt pain, the tears may be ſqueezed out of the lachrymal gland, to waſh off any filth, which, by ſticking to the cornea, might render it cloudy, or dim.

Mr. Winſlow, having obſerved that the cornea, after death, is commonly covered with a kind of membrane or glairy coat, which ſometimes tarniſhes the eye to ſuch a degree, that the pupil can ſcarcely be diſtinguiſhed; and further obſerving, that this membrane is to be found as well in thoſe who die with their eyes open, as ſhut, was hence led to ſuſpect, that it was formed of a lymph which naturally concreted through thoſe pores of the cornea, mentioned by Steno in his "Treatiſe on the Glands and Muſcles;" and, after many fruitleſs attempts to diſcover theſe pores, he at laſt fortunately ſucceeded: for by preſſing the eye in a certain manner, which occurred to him by accident, he could diſtinctly ſee this liquor ſweating through theſe pores, and form ſmall drops upon the cornea, which gradually diffuſed themſelves over its whole ſurface. (See Mem. de l'Acad. Ann. 1721.)

This glairy coat is very tender and delicate, ſo that it breaks into many pieces when it is touched, and is eaſily removed altogether by wiping the cornea. It commonly begins to be formed a little while before death; and hence the eyes loſe their brilliancy, and becoming dull and lifeleſs aſſume a certain appearance, which has been looked upon as a certain ſign of a ſpeedy diſſolution. It is not therefore without ſome reaſon, ſays Dr. Porterfield, (Treatiſe on the Eye, vol. i. p. 146.) notwithſtanding what Plempius ſays to the contrary, that Pliny (l. xxviii. c. 6.) tells us, that while the pupil reflects images, death is not to be feared. See Eye and Vision.

It is ſometimes neceſſary to make inciſions through this tunic, in order to diſcharge not only matter, but even blood, when extravaſated by external injuries, if it will not give way to the common methods of diſperſion, to prevent the ſtagnant blood from ſuppurating and deſtroying the eye. There have been inſtances when this has been done with great ſucceſs, and without any deforming cicatrix, the ſight having been alſo perfectly reſtored by it. See Achlys.

Cornea-*Knife*, in *Surgery*, an inſtrument uſed for making an inciſion into the cornea, previous to the extraction of a cataract. (See Cataract.) It ſhould be of ſuch a width as to equal the dimenſion of a ſemi-diameter of the cornea, which is to be cut through by one inciſion, and not by a ſee-ſaw diviſion. The back of the cornea-knife, Mr. Ware obſerves, ſhould never be ſo thin as to cut above the eighth part of an inch beyond its point; by which precaution, enough will be left of its back, in a blunt ſtate, to ſecure the iris againſt injury.

CORNEGLIANO, in *Geography*, a town of Italy, in the Parmeſan; 12 miles S.W. of Parma.

CORNEILLAN, a town of France, in the department of the Landes; 5 miles S. of Aire.

CORNEILLE, Peter, in *Biography*, a celebrated French dramatiſt, was born at Rouen, the 6th of June, 1606. He was brought up to the bar, but advocated only one cauſe, and accepted of the place of advocate general at the marble table of the parliament of Rouen, which was a kind of ſinecure. A trifling affair of gallantry induced him to write his firſt comedy, entitled "Mélite;" the ſucceſs of which brought him to Paris, and encouraged him to five or ſix attempts of the ſame kind. After theſe he ventured upon "Medea," a tragedy imitated in part from Seneca; and at the age of 31, he produced the famous tragedy of the "Cid," the principal beauties of which were, however, borrowed from the Spaniſh theatre. Still it raiſed his reputation to the higheſt pitch; and the enthuſiaſtic applauſe with which it was received was ſuch, that "Cela eſt beau comme le Cid" became the faſhionable expreſſion of the age. Even the great cardinal de Richelieu grew jealous of Corneille's celebrity; and though he penſioned the poet, ſecretly joined in a confederacy againſt his poems. His animoſity induced Corneille to write the following verſes, after the cardinal's death:

> "Qu'on parle bien ou mal du fameux cardinal,
> Ma proſe, ni mes vers n'en diront jamais rien;
> Il m'a fait trop de bien pour en dire du mal,
> Il m'a fait trop de mal pour en dire du bien."

To ſupport the fame which he had ſo juſtly earned by his "Cid," Corneille produced ſucceſſively the beautiful tragedies of the "Horatii," "Cinna," "Polyeucte," "Pompée," and "Rodogune." In 1647, he was choſen a member of the French academy. After Cinna and Rodogune, his poetical fire appeared to abate: he wrote five more tragedies, which were not ſo well received. The bad ſucceſs of his "Pertharites," in particular, made him relinquiſh the dramatic career for ſome time, which he devoted to an excellent tranſlation of "Kempis's Imitation of Jeſus Chriſt." His genius, however, reſumed its former bent. He produced four tragedies more, and died eight or ten years after having written "Surena," on the 1ſt of October, 1684, in the 79th year of his age. His works have been frequently reprinted: they conſiſt of nine comedies, two-and-twenty tragedies, and ſome ſmaller poems. The beſt edition is that in 8vo., with Voltaire's notes. Corneille left no fortune to his deſcendants. One of his great nieces was educated and provided for by Voltaire; and another of his diſtant relations, a young boy, is now receiving his education at the expence of the French government.

According to Racine, it is not eaſy to find a poet who united ſo many great talents. Corneille poſſeſſed at once ſkill, ſtrength, judgment, and genius. The grandeur of the ſubjects of his tragedies, and the manner in which he has treated them, are equally ſtriking. We know not which to admire moſt, the vehemence of his paſſions, the majeſty of his ſentiments, or the dignity and prodigious variety of his characters. Corneille, ſays Dr. Blair, (Lectures, vol. iii. p. 344.) who is properly the father of French tragedy, is diſtinguiſhed by the majeſty and grandeur of his ſentiments, and the fruitfulneſs of his imagination. His genius was unqueſtionably very rich, but ſeemed more turned towards the epic than the tragic vein: for, in general, he is magnificent and ſplendid, rather than tender and touching. He is the moſt declamatory of all the French tragedians. He united the copiouſneſs of Dryden with the fire of Lucan; and he reſembles them alſo in their faults, in their extravagant impetuoſity. The character of Corneille is happily contraſted with that of Racine, in the following beautiful lines of Marſy, a French poet:

> "Illum nobilibus majeſtas evehit alis
> Vertice tangentem nubes: ſtant ordine longo
> Magnanimi circum heroës, fulgentibus omnes
> Induti trabeis; Polyeuctus, Cinna, Seleucus,
> Et Cidus, et rugis ſignatus Horatius ora."

CORNEILLE, THOMAS, a French dramatiſt, brother to the celebrated Peter Corneille, was born at Rouen in 1615. He wrote ſeveral dramatic pieces, one of which, "Don Juan," or "Le Feſtin de Pierre," has kept the ſtage. His ſucceſs, and indeed his merit as a poet, were greatly inferior to thoſe of his brother; yet, in compliment to the celebrity of the deceaſed, he was choſen to ſucceed the great Corneille as a member of the French academy, where he took his ſeat on the 2d of January, 1685. He died in 1709, and left, beſides his dramatic works, a "Tranſlation of Ovid's Metamorphoſes;" "Remarks upon Vaugelas;" "a Dictionary of Arts;" and "an Univerſal Geographical and Hiſtorical Dictionary," chiefly eſteemed for an accurate account of Normandy, which was his native province.

CORNEILLE, MICHEL, a painter and engraver, was born at Orleans in 1603. He became the diſciple of Simon Vouet, whoſe manner he aſſiduouſly imitated, until his death, which took place in 1664. He painted many conſiderable works in the palaces and churches of France, and etched a few plates from Raffaele, the Caracci, &c. Huber.

CORNEILLE, MICHEL, the ſon of the preceding artiſt, was born at Paris, 1642. After having acquired the firſt principles of painting, under the direction of his father, he travelled to Italy, and is ſaid to have completed his ſtudies in the ſchool of the Caracci, whoſe ſtyle of drawing, particularly in landſcape, he imitated with enviable ſucceſs. He painted ſeveral conſiderable works in the churches of Paris, and at the palaces of Fontainbleau and Verſailles; and etched many excellent plates, as well from his own compoſitions, as from thoſe of Raffaele and the Caracci. He died a member of the academy at Paris, in the year 1708. Huber.

CORNEILLE, JEAN BAPTISTE, the younger brother of the preceding artiſt, was born at Paris in 1646, and, like him, after having acquired the rudiments of his art under his father, completed his ſtudies in Italy. Upon his return to Paris, he was made profeſſor of the academy of painting, and ſoon became an artiſt of ſome eminence. One of his principal pictures is St. Peter delivered out of Priſon, in the church of Notre Dame. After the example of his brother, he etched many plates from his own compoſitions, and from thoſe of the Caracci, beſides part of a work repreſenting the fineſt ſtatues of Rome and Florence, meaſured and drawn from the originals. He died in 1695. Huber.

CORNEILLE, in *Ornithology*, the name given by Buffon to the *Carrion Crow* of Pennant, Latham, &c.; or CORVUS *Corone* of Gmelin.

CORNEILLE, *La*, in *Geography*, a town of France, in the department of Calvados; 4 leagues S.W. of Falaiſe.

CORNEL, in *Botany*. See CORNUS.

CORNELIA, Ard. See AMMANIA *baccifera*.

CORNELIA *Caſtra*, in *Ancient Geography*, a place of Africa, near the mouth of the Bagradas. This is the place where Scipio pitched his firſt camp after his arrival in Africa, at the cloſe of the ſecond Punic war.

CORNELIA, in *Biography*, daughter of Scipio Africanus, a celebrated Roman, and wife of Tiberius Sempronius Gracchus, who held the conſulſhip in the year 177 B. C. By him Cornelia had twelve children, and was left, while young, a widow. To the education of her offspring ſhe devoted her whole time and undivided attention, though only three arrived to a ſtate of maturity, *viz.* Tiberius and Caius Gracchus, and a daughter, married to Scipio the Younger. Theſe were highly indebted to their mother for that diſtinction and rank which they afterwards held in the commonwealth; and for them ſhe ever felt the utmoſt regard. When a lady had exhibited her jewels at Cornelia's houſe, and begged to be indulged with the ſight of her own, the affectionate parent produced her two ſons, ſaying, "Theſe are the only jewels that I have to ſhew." Too ambitious of being diſtinguiſhed, ſhe probably urged them in that career which terminated in their deſtruction. She is ſaid to have reproached them in their youth, that they had not rendered her illuſtrious as the mother of the Gracchi: and after their untimely death, ſhe replied to one who would have condoled with her on their account, that "the woman who had given birth to the Gracchi could not be deemed unfortunate." In retirement ſhe cultivated literature, and paid great attention to men of learning and worth: with theſe ſhe would converſe of her ſons with tranquillity and apparent unconcern, as if ſhe were contemplating ſome great characters of remote antiquity. After her deceaſe, the Romans erected a ſtatue to her memory, with this inſcription, "To Cornelia, mother of the Gracchi." Plutarch. Univer. Hiſt.

CORNELIAN. See CHALCEDONY.

To give theſe ſtones the greater luſtre, in ſetting them they uſually lay a piece of ſilver-leaf underneath.

The principal uſe made of cornelians is in ſeals; by reaſon they grave well, and take a fine poliſh.

Mr. du Fay, of the academy of Sciences at Paris, accidentally hit upon a very fine way of turning any part of a red cornelian white, ſo as to form veins or clouds of that colour at pleaſure in it, by filling up the lines with white enamel in powder, then putting it over the fire to melt the enamel. Mem. Acad. Par. 1732.

CORNELIAN *Cherry*, in *Botany*. See CORNUS *maſcula*.

CORNELII, in *Ancient Geography*, a place of Italy, on the Flaminian way; 26 miles from Aretium, according to the Itinerary of Antonine.

CORNELIS, or CORNELY, CORNELIUS, in *Biography*, called likewiſe *Cornelius Van Haerlem*, from the place of his nativity, was born in 1562, and ſtudied painting under Peter le Long the Younger, whom he ſoon ſurpaſſed. He afterwards received inſtructions from Francis Pourbuo and Gilles Coignet, and at length eſtabliſhed the reputation of being one of the beſt hiſtorical painters of his ſchool at that period. Unfortunately, however, he was prevented fulfilling his intention of completing his ſtudies in Italy; and we have, therefore, frequently to regret that the beautiful carnations, which characteriſe the works of this maſter, ſhould be accompanied by a ſtyle of drawing ſo incorrect and extravagant: a fault, however, rather of the ſchool than of the man. Cornelio painted with equal facility both in ſmall and large; and ſeveral of his compoſitions, evincing extraordinary invention, have been finely engraved by Joan Muller, J. Saenredam, and J. Matham, and are enumerated by Heinecken. He died in 1638. Deſcamps.

CORNELISZ, or Cornelissen, Jacob, a painter and citizen of Amſterdam, where, according to Van Mander, he enjoyed great reputation, about the year 1512. He painted ſeveral altar-pictures for the principal churches of Amſterdam, Alkmeer, and Haerlem, and died at the former city, at an advanced age. The author above-mentioned informs us, that many of his works were engraved in wood. Theſe are conſidered by Heinecken to be the ſame prints generally attributed to John Walther Van Apen, and which conſiſt principally of twelve circular plates, repreſenting the Paſſion of Chriſt, ſurrounded by ornamental borders, dated 1513, 1514; a ſuite of ſubjects from the Bible, on a ſmaller ſcale, with ornamental borders, &c. publiſhed 1523; and ſome moſt ſpirited friezes and proceſſions. Deſcamps. Heinecken.

CORNELIUS, Pope, native of Rome, and elected to his high office in the year 251, on account of his many virtues and peaceable temper; though he was oppoſed by Novatian, a man greatly celebrated for his learning and eloquence. This circumſtance gave riſe to the ſect of Novatians in the churches, which, with their peculiar tenets, will be deſcribed under the article Novatians. Cornelius, in this affair, ſeems to have loſt his moderation and pacific temper, and to have reſorted to the harſh acts of anathematiſing and excommunicating his opponent, which proved of no avail to his cauſe. Under the emperor Gallus, Cornelius was baniſhed; and in a very ſhort time died a natural death, having lived but fifteen months after his elevation to the papal ſee. Moreri.

CORNENSII, a people placed by Ptolemy towards the middle of the iſland of Sardinia, otherwiſe called Æchilenſii.

CORNER-stones, among *Builders*, the name of the two ſtones which ſtand one in each jaumb of a chimney. Their faces are hollowed in breadth, being a certain ſweep of a circle. The breadth of each ſtone is equal to that of the jaumb, and their height reaches from the hearth to the mantle-tree.

Corner-ſtones are commonly made of Rye-gate, or fire-ſtone.

Corner-*teeth*, are thoſe which appear in a horſe when he is coming five years old. See Age.

CORNES de belier, ram's-horns, in *Fortification*, low flanks to ſupply the place of tenailles, for the defence of the ditch. See the articles Construction, *military*, and *ouvrage a corne*, or Hornwork.

CORNET, in *Farriery*, an inſtrument uſed in bleeding horſes.

Cornet, or Coronet, is ſometimes uſed to denote the loweſt part of the paſtern of a horſe round the coffin.

Cornet, in the *Military Hiſtory of the Ancients*, a horn, or muſical inſtrument, much in the form of a trumpet. Vegetius informs us, that the legions had trumpets, cornets, and buccinæ; that when the cornet only ſounded, the enſigns, or ſtandard-bearers, were to move forward without the ſoldiers; but, when the trumpets only ſounded, the ſoldiers were to advance, or move forward, without the enſigns or ſtandard-bearers; that the cornets and buccinæ ſounded the charge and retreat, and the cornets and trumpets during the battle. A troop of horſe was alſo ſo called.

Cornet, in the *Military Hiſtory of the Moderns*, is the third commiſſioned officer in a troop of horſe or dragoons, ſubordinate to the captain and lieutenant, and equivalent to an enſign of infantry. His duty is to carry the ſtandard near the centre of the front rank of the troop or ſquadron. He takes his title from his enſign, which is ſquare, and is ſuppoſed to be called by that name, from *cornu;* becauſe placed on the wings, which form a kind of points, or horns, of the army; others derive the name from *coronet;* alleging, that it was the ancient cuſtom for theſe officers to wear coronets, or garlands, on their heads.

Cornet *d'ouie*, a hearing trumpet, a trumpet of beaten iron, which thoſe who go the rounds make uſe of for hearing over the parapet, what paſſes in the ditches, and even beyond the covert-way. It can alſo be uſed at night for the better hearing of, and receiving the watch-word.

Cornet, a coarſe muſical inſtrument, called in France *le bouquin*, or goat's horn, uſed by the cow-keepers to call the cattle together at milking and foddering time. An inſtrument called a *cornet*, was formerly uſed in the orcheſtra in Italy, under the name of *cornetto*, and *cornettino*, and the performers on it are frequently mentioned with *eloge* during the 16th and 17th centuries. Artuſi, an intelligent writer on muſic, in his treatiſe, "Delle Imperfettione della Moderna Muſica," gives a curious account of the ſtate of inſtrumental muſic in his time; and in deſcribing a grand concert that was made by the nuns of a convent at Ferrara in 1598, on occaſion of a double wedding between Philip the III. king of Spain, with Margaret of Auſtria, and the arch-duke Albert, with the infanta Iſabella, the king's ſiſter, he enumerates the ſeveral inſtruments that were employed, and points out their excellencies and defects. Among theſe, though the violin is juſt mentioned, yet nothing is ſaid of its properties, while the cornet, trumpet, viol, double-harp, lute, flute, and harpſichord, are honoured with particular remarks, both on their conſtruction and uſe; but among theſe, the cornet, which has been ſupplanted in the favour of the public by the hautbois, ſeems to have ſtood the higheſt in the author's eſtimation. The elder Doni, in his dialogue written about fifty years before, mentions the cornet more frequently than any other inſtrument: "Il divino Antonio da *cornetto*, perfettiſſimo—& M. Battiſta dal Fondaro con il ſuo *cornetto* ancora; che lo ſuona miracoloſamente."

There is a brilliant ſolo ſtop in the organ, called a *cornet*, conſiſting of five ranks of pipes; it is uſually a half ſtop, going down no lower than the middle C; or, at moſt, to F on the 4th line in the baſe. It is compoſed of a diapaſon, principal, 12th, 15th, and tierce or major 17th; ſo that every note is a complete chord, ſuch as nature gives in the harmonies to every ſound; but of which we can only diſtinguiſh ſuch as are produced by the lower part of the ſcale.

Jack James, Magnus, and Stanley, three celebrated organiſts, in the early part of the laſt century, uſed to play rapid movements on the cornet, as a ſolo ſtop in their voluntaries, accompanied by the two diapaſons; and, as it has no baſe, it ſhould not be drawn out in the chorus, or full organ, unleſs the ſeſquialtra is divided into two half ſtops, and the loweſt half only is drawn out as a baſe to the cornet.

Cornet *ſtop*, on an organ, is a compound treble ſtop, in the uſe of which each finger-key acts upon and occaſions five pipes to ſound at the ſame time, *viz.* one in uniſon, with the note proper to that finger-key, (and alſo with the ſame note in the ſtop, called diapaſon,) another which is tuned a true major *third* above it, another a *fifth*, another an *eighth*, and the uppermoſt a true major *ſeventeenth* above the note.

Dr. Smith remarks, (Harmonics, p. 10.) that the beſt tuning of an organ cannot wholly prevent that diſagreeable battering of the ears with a conſtant rattling noiſe of beats, quite different from all muſical ſounds, and deſtructive of them, and chiefly cauſed by the compound ſtops called the cornet and ſequialter, and by all other loud ſtops of a high pitch, when mixed with the reſt. The cornet ſtop is generally uſed in our churches, with the diapaſon, in the interludes, and giving-out of the pſalms.

CORNETO, in *Geography*, a town of Italy, in the ſtate of the church, and province of Patrimonio, the ſee of a biſhop, immediately held from the pope, and united with the ſee of monte Fiaſcione; 38 miles N. W. of Rome.

CORNETTA, a town of Perſia, in the province of Irak; 80 miles E. of Iſpahan.

CORNETTE BLANCHE, an ornament among the French in former times, which ſerved to diſtinguiſh their officers, who were high in command. It was worn by them on the top of their helmets. Under Charles IX., Henry III., and Henry IV., this appellation was alſo given to the royal ſtandard, and under Charles VIII. to the *cornette royale.* It was ſubſtituted in the room of the *etendard ou pennon royale.* But neither were unfurled except when their kings went in perſon to command their armies. The perſons who ſerved under it, were princes, noblemen, marſhals of France, and old captains, who received their orders directly from the king.

CORNETTE *(porte) blanche.* This was under the later kings of France, an office in the king's houſehold, dependent on the great ſteward, who received the proviſions of purveyance. The *porte-cornette blanche*, of the light cavalry, however, did not depend on the grand ſteward, but on the colonel-general of light cavalry.

As to the *port-etendard royale*, or the bearer of the royal ſtandard, it was incumbent on him to remain dead or alive on the field of battle. If he were made priſoner, the king paid his ranſom. Every night, this ſtandard was placed by the bed-ſide of the king. This ſtandard, or the *cornette blanche royale,* was ſimple, and without any mixture of colours, or of the *fleurs-de-lys.*

The *cornettes* or *cornets* of the colonel-general of cavalry, in the old French ſervice, as well as thoſe attached to the quarter-maſter-general and commiſſary-general, ranked as lieutenants, and the cornettes of *la colonelle generale des dragons,* ranked as youngeſt lieutenants, and commanded all other cornets.

CORNETTE was alſo a term uſed by the French to denote the ſtandard peculiarly appropriated to the light cavalry, from which circumſtance *cornettes* and troops were ſynonymous terms for expreſſing the number of light horſe attached to an army. The ſtandard, ſo called, was made of taffeta or glazed ſilk, about one foot and a half ſquare, upon which the arms, motto, and cypher of the prince who commanded the cavalry, were engraved. A ſort of ſcarf, or long piece of white ſilk, which forms the French colours, was tied to the cornette, whenever the cavalry went into action, in order to render the ſtandard conſpicuous for the men to rally round it.

CORNETTO, ADRIAN, in *Biography*, a cardinal, and ſurnamed Caſtelleſi, from the place of his birth, was ſent by pope Innocent VII. in the quality of a nuncio to England, where he was made biſhop, firſt of Hereford, afterwards of Bath and Wells, by Henry VII. He was likewiſe nuncio at the court of France, and on his return to Rome, was made ſecretary to Alexander VI., who preſented him with a cardinal's hat. He had not long enjoyed that dignity before an attempt was made to poiſon him by Cæſar Borgia, natural ſon of Alexander. The pope himſelf fell the victim, by drinking the liquor that had been prepared for the cardinal. On the acceſſion of Julius II. he fled for ſecurity to the mountains of Trent, but was recalled by Leo X. During this reign, he engaged in intrigues which obliged him to quit Rome, after which we have no certain account of what became of him. He was author of many works; one entitled, "De Vera Philoſophia;" another "De Poetis;" a third, a poem "On the Chace." He was likewiſe a reformer of the barbarous Latin ſtyle, and formed his taſte on the model of Cicero, and the authors of the Auguſtan period, with whoſe writings he was converſant. Moreri.

CORNI, in *Ancient Geography*, a people of Italy, in Latium.—Alſo, a town of Sardinia, placed in the Itinerary, 18 miles from Boſa.

CORNIASPA, a town of Aſia, in Galatia, placed by Antoninus on the route from Tavia to Sebaſte.

CORNIBAT, in *Geography*, a large town of Turkey in Europe, in Romelia, famous for dyeing and preparing the fine purple and yellow leather of this country, which it vends in great quantities.

CORNICE, in *Architecture*. A word derived from the Latin *coronis*, a crowning, and uſed generally to denote any moulded projection which crowns or finiſhes the part to which it is affixed; thus we have the cornice of an order, of a pier, of a pedeſtal, of a houſe, door, or window, &c.

Every regular entablature conſiſts of three principal parts, the architrave, frieze, and cornice, which are placed in the order here mentioned, the cornice occupying the higheſt ſituation; (ſee *Plates* XVI., XXVIII., XIII., XIV., XXIX., of *Architecture.*) For the various forms of cornice depending upon the order of architecture to which they are applied, the reader is referred to the articles DORIC, IONIC, CORINTHIAN, TUSCAN, and COMPOSITE *Order*; it remains in this place to deliver ſome general obſervations reſpecting the origin and application of cornices.

The cornice is an original member belonging to conſtruction, repreſenting the timbers of a roof projecting over, and forming a ſhelter to the inferior parts. The Doric, as the primitive order of Grecian architecture, bears the moſt clear and authentic marks of its origin, in the imitation of the forms and proceeding of wooden conſtruction, and in this compoſition the cornice is marked by mutules, which repreſent the ends of the rafters. In this inſtance, the imitation is ſo undiſguiſed, that the ſoffite of the corona and the mutules have the ſame inclination as the roof, of which they form a part. The dentils of the Ionic order are alſo ſuppoſed to repreſent the ſmaller covering rafters or laths which immediately ſupported the tiles; and on this account Vitruvius, true to the theory of his art, condemns the introduction in the ſame cornice of dentils, below the mutules or modillions; and obſerves, very juſtly, that they were never ſo placed in Grecian buildings. The Romans, however, were not ſo ſcrupulous, and their beſt works of the Corinthian order preſent numerous examples of the practice reprobated by Vitruvius.

The origin of cornices will point out their proper application; as they repreſent a roof, they ought never to be placed where ſome kind of a roof cannot be ſuppoſed to exiſt. In the hypaethral temple at Paeſtum, a work of a moſt primitive character, the cella is divided by two lateral galleries of columns, two tiers in height, and the upper columns are placed immediately upon the architrave of the lower, the frieze and cornice being omitted. This example ſhews the adherence of the early Greeks to the ſyſtem upon which their ſtyle was founded; they felt the propriety of omitting the repreſentation of thoſe parts whoſe type could not really exiſt. But the Romans, in this particular, departed from the Grecian practice, and in all their buildings containing ſeveral ſtories of columns, as the theatre of Marcellus, the Coliſeum, the amphitheatre of Verona, we find complete orders, with entablatures, conſiſting of architrave, frieze, and cornice.

Modern architects have hitherto followed Roman examples; and, perhaps, in an art ſo much depending upon imitation and precedent, their authority may be deemed ſufficient; but it muſt be recollected, that the Romans were themſelves borrowers; and the real connoiſſeur and lover of his art will chooſe to drink as near the ſource as poſſible, and often, to ſupply the deficiencies of examples, with the ſtudy of that type and ſyſtem, which are above authorities.

Cornice, *Architraved:* an entablature, conſiſting of an architrave and cornice, the frieze being retrenched. Architraved cornices are frequently uſed in ſituations where, for any reaſon, a complete entablature would be inconvenient. There is an antique example in the Cariatic portico at Athens. See *Plate* XIX. of *Architecture*.

Cornice *Block*. A cornice ſupported by ſquare plain blocks; thus the Tuſcan is a block cornice, of which there cannot be a better example than the church of St. Paul, Covent Garden. See *Plate* XIV. of *Architecture*.

Cornice *Mutule*. The cornice proper to the Doric order.

Cornice *Dentil*. A cornice with dentils, proper to the Ionic order.

Cornice *Modillion*. A cornice containing modillions. This cornice is particularly applicable to the Corinthian order.

Cornice *Cantalever*. A cornice with cantalevers. In eſtabliſhing a diſtinction between this term and the laſt, we ſhould ſay that a cantalever is a word not belonging to regular architecture, but is uſed to denote almoſt any kind of block or bracket, except thoſe appropriated to the cornices of the orders, which muſt, however, be of a curved form, approaching to a Corinthian modillion; thus, cantalever cornices are generally found in buildings where columns are not uſed, and have frequently a greater projection than regular cornices.

The entablature of the ſecond order of St. Paul's Cathedral, has great cantalevers, deſcending quite to the bottom of the frieze; and Bernini appears to have been fond of this kind of cornice, having introduced it in the Barberini palace, and in his deſign for the Louvre, but theſe examples are not common, and muſt be regarded as abuſes and violations of the rules of regular architecture.

Cornice *Coving*. A cornice which has a great cavetto, or cove in it, ordinarily lath and plaſtered upon brackets. Cornices of this kind are frequently found in old houſes, but are only uſed economically, to ſave the cantalevers which would otherwiſe be neceſſary to ſupport the projection of the eaves.

Cornice *Mutilated*. A cornice, of which ſome members are interrupted or interſected by ſome other object, as a window, tablet, &c.

CORNICEN, Lat. a horn-blower. Before the Romans were acquainted with the uſe of the trumpet, a cornicen brought ſounds from the horn of a wild ox that was mounted with ſilver. The ſound was very ſtrong and ſhrill, and conveyed an order to a great diſtance.

This inſtrument, which in the eyes of many does not appear to be an invention of much conſequence, was not a contrivance of the Romans themſelves, who borrowed it from the Phrygians, among whom one named Marſyas is ſaid to have been the inventor.

CORNICHE, *glacis of the*. See Glacis.

Corniche-*ring*, in *Gunnery*, the next ring from the muzzle of a gun backwards.

CORNICLI, or Corniculi, in *Ancient Geography*, mountains of Italy near Rome.

CORNICLO, or Corniculanensis, an epiſcopal town of Africa, in Mauritania Cæſarienſis.

CORNICULA, an inſtrument made of horn, almoſt in form of a cupping-glaſs, except that at the more ſlender extremity there is a ſmall perforation. The wide end is laid upon emaciated parts, and a perſon applying his mouth to the perforation at the ſmall extremity, by ſuction draws out the air. In conſequence of this the part covered riſes into the hollow of the inſtrument; and by this means the nutritious juices are thought to be invited to the emaciated part. Hildanus, cent. 1. obſ. 80, relates a cure performed by this means, and gives a figure of the inſtrument. Tulpius, lib. iii. obſ. 49, gives another inſtance of a cure performed by this means.

This inſtrument was by the ancients eſteemed a ſpecies of cupping-glaſs.

CORNICULANI, in *Ancient Geography*, a place of Italy, between Foſſa Clodia, Ravenna, and Petavium, according to the table of Peutinger.

CORNICULARIA, in *Botany*, a genus formed by Achard for ſome of the lichens of Linnæus, with the following character. *Shields* terminal, at firſt flat and ſometimes radiate, afterwards convex, twiſted, unequal, with inflexed borders. *Stems* ſolid, ſtiff, ſmooth, branched like a ſhrub and ſtretched out on the ground. It contains L. triſtis, lanatus, pubeſcens, &c. See Lichen.

CORNICULARIS *proceſſus*, the proceſs, or knob, of the ſhoulder-bone; thus called, as reſembling the figure of a crow's beak.

CORNICULARIUS, in *Antiquity*, an officer in the Roman army, whoſe buſineſs was to aid and aſſiſt the military tribune in quality of lieutenant.

The *cornicularii* went the rounds in lieu of the tribune, viſited the watch, and were nearly what the aids-major are in the French army.

The denomination *cornicularius* was given them from a little horn, called *corniculum*, which they uſed in giving orders to the ſoldiers: though Salmaſius derives it from *corniculum*, the creſt of a head-piece; it being an obſervation of Pliny, that they wore iron or braſs horns on their helmets; and that theſe were called *cornicula*. In the Notitia Imperii we find a kind of ſecretary, or regiſter, of the ſame name. His buſineſs was to attend the judge, and enter down his ſentences and deciſions.

The critics derive the word, in this ſenſe, from *corniculum*, a little horn to put ink in.

CORNICULATE Flowers, in *Botany*. See Flowers.

Corniculate *plants* are ſuch as, after they have blown into flower, produce many diſtinct and horned pods, or ſeed-veſſels, called *ſiliquæ*; for which reaſon the plants are alſo, by ſome, denominated *ſiliquous plants*.

Such are, the ſedum, or ſempervivum, telephium, juncus floridus, helleborus niger, pæonia, caltha paluſtris, althæa lutea, &c.

CORNICULUM, Lat. a little horn. This appellation was alſo given to a ſpecies of horn of iron or braſs added to the helmet as a military ornament, which was given to Roman ſoldiers, who had given ſtriking proofs of their bravery or courage.

CORNICULUM, in *Ancient Geography*; a town of Italy, in Latium, which did not ſubſiſt in the time of Pliny.

CORNIDIA, in *Botany*. Flor. Peruv. tab. 35. Claſs and order, *octandria monogynia*.

Gen. Ch. *Cal.* campanulate, obtuſely trigonous, permanent. *Cor.* Petals four, concave, ſeſſile, caducous, fixed to the edge of the calyx. *Stam.* eight, fixed to the edge of the calyx. *Piſt.* Germ ſuperior, divided into three parts; ſtyles three, permanent; ſtigmas ſimple. *Peric.* Capſule tricoccous, three-horned, three-celled, three-valved. *Seeds* numerous, wedge-ſhaped. The only ſpecies known is a tree, native of Peru.

CORNIGLANO, in *Geography*, a town of Italy, in the principality of Piedmont; 5 miles W.N.W. of Alba.

CORNIGLIANO, a town of Italy, in the Milaneſe; 15 miles E. of Milan.

CORNILLIA, a town of Genoa; 4½ miles S.W. of Spezza.

CORNILLON, a town of France, in the department of the Gard, and diſtrict of Uzes; 7 miles S.W. of Pont St. Eſprit.

CORNIMONT, a ſmall town of France, in the department of the Voſges, in the diſtrict of Remiremont. It has 1701 inhabitants, and is the chief place of a canton which contains ten communes and a population of 12,078 individuals upon an extent of 215 kiliometres.

CORNISH, in *Geography*, a townſhip of America, in Cheſhire county, New Hampſhire, on the E. bank of Connecticut river, between Claremont and Plainfield, about 15 miles N. of Charleſtown, and 16 S. of Dartmouth college. It was incorporated in 1763, and in 1790 contained 982 inhabitants.

CORNISH. See CORNICE.

CORNISH *chough*, in *Zoology*. See CORACIAS.

CORNISH *diamond*, a name given by many people to the cryſtals found in digging the mines of tin in Cornwall. Theſe cryſtals are of the nature of the Kerry ſtone of Ireland, but ſomewhat inferior to it: they are uſually bright and clear, except toward the root, where they are coarſe and foul, or whitiſh. They are uſually found in the common form of an hexangular column, terminated at each end by an hexangular pyramid.

CORNISH, in *Philology*, a dialect of the ancient Britiſh language. The Britons, on the arrival of the Saxons, being driven into countries remote from each other, their language would, in proceſs of time, become differently written and pronounced, and mixed in different degrees with other languages, ſo as to conſtitute the Armorican, Welſh, and Corniſh, which ſeem to have never been radically diſtinct, for thoſe who are verſed in any one of theſe can interpret the others with tolerable facility. (See Gough's Camden, vol. i. p. 11.) The Corniſh Britons, from the fourth or fifth century downwards, maintained an intimate correſpondence with the natives of ARMORICA, whither a colony of Welſh had migrated during the deſtruction of the empire; intermarrying with them, and perpetually reſorting thither for the education of their children, for advice, for procuring troops againſt the Saxons, for the purpoſes of traffic and various other occaſions. This connection was ſo ſtrongly kept up, that an ingenious French antiquary (M. l'Abbé Lebeuf) ſuppoſes that the communication of the Armoricans with the Corniſh had chiefly contributed to give a roughneſs or rather hardneſs to the Romance or French language in ſome of the provinces, towards the 11th century, which was not before diſcernible. This intercourſe will appear more natural, if we conſider, that not only Armorica, a maritime province of Gaul, never much frequented by the Romans, and at the time to which we now refer totally deſerted by them, was ſtill in ſome meaſure a Celtic nation; but that alſo the inhabitants of Cornwall, together with thoſe of Devonſhire, and of the adjoining parts of Somerſetſhire, intermixing in a very ſlight degree with the Romans, and having ſuffered fewer important alterations in their original conſtitution and cuſtoms from the imperial laws and police than any other province of this iſland, long preſerved their genuine manners and Britiſh character; and forming a ſort of ſeparate principality under the government of a ſucceſſion of powerful chieftains, uſually denominated princes or dukes of Cornwall, remained partly in a ſtate of independence during the Saxon heptarchy, and were not entirely reduced till the Norman conqueſt. A ſtrict intercourſe was upheld between Cornwall and Wales, as well as between the former and Armorica. Their languages, cuſtoms, and alliances, were the ſame; and they were ſeparated only by a narrow ſtrait of inconſiderable breadth. Cornwall is frequently ſtyled Weſt Wales by the Britiſh writers. At the invaſion of the Saxons, both countries became indiſcriminately the receptacle of the fugitive Britons. We find the Welſh and Corniſh, as one people, often uniting themſelves as in a national cauſe againſt the Saxons. They were frequently ſubject to the ſame prince, who was ſometimes choſen from Wales and Cornwall, but ſometimes from Armorica, and alſo ſometimes reſided in Wales, and ſometimes in Cornwall; and the kings or dukes of Cornwall were perpetually ſung by the Welſh bards. Traditions about king Arthur, to mention no other inſtances, are as popular in Cornwall as in Wales; and moſt of the romantic caſtles, rocks, rivers, and caves, of both nations are alike at this day diſtinguiſhed by ſome noble atchievement, at leaſt by the name, of that celebrated champion. Hence we can be at no loſs to aſſign a reaſon, why Cornwall, in ſome of the French romances, is made the ſcene and the ſubject of ſo many romantic adventures. Hence alſo Cornwall, in particular, retained its old Celtic dialect till the reign of queen Elizabeth. No traces, however, of the old Corniſh language now remain; and it muſt have been nearly, if not wholly, extinct, for a long time; as Mr. Ray could not meet with more than one perſon who wrote it as long ago as the year 1662. Indeed, Mr. Barrington was fortunate enough to find an old woman, who ſpoke it very fluently, when he viſited this county in 1768; and this woman was living at the age of 90 years in 1776. (Archæol. vol. iii. v.) But the language was not wholly loſt with her, for Mr. Barrington (*ubi ſupra*) and Dr. Pryce in his "Archæologia Cornu-Britannica" publiſhed in 1790, inform us, that at Mouſhole near Penzance there was a fiſherman in 1776, 65 years of age, who had written a letter both in Engliſh and Corniſh, and who ſpoke the language very readily. In this village there were alſo four or five other perſons, capable of converſing in Corniſh. This fiſherman informed Dr. Pryce, that being at Morlaix, on board a ſmuggling cutter, he was much ſurpriſed to find, that he underſtood, without knowing a word of French, part of the converſation of ſome boys at play in the ſtreets; and on further inquiry, he found that he could make known all his wants in Corniſh, and be better underſtood than he could be at home, when he uſed that dialect. Many cauſes have contributed to occaſion the extinction of the Corniſh language. In this language there are extant no more than three or four books; one of them is a MS. found in the Cotton library, about 800 years old, from which time no other MS. appears, till about the 15th century, when one occurs exhibiting three interludes taken from Holy Writ, the originals of which, with two or three more, are in the Bodleian library. Beſides, the ceſſation of the intercourſe and correſpondence with the people of Bretagne under Henry VII., and the jealouſies that have exiſted between the natives of this country and Wales, ſince the latter has become a mining country, have been the means of confining the Corniſhmen to a communication in their original language only with each other. Whereas the Welſh, having had much leſs intercourſe with their neighbours than the people of Cornwall, we cannot be ſurpriſed that the language of the former has ſurvived that of the latter. The Corniſh have contended, that in ſweetneſs of ſound they excel the Welſh, as in the word "Stone," which they call "Lêh" and the Welſh "Lech;" but the Welſh do not ſubmit to this award; alleging that notwithſtanding the multiplicity of gutturals and conſonants with which their language abounds, it has the ſoftneſs and harmony of the Italian, with the majeſty and expreſſion of the Greek.

CORNITO, in *Geography*, a town of Naples, in the province of Principato Citra; 7 miles S.S.W. of Cangiano.

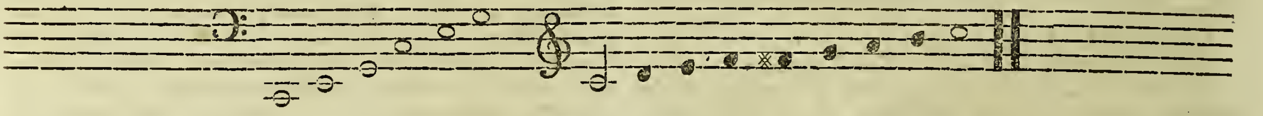
CORNIX, in *Ornithology*, *Corneille mantalee* of Buffon, the *Royſton crow* of Albinus and Willughby, the *hooded crow* of Pennant and Latham, and the CORVUS *Cornix* of Linnæus and Gmelin. This is alſo a name given by Geſner, Aldrovand, Ray, and Briſſon, to the CORVUS *Corone*. The *Cornix Cærulea* of Geſner is the ROLLER of Pennant, &c. and the CORACIAS *garrula* of the Linnæan ſyſtem. The *Cornix atra*, with yellow head, neck, and breaſt, is the Carouge de Cayenne of Buffon, the yellow-headed ſtarling of Edwards, the yellow-headed oriole of Latham, and the ORIOLUS *interocephalus* of Gmelin.

CORNO DA CACCIA, *Ital.* See *French* HORN, and *Ruſſian* MUSIC.

There are various pneumatic inſtruments of muſic, in the form of the horns of animals; and perhaps, in high antiquity, the horns themſelves were uſed inſtrumentally. In the ſacred writings we are told, that the trumpets of *rams' horns* were uſed at the ſiege of Jericho; which, however, ſeem to have been leſs muſical inſtruments, than military ſignals for the aſſailants to march and ſhout by, in order, *by their noiſe*, to terrify and diſmay the enemy.

At preſent, the *French horn*, which the French themſelves ſtyle *cor de chaſſe*, and the Italians *corno da caccia*, or hunting horn, is at the head of the *horn* family. It is an admirable inſtrument in the field or theatre; and when the compoſer is careful not to dwell on the 4th or 6th of the key, which are naturally falſe, and the performer has a nice ear, never overblowing or forcing the tone, its effects, in full pieces, are magnificent and grateful. Its defects of intonation are the ſame as in the trumpet. By means of the hand inſerted in the tube, the chromatic ſcale is obtained in one octave; the only regular ſeries of ſounds with which either the horn or trumpet is furniſhed. There have been, and there are now, players on the inſtrument, who can produce all the half-notes, and perform in all keys, major and minor: but the artificial notes, like thoſe of the voice in falſet, are inferior to the natural, leſs ſonorous, and ſeem to be produced with difficulty.

The French horn parts in ſymphonies, concertos, and ſongs, are generally written in the key of C, for all other keys; as, by means of crooks, every major key can be acquired. The French horn is naturally an octave below the trumpet, its ſcale being the following:



When any other key than C is required, it is expreſſed at the beginning of the piece, by informing the player, that it is a D, an E♭, an E♮, F or G horn, that is wanted.

CORNOGAL, in *Geography*, a town of the iſland of Ceylon; 30 miles N.N.W. of Candy.

CORNOUAILLES, a country of France, ſo called before the revolution, in Bretagne.

CORNU, in *Ancient Geography*, a place, according to Philoſtratus, in the iſle of Lemnos. Mela and Pliny call alſo by this name two promontories of Italy, one in the country of the Brutii, the other in that of the Salentini.

CORNU *Ammonis*, in *Natural Hiſtory*, an extraordinary kind of ſtone, ſome of which in vinegar, juice of lemons, &c. have a motion like that of an animal.

It is rough, knotty, of an aſh-colour, and twiſted in manner of a ram's horn; ſuch as thoſe wherewith the ancients repreſented Jupiter Ammon; whence its name.

It is diſputed, among naturaliſts, whether it be a native foſſile, a *nautilus*, or a rock-plant? Camerarius maintains the firſt; urging that it is frequently dug out of the tops of mountains; and that it is ſeldom found near the ſea-ſhore.

Dr. Woodward aſſerts it a ſhell, and of the number of the nautili, formed in the ſea, and carried thence, by the waters of the deluge, into the countries whence it is dug. He argues, that, if it be rarely found on the ſea-coaſts, it is becauſe ſhells and other bodies lying in the bottom of the ſea, as moſt kinds of the *cornua Ammonis* muſt do, are only to be torn thence, and driven aſhore by tempeſts: but the moſt violent tempeſts never move the bottom of the ſea, as the divers have put paſt doubt; ſo that it is no wonder if none of theſe *cornua* be thrown up: but in the overturning of the earth by the deluge, theſe, with a thouſand more productions of the ſea, might be thrown from the bottom of the waters to the places where they are now found.

The *cornua Ammonis* are of different thickneſſes and lengths; ſome of them weigh twenty pounds. They are found in ſeveral places in Germany, and elſewhere. From ſome experiments that have been made, ſome of them are found to contain a little quantity of gold, which ſinks to the bottom upon pounding them ſmall, and ſtirring them in a running water, till all the earthy parts be carried off. Mr. Beaumont's account of them is to be ſeen in the Phil. Tranſ. N°. 129. See SNAKE-*ſtones*.

CORNU *Ammonis*, in *Anatomy*, is a term applied to the great hippocampus. See BRAIN.

CORNU *cervi*, *hartſhorn*, in *Medicine*, makes one of the teſtaceous powders. See *Hart's* HORN.

Among chemiſts, the ſame name is uſed for the mouth of an alembic.

CORNUA of the *os hyoides*, in *Anatomy*, are the two lateral portions of this bone. The *cornua minora*, or *cornicula*, are the two ſmall portions of bone, which reſt on the junction of the baſis with the cornua. See LARYNX.

CORNUA *pericardii;* are the angles, formed where the bag of the pericardium is reflected over the root of the pulmonary artery and aorta, in its courſe to the ſurface of the heart itſelf. See HEART.

CORNUA of the *lateral ventricles;* a term applied to the different portions of theſe cavities; each of which has an anterior, a poſterior, and an inferior or reflected, or deſcending horn. See Brain.

Cornua *exercitus*, Lat. Theſe were what the Romans called the horns of an army, literally ſpeaking, and what we call the right and left wings. The cornua exercitus were compoſed, according to Polybius's account of the auxiliaries or allies, one half of them forming the right wing, and the other half the left wing, of a Roman army. They alſo encamped on the right and left of the Roman legions.

CORNUCOPIA, among the *Ancient Poets*, a horn, out of which proceeded plenty of all things: by a particular privilege which Jupiter granted his nurſe, ſuppoſed to be the goat Amalthea.

The real ſenſe of the fable is this: that in Libya there is a little territory ſhaped not unlike a bullock's horn, exceeding fertile, given by king Ammon to his daughter Amalthea, whom the poets feign to have been Jupiter's nurſe.

In *Architecture* and *Sculpture*, the cornucopia, or horn of plenty, is repreſented under the figure of a large horn, out of which iſſue fruits, flowers, &c. On medals, F. Joubert obſerves, the cornucopia is given to all deities, genii, and heroes.

CORNUCOPIÆ, in *Botany*, (ſo called from the involucre encloſing the flowers, like a cornucopia or horn of plenty;) Lin. gen. 72. Schreb. 101. Willd. 120. Lam. Ill. 100. Juſſ. 33. Claſs and order, *triandria digynia*. Nat. Ord. *Gramineæ*.

Gen. Ch. *Involucre* one-leafed, funnel-ſhaped, many-flowered; mouth crenate, obtuſe, ſpreading-erect. *Cal.* glume one-flowered, two-valved; valves oblong, obtuſely acuminate, equal. *Cor.* one-valved; in figure, ſize, and ſituation much reſembling the valves of the calyx. *Stam.* Filaments three, capillary; anthers oblong. *Piſt.* Germ ſuperior, top-ſhaped; ſtyles two, capillary; ſtigmas cirrhous. *Peric.* none; corolla including the ſeed. *Seed* ſolitary, top-ſhaped, convex on one ſide, flat on the other.

Eſſ. Ch. Involucre one-leafed, funnel-ſhaped, crenate, many flowered. Calyx two-valved. Corolla one-valved.

Sp. C. *cucullatum*. Linn. Sp. Mart. Lam. Willd. (Juncus clavatus vaginatus; Pet. gaz. tab. 73. fig. 5. Gramen orientale vernum; Scheuch. gram. 117.) *Root* annual. Culms ſlender, jointed, bent at the joints, and dark purple, ſmooth, ſtriated, a little branched. *Leaves* narrow, ſtriated, ſmooth; ſheaths inflated, ſpreading, pointed; ſtipule ſolitary, entire. *Peduncles* two or three, ariſing from the ſheaths of the upper leaves, about an inch long, a little curved downwards, ſupporting the common involucre. A native of Aſia Minor about Smyrna, introduced into England by Sherard, and ſent to Linnæus by Haſſelquiſt. One of the rareſt and moſt ſingular of the gramineous plants.

C *alopecuroides*. Linn. See Phalaris *utriculata* and Dr. Smith in Linnæan Tranſactions, vol. vii. p. 245.

CORNUS, (κρανεια: Theophraſ. Cornus; Plin. ſo called from the horny toughneſs of the wood.) Tourn. Cl. 21. § 9. gen. 1. Lin. gen. 149. Schreb. 194. Willd. 228. Gært. 151.. Lam. Ill. 194. Juſſ. 214. Vent. 2. 605. Cornouiller; Enc. Cornel. Claſs and order, *tetrandria monogynia*. Nat. Ord. *Stellatæ γ*; Linn. *Caprifolia*; Juſſ.

Gen. Ch. *Cal.* Perianth ſuperior, very ſmall, four-toothed, deciduous. *Cor.* Petals four, lanceolate, acute, widely ſpreading. *Stam.* Filaments four, awl-ſhaped, erect, anthers egg-ſhaped. *Piſt.* Germ inferior, roundiſh; ſtyle filiform, the length of the corolla; ſtigma obtuſe. *Peric.* Drupe roundiſh, umbilicated, ſucculent; nut egg-ſhaped, two-celled. *Seeds* one in each cell.

Eſſ. Ch. Calyx ſuperior, four-toothed. Petals four. Stigma one. Drupe with a two-celled nut.

* Flowers umbelled, with a four leaved, coloured, involucre. Cornouillers. Fr. the male cornels of the old Botaniſts.

Sp. 1. C. *maſcula*. Linn. Sp. Pl. 2. Mart. 2. Lam. 1. Ill. Pl. 74. fig. 1. Wild. 4. Gært. tab. 26. fig. 2. (α. C. ſylveſtris mas. β. hortenſis mas. γ. hortenſis mas, fructu ceræ coloris. Bauh Pin. 447.) Cornelian cherry. "Arboreous; involucre nearly equal to the umbels." In its wild ſtate a ſhrub, four or five feet high; cultivated, a tree twenty feet high; young ſhoots cinereous, pubeſcent, ſlightly quadrangular. *Leaves* oppoſite, egg-ſhaped, acute, entire, ſomewhat hairy underneath, nerved, on ſhort petioles. *Flowers* appearing early in ſpring before the leaves; yellowiſh; leaves of the involucre lanceolate, often reflexed; peduncles one-flowered, forming an umbel of from fifteen to twenty rays, a little longer than the involucre. *Fruit* oblong, about the ſize of an olive, generally bright ſcarlet, ſometimes yellowiſh or wax-coloured. A native of woods and hedges in the ſouth of Europe, very common in Engliſh plantations. The fruit has an aſtringent quality, and may be eaten either raw or in tarts; a rob made of it was formerly kept in the ſhops. The wood is highly commended for its durableneſs in wheel-work, pins, and wedges, and is ſaid to laſt like the hardeſt iron. It flouriſhes under the ſhade of other trees. 2. C. *florida*. Linn. Sp. Pl. 1. Mart. 1. Lam. 2. Willd. 5. Bot. Mag. 526. Virginia dog-wood. (C. mas virginiana; Pluk. Alm. 120. tab. 26. fig. 3. Cateſb. Car. 1. tab. 27.) "Arboreous; involucre very large, indented at the tip." A tree from ten to twenty feet high; trunk from eight to ten inches in diameter. *Leaves* oppoſite, larger than thoſe of the preceding ſpecies, egg-ſhaped, acute or acuminate, green above, glaucous underneath, petioled. *Flowers* ſmall, yellow; leaves of the involucre two inches broad or more, greeniſh white, ſometimes roſe-coloured, reſembling petals, a little tomentous, ending in a ſhort point, and appearing as if nipped almoſt double near the tip, which makes them ſeem emarginate and heartſhaped; peduncles one-flowered, forming cloſe lateral and terminal umbels. A native of Virginia. In France and England it is ſeldom more than five or ſix feet high; but in the duke of Marlborough's garden at Sion-hill, there is a plant at leaſt ſixteen feet high, with a ſtraight trunk about ſix feet in length before it branches, and meaſuring two feet in circumference a yard from the ground; it has long flowered freely, but has never produced fruit. The fruit in its native country is red, about the ſize of a haw, and is eaten by the celebrated mocking bird, Turdus Orpheus of Linnæus. 3. C. *ſuecica*. Linn. Sp. Pl. 4. Mart. 8. Lam. 4. Willd. 1. Flor. dan. tab. 5. Eng. bot. 310. (Periclymenum humile; Bauh. Pin. 302. Chamæpericlymenum; Cluſ. pann. 87. tab. 88.) "Herbaceous; branches in pairs; umbel between the branches, peduncled; all the nerves of the leaves nearly diſtinct." *Root* perennial, creeping. *Stems* about ſix inches high, erect, quadrangular, leafy, bifid near the top. *Leaves* oppoſite, almoſt ſeſſile, oval, acute, entire, ſmooth; all the nerves ſpringing nearly from the baſe, and running nearly parallel. *Flowers* dark purple, ſmall; leaves of the involucre large, white or reddiſh, permanent, finally becoming green and much enlarged; pedicels ſhort, one-flowered. *Drupes* globular, red, ſweetiſh. A native of the northern parts of the Old Continent; rare in England having hitherto been found only in the hole of Horcum between Pickering and

Whitby in Yorkſhire, about Caſtle dean in Durham, and on the Cheviot hills in Northumberland. In the Highlands of Scotland not uncommon, where the berries are eaten by children. 4. C. *canadenſis*. Linn. Sp. Pl. 5. Mart. 9. Lam. 5. Willd. 2. l'Herit. corn. tab. 1. Bot. Mag. 880. (Pyrola affines flore; Bauh. Pin. 191.) "Herbaceous; not branched; leaves in a ſingle whorl at the top of the ſtem, on ſhort petioles, veined in various directions from the midrib; umbel peduncled, riſing from the centre of the whorl." *Root* perennial, creeping." *Stem* from ſix to eight inches high, naked below, with the exception of two oppoſite ſtipules a little below the middle. *Flowers* ſmall, white, with a violet-coloured bottom; leaves of the involucre large, ending abruptly in a point, white, ſometimes red at the tip; pedicels one-flowered, ſhort. A native of Canada.

** Flowers in a cyme, not involucred; Sanguins; Fr. ſo called becauſe the branches are red. The female cornels of the old botaniſts.

5. C. *ſanguinea*. Linn. Sp. Pl. 3. Mart. 4. Lam. 6. Willd. 6. Flor. Dan. tab. 481. Eng. Bot. 249. Gært. tab. 26. fig. 1. Lam. Ill. Pl. 74. fig. 1. (C. fæmina; Bauh. Pin. 447.) "Branches erect; leaves egg-ſhaped, green on both ſides; cymes depreſſed." A ſhrub from five to ten feet high; branches numerous, long, cinereous, but blood-red as they grow old, eſpecially in winter. *Leaves* oppoſite, petioled, egg-ſhaped, quite entire, ſmooth, veined, becoming red late in the autumn, deciduous. *Flowers* greeniſh-white, with an unpleaſant ſmell; petals revolute at the edges; germ crowned with a globular ring, into which the petals and ſtamina are inſerted. *Drupe* globular, dark purple, very bitter, oily, ſtyptic. Common in England and other parts of Europe. 6. C. *alba*. Linn. Mant. 40. Mart. 5. Lam. 7. Willd. 7. (C. ſylveſtris fructu albo; Amm. Ruth. 198. tab. 32. Mill. Pl. 104.) "Branches recurved; leaves broad-egg-ſhaped, hoary underneath; cymes depreſſed; berries white." A ſhrub from ſix to nine feet high; branches ſmooth, cinereous in ſummer, red in winter. *Leaves* oppoſite, petioled, ending in a point, larger than thoſe of the preceding ſpecies, ſmooth on both ſides, nerved. *Flowers* white, in terminal cymes; ring ſurrounding the germ purple. *Drupes* globular, of a tranſparent white colour. A native of Siberia and Canada. 7. C. *ſericea*. Linn. Mant. 199. Mart. 6. Willd. 8. l'Herit. tab. 2. (C. amomum; Mill. Vogel. ic. rar. tab. 101. C. cærulea; Lam. Ill. 1533. C. fæmina baccis cæruleo-viridibus; Gron. Virg. 20. C. rubiginoſa; Ehrh. Beitr. 4. 15. C. americana baccâ cærulei coloris; Pluk. alm. 121. tab. 169. fig. 3.) "Branches ſpreading; leaves egg-ſhaped, ferruginous ſilky underneath; cymes depreſſed; fruit blue." A ſhrub ſix feet high. *Stem* erect, cylindrical; branches oppoſite, duſky-purple; ſhoots with a ring at the joints, dark red. *Leaves* acuminate, entire, nerved. *Flowers* white. A native of North America. 8. C. *circinnata*. Willd. 9. l'Herit. Corn. tab. 3. (C. *rugoſa*. Lam. 8. Ill. 1531.) "Branches warty; leaves orbicular, tomentous-hoary underneath; cymes depreſſed." A ſhrub ſix feet high. *Stem* upright, grey; branches oppoſite, ſomewhat ſpreading, cylindrical, green, with browniſh warts; ſhoots with rings at the joints, purpliſh. *Leaves* three inches and a half long, and as many broad, oppoſite, ending in a point, ſmooth on both ſides, wrinkled, nerved; petioles an inch long, ſemi-cylindrical, channelled. *Flowers* white, in terminal cymes; bractes two, briſtle-ſhaped, ſituated near the baſe, or about the middle of two of the rays of the cyme. *Drupe* hollowed at the baſe, retaining the ſtyle, ſoft, pale blue, turning whitiſh. A native of Pennſylvania. 9. C. *ſtricta*. Mart. 11. Lam. 11. Willd. 10. l'Herit. Corn. tab. 4. "Branches ſtiff and ſtraight; leaves egg-ſhaped, green on both ſides, almoſt naked; cymes panicled." A ſhrub, fifteen or ſixteen feet high. *Stems* ſeveral, upright, browniſh; branches long, quite ſmooth, purpliſh, and ſomewhat angular near the top. *Leaves* oppoſite, petioled, acuminate, ſmooth, and ſhining on both ſides, entire; petioles erect only one-ſixth the length of the leaf, gibbous on one ſide, channelled on the other, purple. *Flowers* white; anthers pale blue, germ with a nectareous crown. *Drupe* ſoft, blue. A native of North America. 10. C. *paniculata*. Mart. 12. Willd. 11. l'Herit. corn. tab. 4. (C. racemoſa; Lam. 10.) "Branches erect; leaves egg ſhaped, hoary underneath; cymes panicled." A ſhrub ſix or ſeven feet high. *Stems* numerous, much-branched, cylindrical, grey; younger branches reddiſh-green, ſlightly angular. *Leaves* oppoſite, petioled, ſmooth, nerved. *Flowers* white, in nearly conical panicles; filaments yellowiſh-white; germ with a purple crown. *Drupes* white, retaining the ſtyle. A native of North America. 11. C. *alternifolia*. Linn. jun. Supp. 125. Mart. 7. Lam. 9. Willd. 12. l'Herit. corn. tab. 6. "Leaves alternate." A ſhrub five or ſix feet high. *Stem* ſingle; branches only from the upper part of the ſtem, ſpreading, cylindrical, ſmooth, and even; younger ones purple-violet, ſprinkled with oblong, greyiſh dots or ſmall lines. *Leaves* irregularly alternate, ovate-lanceolate, acute, entire, on rather long petioles, ſmooth, bright green above, whitiſh underneath, with lateral converging nerves. *Flowers* white, in a looſe terminal cyme. *Drupes* globular, violet-coloured. A native of North America.

Propagation and Culture.—All the ſpecies may be raiſed from ſeeds, which ſhould be ſown in the autumn, ſoon after they are ripe. The ſhrubby ones are eaſily propagated either by tranſplanting the ſuckers or laying down the branches; but the layers produce the beſt plants.

Cornus *japonica;* Thunb. See Viburnum *corniflora*.

Cornus *mas odorata;* Pluk. Cateſb. See Laurus *ſaſſafras*.

Cornus *racemoſa trifolia;* Plum. See Amyris *elemifera*.

Cornus *ſylveſtris, foliis croceum colorem tingentibus;* Burm. See Memecylon *capitatum*.

CORNUS, or Cornos, in *Geography*, a town in the iſland of Sardinia, marked in the itinerary of Antonine, on the route from Tibuli to Sulci, between Boſa and Tharri; now 18 miles S. E. of Boſa.

Cornus, a ſmall town of France, in the department of the Aveyron. It contains 991 inhabitants, and is the chief place of a canton, in the diſtrict of St. Affrique. The extent of the whole canton is 347 kiliometres and a half. The number of its communes is 10, and that of its inhabitants 6360.—Alſo, a town of France, in the department of the Lot; 10 miles E. of Cahors.

CORNUTIA, in *Botany*, (ſo called from Cornutus, a French botaniſt.) Linn. gen. 766. Schreb. 1028. Willd. 1167. Juſſ. 107. Vent. 2. 319. Agnanthe; Enc. Claſs and order, *didynamia angioſpermia*. Nat. Ord. *Perſonatæ*, Linn. *Vitices*, Juſſ. *Pyrenaceæ*, Vent.

Gen. Ch. *Cal.* one-leafed, very ſmall, five-toothed, permanent. *Cor.* monopetalous, tubular, two-lipped; tube cylindrical; upper lip with three nearly equal lobes; lower lip, three-lobed, the two lateral ones very ſmall. *Stam.* filaments four, two of them projecting out of the flower. *Piſt.* germ roundiſh; ſtyle very long, bifid. *Peric.* drupe globular, Vent.

Eſſ. Ch. Calyx five-toothed; two of the ſtamens projecting out of the corolla. Style very long. Drupe globular.

Sp. 1. C. *pyramidata*. Linn. Sp. Pl. Mart. 1. Lam. 2. Willd. 1. Lam. Ill. Pl. 541. (C. flore pyramidato; Plum. gen. 32. ic. 106. fig. 1. Agnanthus viburnifolio; (Vaill. Act. 1722, p. 273.) "Panicle terminal, naked, elongated; leaves egg-ſhaped, hoary, tomentous underneath." A ſhrub about twelve feet high; branches tetragonous, with ſharp angles produced by the decumbent petioles. *Leaves* oppoſite, acute, ſoft. *Flowers* blue, in a long pyramidal panicle, conſiſting of oppoſite compound racemes; bractes narrow, acute, ſolitary, at the baſe of the peduncle of each raceme. A native of St. Domingo, Campeachy, and La Vera Cruz. Its wood is uſed to dye yellow. 2. C. *punctata*. Willd. 2. (C. *pyramidata*; Hort. Kew. Hoſta cærulea; Jacq. hort. Schoenb. 1. 60. tab. 114.) "Corymbs axillary, trichotomous; leaves egg-ſhaped, acuminate, nearly ſmooth." A ſhrub four-feet high, with quadrangular branches. *Leaves* oppoſite, petioled, ſomewhat toothed. *Flowers* in cymes, ſhorter than the leaves, blue, ſprinkled with white glandular dots, ſcarcely viſible without a magnifier. *Drupe* with a four-celled nut. A native of the warmer parts of America. 3. C. *quinata*. Mart. 3. Lour. cochinch. 387. "Flowers in racemes; leaves quinate, lanceolate, egg-ſhaped." A middle-ſized tree, with ſpreading cylindrical branches. *Leaves* acuminate, quite entire, ſmooth on a long common petiole. *Flowers* greeniſh yellow; upper lip of the corolla trifid; lower bifid and ſhorter. A native of China in the woods near Canton.

Propagation and Culture.—The firſt ſpecies has long been propagated in England and France. It is raiſed from ſeeds ſown early in ſpring on a hot-bed. The plants ſhould be tranſplanted into pots, firſt ſmaller, and afterwards larger, according to their growth, and kept in a hot-bed of tanners bark, with a liberal allowance of water. In October they ſhould be removed into the tan-ſtove, where they ſhould remain in a moderate degree of heat during the winter. The third year they will flower and make a handſome appearance, but have never ripened their fruit in Europe. The plant may alſo be propagated by cuttings.

The cuttings ſhould be made from proper ſhoots, and be planted in pots of light earth, at the ſame ſeaſon, and managed afterwards in the ſame manner as thoſe by ſeeds.

Theſe ſhrubby plants afford a variety, when placed in aſſemblage with other exotics.

CORNUTIA *corymboſa*; Lam. See CALLICARPOS *lanatus*.

CORNUTIA *corymboſa*; Burm. See PREMNA *integrifolia*.

CORNUTIOIDES, Flor. Zeyl. See PREMNA *ſerratifolia*.

CORNUTUM ARGUMENTUM. See DILEMMA.

CORNUTUS, in *Biography*, a ſtoic philoſopher, who flouriſhed at Rome, was preceptor to the poet Perſius, and himſelf eſteemed as a poet, a grammarian, and ſtoic philoſopher. He was one of the many victims ſacrificed to the fury of the bloody Nero. A. D. 54. Moreri.

CORNUTUS *piſcis*, in *Ichthyology*, a ſpecies of BALISTES. See BIACULEATUS.

CORNWALL, in *Geography*, the name of the moſt weſtern county of England, is nearly inſulated by water; having the Britiſh Channel on the ſouth, and the Briſtol Channel on the north; both ſeas ſeeming to meet near the point called the Land's End, at the extremity of the promontory on the weſt: on the eaſt it is ſeparated from Devonſhire, by the river Tamar, and an artificial boundary of a few miles at the northern extremity. From this boundary the land continually contracts its breadth to the weſtward, aſſuming ſomething of the appearance of a cornucopia. The wideſt part of the county, from Morvinſtow on the north, to the Rame-Head on the ſouth, is about forty-three miles, but, from its rapid contraction, twenty miles may be conſidered as a medium. From Mount's bay to St. Ives, it is not more than five and a half miles acroſs. The length of the north-eaſt ſide from Morvinſtow to the Land's End, is about ninety miles. The circumference is eſtimated at two hundred. There is a tradition that a conſiderable tract of land, named the Lioneſs, formerly connected with this county, and extending towards the iſles of Scilly, was, at a very remote period, ingulphed by the ocean.

The original Britiſh name of Cornwall appears to have been *Cernyw*, i. e. a horn or promontory; and, is ſuppoſed, by Dr. Borlaſe, to have been changed, by the intercourſe of the natives with Romans, into the Latin term *Cornubia*, "which it retained till the Saxons impoſed the name of *Weales* on the Britons, driven by them weſt of the rivers Severn and Dee, calling their country in the Latin tongue, Wallia; after which, finding the Britons had retreated, not only into Wales, but into the more weſtern extremities of the iſland, the Latiniſts changed Cornubia into *Cornwallia*; a name not only expreſſive of the many natural promontories of the country, but alſo that the inhabitants were Britons of the ſame nation and deſcent as thoſe of Wales; and from this Cornwallia, is derived the preſent name Cornwall." Borlaſe's Antiquities of Cornwall. This portion of the kingdom was included by the Romans under their firſt diviſion, Britannia Prima; but antiquaries differ as to the extent of the Roman dominion in this part of the country. It is ſuppoſed that the Romans made an actual conqueſt of Cornwall about the ſame period that Claudius ſubdued the ſouthern part of the iſland: this opinion is ſtrengthened by many coins, pavements, urns, and ſepulchres that have been diſcovered in different parts of the county, chiefly within the laſt century; and is further confirmed by the form of various forts, encampments, and road-ways. Dr. Borlaſe obſerves, that the collective maſs of evidence, in favour of the Roman domination here, is ſo ſtrong, that "it cannot be contradicted." Cornwall, from its ſoil, appearance, and climate, is apparently one of the leaſt inviting of the Engliſh counties. A ridge of bare and rugged hills, interſperſed with bleak moors, runs through the midſt of it. The roads, which are chiefly carried over the higher lands, or extenſive commons, convey to the traveller a much greater idea of ſterility than the produce of the country will warrant; for marks of abundant fertility are diſplayed in the vallies, and on the ſea-ſhores; the uſe of the ſea-ſand and weeds collected on the beach, greatly increaſing the richneſs of the ſoil. The ſurrounding body of water renders the air extremely moiſt; and the interception of the clouds, by the central high lands, occaſions frequent and heavy ſhowers: theſe, however, are of ſhort duration, and may be conſidered as conducive to health, by diſſipating the noxious vapours ariſing from the proceſſes of refining the ores, and introducing the vivifying qualities wafted by the genial breezes from the ocean. The ſeaſons are more equal than in moſt parts of England, being generally free from intenſe heat or piercing cold. Froſts ſeldom continue long; and the ſnow ſcarcely ever continues on the ground longer than two or three days. The ſea-air is conſidered as injurious to vegetation, the ſalt particles wherewith the atmoſphere is impregnated, together with the violence of the winds, prevent the growth of trees on the coaſts; and it is only in the ſheltered vales that the ancient natural woods are to be found. The attempt to raiſe plantations, in ſituations expoſed to the ſouth-weſt and northerly blaſts, was hardly ever ſucceſsful till within theſe few years, when more promiſing indications have attended it; the pine-aſter fir being firſt planted as a ſhelter to the more tender trees. The art of huſbandry appears to have been but little practiſed in this county, ſo late as three centuries ago. "Their grounds," ſays Mr. Carew, "lay all in common, or only divided by ſtiche meale, and their bread corn very little: their labour horſes were only ſhod before; and the people devoting themſelves entirely to tin, their neighbours in Devonſhire and Somerſetſhire hired their paſtures at a rent, and ſtored them with the cattle they brought from their own homes, and made a profit of the Corniſh, by cattle fed at their own doors. The ſame perſons alſo ſupplied them at their markets with many hundred quarters of corn, and horſe-loads of bread." Borlaſe, in his obſervations on this paſſage, remarks, that "the people increaſing, and the mines ſometimes failing, the Corniſh felt the neceſſity of applying themſelves to huſbandry; and their improvements anſwered their expectations; for, in the latter end of the reign of Queen Elizabeth, they found themſelves in a capacity not only to ſupport themſelves, but alſo to export a great quantity of corn to Spain and other foreign parts." The agriculture of Cornwall is, notwithſtanding, ſtill but a ſecondary object. The portable commodities of the county are chiefly carried on the packſaddle; and the hills and ſteep acclivities rendering the uſe of ſure-footed animals neceſſary, the breeding of mules has been ſucceſsfully attended to. Great numbers are employed in carrying the produce of the mines: the price of a good mule is frequently eighteen or twenty guineas. The common horſes, though ſmall, are hardy and well adapted to a hilly country. The vegetable ſoils are extremely various, but their general diſtinctive characters may be arranged under the heads, *black growan* or gritty, and the *ſhelfy* or *ſlaty* ſoil. The former abounds in the high lands, the upper ſtratum chiefly conſiſting of a light black earth, intermixed with ſmall gravel, the detritus of *granite* or growan, and hence the ſoil receives its appellation. This ſtratum, on the tops and ſides of mountains, is very ſhallow, and not of conſiderable depth even on the more level and extenſive waſtes: its natural produce is a thin ſhort heath, and the dwarf, or Corniſh furze. A ſtratum of a cubical quartz is generally found beneath, of various ſizes, and from four to eight inches thick; and below this a whitiſh or yellowiſh loamy clay. By digging up the quartz, and intermixing the under ſtratum of clay with the growan earth on the ſurface, a prolific ſoil is produced, fit for any kind of graſs. The coaſts of Cornwall abound with a great variety of fiſh; one ſpecies of which, the *pilchard*, is taken in ſufficient quantity to conſtitute a conſiderable and productive branch of commerce. See PILCHARD.

"The ſea," ſays Borlaſe, "is the great ſtore-houſe of Cornwall, which offers not its treaſures by piece-meal, nor all at once, but in ſucceſſion: all in plenty in their ſeveral ſeaſons, and in ſuch variety, as if nature was ſolicitous to prevent any exceſs or ſuperfluity of the ſame kind." In this author's "Antiquities of Cornwall," the numerous ſpecies of fiſh that viſit this coaſt are particularly deſcribed. The ſea-ſands round Cornwall probably exceed in variety thoſe of any other county in Great Britain; the ſand of every cove being different. The ſand of a particular ſhore, cove, or bay, has generally the ſame colour; and a microſcope ſhews it to be of the ſame ſubſtance as the adjacent cliffs, and the ſtrata under the ſea. Clays are found in this county in great variety, and many of them are eminently uſeful for different purpoſes of manufacture. The yellow clay, in St. Kevran's pariſh, is eſteemed but little inferior to any, for caſting in ſilver, braſs, or lead; the yellow clay from Lannant is much valued for building furnaces, as the bricks made with it are ſuppoſed to have a peculiar faculty of withſtanding intenſe heat.

The mineralogical ſubſtances of Cornwall are far more abundant than thoſe of any diſtrict of the ſame extent in the world; and the ſcientific inquirer finds in their beauty and variety a proportionable field for his reſearches. Among the rocks claiming eſpecial notice, is granite, or, as here called, *moor-ſtone*, of which this county affords more than any other part of England. It forms the chain of mountains, which, commencing at Dartmoor, runs through Cornwall to the ſea at the Land's End, and to the northward and ſouthward goes into primitive ſchiſtus. Granite is an aggregate of felſpar, quartz, and mica; and the varieties found here are innumerable, both in the ſize and colour of its component parts. Between the town of Liſkeard and the river Tamar are ſome quarries of ſlate; whence the inhabitants of Plymouth are ſupplied with covering for their houſes, and for the purpoſe of exportation. The free-ſtone is of two ſorts: one compoſed of ſand and argil, the other of ſand and quartz: that of the pureſt quality is found in the pariſhes of Carantor and the Lower St. Columb, and approximates to the Portland and Bath ſtones. The Polrudon or Pentowan ſtone is likewiſe of a ſandy nature: it lies in irregular maſſes of three different colours, in a ſhelving lode about 15 feet in width. A curious production, called the *ſwimming-ſtone*, has been diſcovered in a copper-mine near Redruth; it is of a yellowiſh colour, and conſiſts of quartz in right-lined laminæ, as thin as paper, interſecting each other in all directions, but leaving unequal cavities between them: this cellular ſtructure renders the ſtone ſo light, that it ſwims on water, whence it obtained its name. Some beautifully tranſparent quartz are found here, cryſtallized in ſix-ſided pyramids, with a correſpondent hexagonal priſm. That part of the county which forms the Lizard Point is compoſed of ſerpentine and hornblende of the moſt beautiful kind, including every ſhade of green, from pea-green to black, variegated by tints of purple and ſcarlet. The ſerpentine is occaſionally interſected with veins of the *ſteatites*, ſo called from the Greek word for tallow, to which it has ſome ſimilarity. But this curious ſubſtance is contained in the greateſt abundance in the celebrated *ſoap-rock*, ſituated between the Lizard and Mullion: it is of whitiſh or ſtraw colour, with veins of green, red, and purple. When embedded in its matrix, the ſerpentine, it feels wet, and may be compreſſed with the hand; but being expoſed to the air, becomes indurated, and of a ſoapy texture. The whole ſoap-rock is rented by the proprietors of the porcelain manufactory at Worceſter. It is remarkable, that letters written with ſoap-ſtone (*ſteatites*) upon glaſs, though inſenſibly fixed, are not to be moved by waſhing, but always appear on being moiſtened with the breath. Solid aſbeſtus is often ſeen adhering to the pure ſpecimens of the ſteatites, and is alſo ſpread, like a thin film of enamel, on the ſurface of ſome rocks expoſed to the ſea. The fibrous aſbeſtus has been diſcovered in St. Cleer's pariſh, fixed to ſtones of the killas kind, and ſometimes running through them in a wavy line. But the moſt important of Corniſh foſſils is the *china ſtone*, obtained in the pariſh of St. Stephen, near St. Auſtel, and forming a principal ingredient in the Staffordſhire pottery. It is a decompoſed granite, the felſpar of which is deprived of fuſibility. Its qualities were, about 40 years ago, diſcovered by chance, and it has ſince been an article of conſiderable traffic; many ſhip-loads being annually ſent from a ſmall ſea-port called Charles-Town. Retorts and crucibles of an excellent fire-proof nature have been manufactured from it at Truro.

The chief objects of conſideration, in the hiſtory of Cornwall, are its numerous mines, which have ſupplied thouſands of its inhabitants with employment for many centuries; and in remote periods conſtituted, by their produce, the chief ſtaple of Britiſh commerce. At preſent theſe ſubterranean ſources afford very conſiderable revenues; and the trade to which they give birth, conſidered in a national light, is of the higheſt relative conſequence. "In a narrow ſlip of barren country," ſays the author of the General View of Cornwall, "where the purpoſes of agriculture would not employ above a few thouſand people, the mines alone ſupport a population eſtimated at nearly 60,000, excluſive of the artizans, tradeſmen, and merchants, in the towns of St. Auſtel, Truro, Penrhyn, Falmouth, Redruth, Penzance, and ſome others." The number of men, women, and children, whoſe ſubſiſtence is derived immediately from the mines, by raiſing, waſhing, ſtamping, and carrying the ore, is reckoned at 14,000. The principal produce of the Corniſh mines is tin, copper, and ſome lead. The ſtrata, on which theſe metals are found, extend, in a direction from weſt to eaſt, from the Land's End entirely through the county into Devonſhire, where, and in the eaſtern parts of Cornwall, immenſe quantities of tin were formerly raiſed: but the chief ſeat of *mining* now lies in the neighbourhood, and to the weſtward of St. Auſtel; whence to the Land's End the principal mines are to be found, extending along the northern coaſt, and keeping a breadth of about ſeven miles. Moſt of the metals are found in veins or fiſſures, which are here called *lodes*. Theſe fiſſures have generally an eaſt and weſt direction; but differ in breadth, depth, and length, as well as in the denſity of their ſides or walls.

The moſt valuable metal produced in Cornwall is tin, which is ſometimes found collected and fixed, at others looſe and dilated. In its fixed ſtate, it is either in a lode or floor, which is an horizontal layer of the ore; or interſperſed in grains and ſmall bodies in the natural rock. The floors are frequently deep, and very rich; but the working is attended with conſiderable expence, from the quantity of large timber required for the ſupport of the ſeveral paſſages of the mines. The ſame lode, that has been perpendicular for ſeveral fathoms, is ſometimes ſuddenly extended into a floor. Tin, in its diſperſed form, is found either in a pulveriſed ſandy ſtate, in ſeparate ſtones called *ſhodes*; or in a continued courſe of ſtones, ſometimes in ſuch numbers as to extend to a conſiderable length, and from one to ten feet in depth. This courſe is called a ſtream; and when productive of a large quantity of metal, it obtains the name of *beuheyl*, the Corniſh word for *living ſtream*; and by the ſame figure, when the ſtone is but lightly impregnated with tin, it is ſaid to be *juſt alive*: when it contains no metal, it is called *dead*; and the heaps of rubble are emphatically ſtyled *deads*. (See Tin.) Ancient hiſtorians mention the tin of Cornwall, of the iſles of Scilly, and of Devon, as a branch of commerce between the Britons, and the Phœnicians, and Grecians, ſeveral centuries prior to the Chriſtian era. The Phœnicians were the firſt who trafficked in this article; and Strabo reports, that they were ſo ſtrenuous in their endeavours to conceal from other nations the places whence they obtained it, that the maſter of a Phœnician veſſel, ſuppoſing himſelf purſued by Romans for the purpoſe of diſcovery, ran upon a ſhoal, and ſuffered ſhipwreck, rather than permit the tract to be made known. During the Saxon dominion, the working of the mines was, through inteſtine commotions and the inroads of the Danes, entirely neglected. The Normans are ſaid to have derived great emolument from working them; but this ſeems doubtful, as, in the reign of king John, their produce was ſo trifling, that the *tin-farm* amounted to only 100 marks. In the next reign it was greatly increaſed. Under Edward I. a charter was obtained, by the lords of the ſeven tythings beſt ſtored with tin, from Edmund, earl of Cornwall, with more "explicit grants of the privileges of keeping a court of judicature, holding places of actions, managing and deciding all ſtannary cauſes, of holding parliaments at their diſcretion, and of receiving, as their own due and property, the toll-tin, or the fifteenth part of all tin raiſed." The encouragement for ſearching for tin ſeems to have been, at this period, firſt appointed, or at leaſt more permanently regulated. For theſe privileges, the landholders obliged themſelves to pay to the earls of Cornwall, for the time being, four ſhillings for every hundred weight of white tin. This charter was confirmed 33 Edw. I., with the additional privilege of a coinage, and a general licence to diſpoſe of the tin. Theſe grants were confirmed and enlarged by parliament, in the reigns of Richard II. and Edward IV. The original ſtannary towns of Cornwall were Launceſton, Loſtwithiel, Truro, and Helſton. To theſe places the tinners were obliged to convey their metal every quarter of a year; but in the reign of Charles II., Penzance was added, to accommodate the weſtern tinners. All tin ores are wrought into metal in the county, and then caſt into blocks, weighing from two hundred and three quarters to three hundred and three quarters each. Theſe are not ſaleable till aſſayed by the proper officers, and ſtamped with the Duchy ſeal. Since Henry VIII.'s time, theſe *coinages*, as they are termed, have been held at the regular quarter days. The annual produce of the tin-mines is about 25,000 blocks, which, excluſive of duties, may be eſtimated to afford an income of 260,000*l.*; the average value of each block being nearly 10*l.* 10*s.* The income of the duchy derived annually from this ſource is about 10,000*l.* From the great exportation to China and India, the trade has been very flouriſhing; but from the great depth of the mines, and the high price of materials, the ſpirit of adventure has been conſiderably depreſſed, and the buſineſs conſequently injured. Cornwall affords copper ores in great abundance and variety. Native copper is ſometimes found on the ſides of fiſſures in thick films, depoſited by the impregnated water proceeding from the lodes. Veins of copper are frequently diſcovered in cliffs laid bare by the ſea; but the moſt encouraging ſymptom of a rich ore is an earthy ochreous ſtone, called *goſſan*, ſimilar in colour and texture to the ruſt of iron. (See Copper.) The manner of cleanſing and dreſſing the ore is partly the ſame as that employed for tin; but being generally raiſed in larger maſſes, it requires leſs waſhing. In the ſmelting houſes at Hale, the furnaces are all reverberators; and thoſe uſed for the proceſs of roaſting will contain about three tons and half of ore, reduced to ſmall pieces. Lead-mines are not numerous in this county, though the ore has been found in many parts, and generally incorporated with ſilver. The ores are of very different kinds; but that moſt frequently diſcovered is *galena*, or pure ſulphuret of lead, both cryſtallized and in maſſes. It is foliated, and of a blueiſh grey colour. (See Lead.) Gold, though frequently found here, has never been in ſufficient quantity to warrant the engaging in any expenſive operations to obtain it. Silver is reported to have been raiſed here in ſuch quantity, in the reigns of Edw. I. and Edw. III., as to have enabled them, in a great meaſure, to defray the charges of the wars they were engaged in. The produce became afterwards ſo inconſiderable, that the mines were entirely neglected till the ſixteenth century, when an unſucceſsful effort was made, after which the ſearch was again diſcontinued. This county affords abundance of iron ores, but the diſtance of coal renders the expence of working greater than the value of the iron produced. The ore has been lately ſhipped in great quantities for Wales. Sulphuret of iron, or *pyrites*, called by the Corniſh miners *mundic*, from the reſplendent appearance of its ſurface and ſtructure, abounds here in a great variety of form and combination. It is intermixed with moſt copper lodes, and, from the cloſer conſiſtence of the copper ore, is eaſily ſeparated, either by hammers, waſhing, or evaporation. The principal ſemi-metals of Cornwall are biſmuth, zinc, antimony, cobalt, arſenic, wolfram, menachanite, and molybdena, or ſulphuret of molybdenum. Biſmuth, in the ore, is uſually of bright ſilvery white, and its ſtructure irregularly foliaceous. Lapis calaminaris, or calamine, is an ore of zinc, produced here in great abundance, and of a very ſuperior quality. Antimony is found in ſeveral mines in the pariſh of Endeliana: it runs in veins, mixed with a ſmall quantity of copper and lead. Cobalt is found in various parts of the county, but the quantity is inconſiderable. Arſenic is generally combined with other ores, whence roaſting diſengages it. Wolfram is met with in ſeveral places, particularly in the mine called Poldice. Menachanite was the name given, by the Rev. Mr. Penroſe of this county, to a ſubſtance reſembling gunpowder, lately diſcovered in large quantities in the vale of Menachan. Molybdena, which is the only ſpecies of molybdenum yet found, is commonly in maſſes; but ſometimes cryſtallized in hexaedral tables.

Cornwall contains more parliamentary boroughs than any other county in the kingdom, and the number of its repreſentatives is conſequently greater: it returns no leſs than *forty-four* members; many of them from places very inconſiderable as to trade, wealth, or population. This pre-eminence is not of very ancient date: it appears to have ariſen from the large hereditary revenue accruing from the duchy to the crown, or to the immediate heir, the prince of Wales. In Edward I.'s reign, only the county, and the five boroughs of Launceſton, Liſkeard, Truro, Bodmin, and Helſton, had the privilege of repreſentation. Loſtwithiel was added to the number, *temp.* Edw. II. No further addition was made till near the end of Edward VI.'s reign, when this right was granted to Saltaſh, Camelford, Weſt Looe, Grampound, Boſſiney, St. Michael, and Newport. In the firſt of Mary, Penrhyn was admitted into the liſt; and three years afterwards, St. Ives. At various periods in the reign of Elizabeth, the ſame honour was extended to Tregony, St. German's, St. Maw's, Eaſt Looe, Fowy, and Cullington; which increaſed the number of boroughs to twenty-one. Eight of theſe had either an immediate or a remote connection with the demeſne lands of the duchy; and four devolved to the crown, on the diſſolution of the monaſteries. The names of many of the ancient towns of Cornwall, its caſtles, rivers, mountains, manors, ſeats, and families, are derived from the Corniſh tongue; whence moſt of the technical appellations in mining, huſbandry, and fiſhing, may alſo be traced: but the language itſelf is no longer remembered. The laſt perſon known to ſpeak it was an old woman, of whom ſome account was given by the Hon. Daines Barrington in 1768, and printed in the Archæologia, vol. iii. (See Cornish.) The waſte-lands may be eſtimated at nearly one-fifth part of the county: a conſiderable portion of theſe conſiſts of marſhy grounds, intermixed with rocks and mountains. The duchy-lands, which are far more extenſive than thoſe of any other proprietor, are moſtly held on leaſes for lives, renewable for a fine certain, or calculated on their improved value: the income derived from them, and that from the duty on the coinage of tin, are the only parts unalienated of the immenſe hereditary revenues, which formerly conſtituted an independent proviſion for the heir-apparent to the crown. This fortune was originally beſtowed by Edward III., in the eleventh year of his reign, on his eldeſt ſon, Edward the Black Prince, whom he created duke of Cornwall, by the "inveſtiture of a wreath, a ring, and a ſilver rod." By a ſpecial act then paſſed, the title and duchy were limited to the firſt begotten ſon of the prince, and his heirs, being kings of England, for ever: and from that period the eldeſt ſon of the ſovereign is preſumed to be of full age on the very day of his birth, and immediately has entire livery of all the poſſeſſions connected with the duchy. Some portions of the revenues have been, at different times, diſtributed in a manner unauthoriſed by the original grant, which expreſsly provides againſt any alienation: yet ſeveral have been diſpoſed of, by an act paſſed in the preſent reign. It appears alſo, from a recent debate in the houſe of commons, that, during the minority of the preſent prince of Wales, upwards of 300,000*l.*, ariſing from the duchy revenues, had been appropriated to the civil liſt expenditure, and other public uſes.

The principal rivers of Cornwall are the Tamar, the Lynher, the Looe, the Fâwy, the Camêl or Alan, the Fal, the Loe, the Hêl, and the Hêyl.

Cornwall is in the dioceſe of Exeter, and in the weſtern circuit. It contains about 780,500 acres, is divided into nine hundreds, and comprehends 201 pariſhes, and 23 market towns. In the return to parliament in 1801, the number of houſes was 34,378, of inhabitants 188,269. This county ſends 640 men to the militia, and pays eight parts to the land-tax. The aſſizes are held alternately at Launceſton and Bodmin. Borlaſe's Antiquities of Cornwall, fol. Pryce's Mineralogia Cornubienſis, fol. Beauties of England and Wales, vol. ii.

Cornwall, a townſhip of America, in Addiſon county, Vermont, E. of Bridport, on lake Champlain, containing 826 inhabitants.

Cornwall, *New*, a townſhip in Orange county, New York, of whoſe inhabitants 350 are electors.

Cornwall, a townſhip in Litchfield county, Connecticut, about 9 miles N. of Litchfield, 11 S. of Saliſbury, and about 40 W. by N. of Hartford city.—Alſo, a ſmall town in Upper Canada, on the bank of Iroquois river, near lake St. Francis, between Kingſton and Quebec, containing a ſmall church, and about 30 or 40 houſes.

Cornwall, one of the three counties into which the iſland of Jamaica is divided: the other two being Middleſex and Surry. Cornwall contains five pariſhes, three towns, and ſix villages. The towns are Savanna-la-Mar, on the S. ſide of the iſland, and Montego-bay and Falmouth on the north. An aſſize court for the county of Cornwall, is held every three months in Savanna, which begins the laſt Tueſday in March, June, September, and December; and each aſſize court is limited to a fortnight in duration. The number of effective men raiſed in this county in 1792, conſiſted of 368 cavalry, and 2305 infantry.

Cornwall, *Cape*, the name given by captain Cook to the S. W. point of the largeſt iſland on the N. W. ſide of the paſſage called Endeavour ſtraits, near Poſſeſſion iſland, on the eaſtern coaſt of New Holland, or New South Wales, S. lat. 10° 43'. W. long. 219°.

CORNWALLIS, a town of America in King's county, in the province of New Brunſwick, ſituated on the S.

W. ſide of the baſin of Minas; 18 miles N.W. of Falmouth, and 55 N. W. of Annapolis.—Alſo, a river, in the ſame province, navigable for veſſels of 100 tons 5 miles; for veſſels of 50 tons 10 miles.

CORNY, a town of France, in the department of the Moſelle, and diſtrict of Metz; 2½ leagues S. of Metz.

CORO, a town of South America, in the government of the Caraccas, ſituated upon an arid ſandy ſoil, full of cacti, nopals, and Indian figs. It was the ſeat of government from the time of its foundation in 1527 to 1576, when the governor Pimentel removed his reſidence to Caraccas. It has ſome commerce with Curaſſao, and a population of about 10,000 perſons. Its port lies open from N. to N. E.; but neither its commodities nor accommodation make it a port of great reſort. N. lat. 11°. W. long. 72° 30′.

COROBILIUM, Corbeille, in *Ancient Geography*, a place of Gaul, placed in Peutinger's table between Durocortorum and Andomatunum.

COROCONDOMA, a town of Aſia, ſituated at the entrance of the Cimmerian Boſphorus, on the Euxine ſea. There was an iſland of the ſame name: and near the town was a large channel formed by the waters of the Euxine ſea.

COROCORO, in *Ichthyology*, the name of a Braſilian fiſh, ſomewhat reſembling the Coracinus of the Mediterranean. It has a ſinus in the back, in which, at pleaſure, it can bury the fins. Marggrave's Hiſt. Braſil.

CORODAMUM, in *Ancient Geography*, a promontory of Arabia Felix, on the eaſtern coaſt of the Perſian gulf; now called *Cape de Raſalgate.*

CORODIO *habendo*, a writ, whereby to exact a *corody* of an abbey or religious-houſe.

CORODY, Corrody, or *Corredy*, in *Law*, (*corrodium*, from *corrodo*, alſo *conredium* and *corredium*,) a ſum of money, or allowance of meat, drink, and cloathing, due to the king from an abbey, or other houſe of religion, whereof he is the founder, towards the reaſonable ſubſiſtence of any ſervant he thinks fit to beſtow it on.

The difference between a corody and penſion is ſaid to be, that a corody is allowed towards the maintenance of any of the king's ſervants in an abbey; but a penſion is given to one of the king's chaplains, for his better maintenance, till he may be provided with a benefice. See Fitzherb. Nat. Br. fol. 250. who ſets down all the corodies and penſions certain, that abbeys, when they ſtood, were bound to perform to the king.

Corody alſo denotes the right belonging to the king of ſending one of his chaplains to be maintained by the biſhop, or to have a penſion allowed him till the biſhop promotes him to a benefice. This is alſo in the nature of an acknowledgment to the king, as founder of the ſee, ſince he had formerly the ſame corody or penſion from every abbey or priory of royal foundation. It is now fallen, as judge Blackſtone apprehends, into total diſuſe; though ſir Matthew Hale ſays, that it is due of common right, and that no proſcription will diſcharge it.

Corody is alſo a right of ſuſtenance, or of receiving certain allotments of victual and proviſion for one's maintenance. (Finch. L. 162.) In lieu of which, eſpecially when due from eccleſiaſtical perſons, a penſion or ſum of money is ſubſtituted. Theſe corodies may be reckoned a ſpecies of incorporeal hereditaments; though not chargeable on, or iſſuing from, any corporeal inheritance, but only charged on the perſon of the owner in reſpect of ſuch of his inheritance.

COROLIA, in *Ancient Geography*, a town of Arabia Felix, which Pliny places on the coaſt of the Red Sea.

COROLLA, in *Botany*, (*coronula*, a little crown), vulgarly called the leaves of a flower, conſiſts of thoſe more delicate and dilated, generally more coloured leaves, which when the calyx is preſent are internal with reſpect to that part, (ſee Calyx,) and always external with regard to the more eſſential parts, the immediate organs of impregnation, denominated *Stamina* and *Piſtilla*. The Corolla conſtitutes the chief beauty of flowers, and is commonly the ſeat of their moſt ſplendid colours, as well as of their fragrance. Its forms are extremely diverſified. It is either monopetalous, conſiſting of one leaf or petal, or polypetalous, compoſed of ſeveral. In either caſe it is called regular when its general figure is uniform, as in a primroſe or ſnowdrop; or irregular when otherwiſe, as in a ſnapdragon or violet. A regular corolla is called equal when all its diviſions are of the ſame ſize, as in a ſtrawberry bloſſom, but the ſnowdrop has an unequal corolla. Under the name of Corolla two diſtinct parts are often comprized, the petal or petals, and the nectary; ſee Nectarium. The latter however is ſometimes of a glandular nature, totally diſtinct from the corolla. A monopetalous corolla is moreover compoſed of two parts, *tubus* the tube, and *limbus* the limb: the analogous portions of a polypetalous one are expreſſed by the terms *unguis* the claw, and *lamina* the leafy expanſion or border. The Corolla is ſimple in moſt flowers; compound in the great natural claſs *Syngeneſia*, exemplified by the Daiſy, Dandelion, and Sunflower, as well as in the Scabious and ſome others.

A monopetalous corolla may generally be referred to one or other of the following forms, which are neceſſary to be known, not ſo much for the underſtanding of the ſyſtems of Tournefort, or Rivinus, now obſolete, but becauſe the generic diſtinctions of plants are by all botaniſts founded more or leſs upon ſuch differences. They are exemplified in our Plates of Botany, *Tournefort's Syſtem*, 1, 2 and 3.

Corolla campanulata, bell-ſhaped, as in *Atropa*, *Pl.* I. *cl.* 1. *fig.* 1.; and *Campanula*, *fig.* 7.

Infundibuliformis, funnel-ſhaped, *Nicotiana*, *cl.* 2. *fig.* 2.

Hypocrateriformis, ſalver-ſhaped, *Primula*, *cl.* 2. *fig.* 1.

Rotata, wheel-ſhaped, *Borago*, *Pl.* II. *cl.* 2. *fig.* 4.

Ringens, ringent, irregular and gaping, called by the older botaniſts, before Linnæus, *labiata*, as in *Lamium*, *Pl.* II. *cl.* 4. *fig.* 2.

Perſonata, perſonate, irregular and cloſed by a ſort of palate, as *Antirrhinum*, *cl.* 2. *fig.* 4.

A polypetalous corolla appears under the following ſhapes.

Cruciformis, cruciform, like *Raphanus*, *Pl.* III. *cl.* 5. *fig.* 1.

Lunaria, *fig.* 6; as well as the common ſtock and Wallflower.

Roſaceæ, roſaceous, like the roſe, as alſo *Papaver*, *cl.* 6. *fig.* 3. and *Nymphæa*, *fig.* 8.

Papilionacea, papilionaceous, as in all the pea kind.

Incompleta, incomplete, when ſome part or parts which analogy would lead us to expect, are wanting, as in *Amorpha*, Baſtard Indigo, a papilionaceous flower in habit and appearance, but conſiſting of only the large upper petal or ſtandard. See Papilionaceous.

An irregular corolla varies occaſionally to a regular one, even in the ſame ſpecies. Of this the common yellow Toadflax, *Antirrhinum Linaria*, affords a celebrated example, on which Linnæus has written a diſſertation in the *Amœnitates Academicæ*, *v.* 1. 55. *t.* 3, under the name of *Peloria*; nor is this by any means a ſolitary inſtance of ſuch a transformation. See Peloria.

Linnæus conſidered the corolla as originating in the *liber* or inner bark, but more correct ideas of the ſtructure and phyſiology of plants render this hypotheſis totally untenable. See Cortex.

The whole uſe and phyſiology of this part have not yet been generally explained or underſtood. That it protects the tender organs of impregnation, whoſe functions are liable to be fruſtrated by wet, is evident in many caſes, though not in all. Linnæus imagined that the action of the wind, on the thin expanded form of the petals, made them ſerve as wings to waft the flower up and down in the air, and thus promoted the diffuſion of the pollen over the organs it was deſtined to impregnate. Of this there can be no doubt, but ſuch a purpoſe is by no means univerſally anſwered by the organ in queſtion. It muſt be evident to an attentive obſerver, that the probable uſe of the corolla is cloſely connected with air and light, eſpecially if we take into conſideration its cellular texture, and its vivid colours, for the latter are known to have a moſt intimate dependance upon light; and even the corolla itſelf is manifeſtly, in many inſtances, ſtimulated by the ſolar rays in an eminent degree, folding itſelf up when they are even partially withdrawn. The *Crepis rubra*, Pink Hawkweed, if gathered in bright weather, cloſes its flowers when placed in a room; but after the darkneſs of night has paſſed over them, thoſe very flowers will expand and remain open in a degree of light not ſufficient to keep expanded others that have more recently been expoſed to the meridian ſun. It is to be preſumed therefore that the corolla performs ſome functions with reſpect to air and light, ſerviceable to the Stamens and Piſtils, analogous to what the leaves perform towards other parts of a plant, but not exactly conformable to them.

A German author, named Sprengel, has written an elaborate work for the purpoſe of demonſtrating, in ſome hundreds of inſtances, how the corolla ſerves to attract inſects, not only by its form and general beauty, but often by peculiar ſpots or marks, called by him *maculæ indicantes*, ſerving to point out the preciſe ſituation of the honey of which thoſe induſtrious little animals are in ſearch. While they plunder the flower of its ſweetneſs, they in return ſerve the moſt important purpoſe, by promoting the acceſs of the pollen to the ſtigma, and ſo rendering the ſeeds fertile. See Impregnation of Plants.

That the corolla has a more intimate connection with the vegetable impregnation, than even the above elegant theory of Sprengel is ſufficient to account for, appears from its different degrees of duration in double flowers and in ſingle ones. In ſome of the latter it falls almoſt as ſoon as the petals are well expanded, eſpecially in warm weather; in double flowers, on the contrary, whoſe organs of impregnation are obliterated, its vital principle is not ſo ſoon exhauſted, and it remains ſeveral days, juſt as happens alſo to premature ſingle bloſſoms in the cold of winter, that ripen no ſeed.

Whatever the uſe of the corolla may be, it is not an organ eſſential to all plants. The calyx, perhaps, or even the filaments of the Stamens, appear occaſionally to anſwer its purpoſes. Hence a difficulty ariſes among ſyſtematic botaniſts, when a flower has only one leafy covering, to determine whether it ſhould be called a corolla or calyx. In moſt caſes analogy will enable us to decide this. The calyx is uſually of a green colour, and thick coarſe texture, like the leaves, and all botaniſts are nearly agreed in calling by that name any ſingle covering which anſwers this deſcription. They even go further, and denominate calyx the beautifully coloured leaves of ſome flowers which agree in natural affinity with the former. Thus *Polygonum*, or Knot-graſs, is univerſally allowed to have a coloured calyx, and very juſtly, for as the ſeed ripens, the part in queſtion often becomes thicker, as well as of a green hue, aſſuming the uſual habit of the calyx of its natural ally *Chenopodium*. *Daphne*, the Mezereon, however beautiful and fragrant, has but a coloured calyx, which is evinced by *Gnidia*, its near relation, bearing petals beſides. Perhaps by the ſame rule the whole order of Liliaceous plants, the nobles of the vegetable kingdom, will be proved to have in general only a coloured calyx, notwithſtanding the ſplendour with which that part is adorned; for we have lately become acquainted with a new genus, near *Agapanthus*, of this tribe, with ſix petals beſides its coloured calyx. See *Introduction to Phyſiological and Syſtematical Botany*, p. 263. The cup or crown of the Narciſſus thus becomes a true corolla, and the ſix leaves which ſurround it a calyx, the *ſpatha* or ſheath being, certainly with no impropriety, eſteemed a bractea. This manner of underſtanding the flowers in queſtion will not however accord with the hypotheſis of Mr. Saliſbury, publiſhed in the eighth volume of the Linnæan Society's Tranſactions, the chief purpoſe of which is to ſhew that the ſtamina are never inſerted into the calyx, though often, as every body knows, into the corolla. It is much to be wiſhed that ſo commodious a diſtinction were to be depended upon. It may ſerve, in ſome inſtances, but in others we apprehend it muſt fail. For inſtance, it is too paradoxical to call the lower part of the tube in the beautiful ſcarlet calyx of *Fuchſia*, into which the petals and ſtamina are inſerted, a receptacle, any more than the analogous portion of the flower in *Colchicum* or *Agapanthus*, which the new genus abovementioned, allied to the latter, proves to be a calyx as much as that of *Fuchſia*. If this difficulty can be got over, we ſhould be much ſatisfied, for we do not propoſe it from any love of contradiction. We believe that no abſolute diſtinction exiſts, in every caſe, between the calyx and corolla, and that the very ſame part, externally green and coarſe, may be ſo far of the nature of a calyx, while its delicately coloured and poliſhed inner ſurface may be altogether analogous to a diſtinct corolla. Of this *Ornithogalum*, and *Narthecium*, *Engl. Bot. t.* 535, are inſtances. It is proper to mention the rule propoſed by Linnæus for diſtinguiſhing the parts in queſtion, that the ſtamens are placed oppoſite to the ſegments of the calyx, and alternate with the parts of the corolla. This accords, as Adanſon obſerves, with the Liliaceous family as above explained, though Linnæus did not ſo underſtand their parts, and we apprehend it will hold good more generally than even its author believed. It can only ſerve however when the ſtamens are of the ſame number as the ſegments or petals of the corolla or calyx.

The corolla is ſometimes deficient in certain ſpecies of a genus, though others of that genus are furniſhed with it, as in *Sagina apetala*, and the earlier flowers, occaſionally, of *Ranunculus auricomus*, *Engl. Bot. t.* 624. A new ſimple-leaved ſpecies of *Ceratopetalum*, *Bot. of New Holland, t.* 3, has alſo been diſcovered without petals. Hence we learn that the corolla is not only uneſſential to a flower in general, but, in ſome caſes, even to the definition of a genus or ſpecies. S.

COROLLARY, or Consectary, in *Mathematics*, is uſed for a conſequence drawn from ſome propoſition already advanced or demonſtrated: as if from this theorem, "That a triangle which has two equal ſides, has alſo two equal angles," this conſequence ſhould be drawn, "that a triangle, which hath the three ſides equal, has alſo its three angles equal."

COROLLISTÆ, among *Botanical Authors*. See Botany.

COROLLULA, among *Botaniſts*, a term uſed to expreſs thoſe little partial flowers, which together conſtitute the whole compound ones. They are of two kinds, the tubulated, and ligulated; the former are always furniſhed with a campanulated limb, divided into four or five ſegments: the latter, or ligulated corollulæ, have a flat linear limb, terminated by a ſingle point, or by a broader extremity, divided into three or five ſegments.

COROMANA, or Coromane, in *Ancient Geography*, a town of Aſia, ſituated on the Perſian gulf, according to Steph. Byz. It is probably the ſame place which is called by others Coromanis, and referred to the eaſtern coaſt of Arabia Felix.

COROMANDEL, Coast of, in *Geography*, the eaſtern coaſt of Hindooſtan, along the Carnatic, extending from Point Calymere, in N. lat. 10° 20'. E. long. 79° 54' 30", to the mouth of the Kiſtnah river, in N. lat. 15° 45'. E. long. 80° 10'. The geography of this coaſt is ſettled upon unexceptionable authorities by major Rennell, who obſerves, that it has no port for large ſhips.

CORON, a Jewiſh liquid meaſure, ſuppoſed to be the ſame with the homer.

Coron, in *Geography*, a ſea-port town of European Turkey, in the Morea, ſituated on a gulf of the ſame name, anciently called "the gulf of Meſſina," with a large harbour. This place was taken from the Turks by the Venetians, in the year 1685, after a very obſtinate ſiege, which laſted 49 days. In 1715, it was retaken by the Turks, with little loſs. Eighty miles S.S.W. of Corinth. N. lat. 37°. E. long. 21° 55'.

CORONA, in *Anatomy*, is that edge of the glans of the penis where the preputium begins.

Corona, in *Architecture*, a broad flat member in a cornice, which is placed below the cymatium, and above the mutules or modillions. Thus the mutules or modillions, when there are any, ſupport the corona. (See *Plate* XIII. and XXIX. *of Architecture.*) The corona is called by the Italians *gocciolatois* and *lagrimatois*; by the French, *larmier*; and by our workmen, *drip*: all words of the ſame import, and taken from the circumſtance of the rain-water dropping from the corona, which thus ſhelters the members beneath.

The corona may be regarded as the moſt eſſential member of a cornice, as it is that part which anſwers the main purpoſe of giving ſhelter and producing ſhade; and except in a very few antique examples, ſuch as the arch of Lions at Verona and the temple of Peace at Rome, where it is omitted, there is nothing in architecture better ſupported by authority and theory.

Corona *Borealis*, or *Septentrionalis*, *Northern Crown*, or *Garland*, in *Aſtronomy*, a conſtellation of the northern hemiſphere; whoſe ſtars in Ptolemy's Catalogue, in Tycho's and in Hevelius's, are 8; in the Britannic Catalogue, 21. See Constellation. See alſo Phil. Tranſ. for 1797, p. 315. 322.

Corona *Auſtralis*, or *Meridionalis*, *Southern Crown*, a conſtellation of the ſouthern hemiſphere, whoſe ſtars in Ptolemy's Catalogue are 13; in the Britiſh Catalogue, 12.

Corona, Leonardo, in *Biography*, an hiſtorical painter of eminence, was born in 1561, at Murano, in the ſtate of Venice. After having received the ſcanty precepts which his father, a miniature painter, could furniſh, he repaired to Venice, where his talent was firſt evinced in the admirable copies which he made from the pictures of Titian. He was ſoon employed in many extenſive works, and became not unfrequently a ſucceſsful competitor of the younger Palma. Tintoretto, however, ſeems to have been his model; and indeed, in his large picture of the Crucifixion, the reſemblance to his prototype is ſo ſtrong, that his biographer, Ridolfi, has difficulty in defending him againſt the charge of plagiariſm. Amongſt his fineſt works may be enumerated a picture of the Annunciation, of ſtriking effect, in the church of S. S. Gio, e Paolo; and an altar-piece, much in the ſtyle of Titian, in that of St. Stefano. This artiſt died in the year 1605. Ridolfi, Lanzi, Storia Pitt.

Corona, in *Botany*, a Crown, is by ſome writers uſed for the wing or down of the ſeeds of compound flowers, called by Linnæus *pappus*. It has been vaguely applied to the cup in the centre of a narciſſus, by thoſe who could affix no preciſe ideas to that part, and who would not adopt the Linnæan term *nectarium*. (See Corolla.) Willdenow has firſt defined *Corona* as an appendage to the *nectarium*, conſiſting of one or more leaves, very various in form. In *Narciſſus* it is, according to him, of one cup-like leaf; in ſome ſpecies of *Silene*, *Lychnis*, &c. of two leafy appendages to the claw of each petal. The latter appears to us almoſt the only caſe in which the term is wanted, and it is one of thoſe words beſt uſed without any preciſe technical application. S.

Corona *imperialis*; Tourn. *Regalis*; Dill. See Fritillaria *regia*.

Corona *ſolis, lychnidis folio*; Plum. See Buphthalmum *fruteſcens*.

Corona *ſolis, laureolæ folio*; Plum. See Buphthalmum *arboreſcens*.

Corona *ſolis, caroliniana*; Mart. See Buphthalmum *helianthoides*.

Corona *minor* 3, and *minor femina*; Taber. See Helianthus *indicus et multiflorus*.

Corona *minor*, *diſco atrorubente*; Dill. See Helianthus *atrorubens*.

Corona *maritima*; Plum. See Silphium *trilobatum*.

Corona *clericalis*. See Crown, and Coif.

Corona *Æthiopica*, in *Natural Hiſtory*, the name of a ſea-ſhell of the dolium, or *concha globoſa* kind.

Corona *imperialis*, a name given by authors to a kind of voluta, differing from the other ſhells of that family, by having its head ornamented with a number of points, forming a ſort of crown.

There are four ſpecies of this ſhell found in the cabinets of the curious.

Corona *ſolis Americana*, the name of a marine inſect. See American, &c.

Corona *triumphalis*, Lat. *triumphal crown*. Among the Romans, there were two triumphal crowns for the general, who had gained a ſignal or important victory: the firſt was given by the army, and originally it was only a ſimple laurel, but was afterwards of gold, in imitation of the leaves of the laurel; the ſecond was called *corona provincialis*, which was likewiſe originally of ſimple laurel, but afterwards of gold, and very heavy. Plutarch informs us, that the perſon who triumphed received a great number of provincial crowns.

Corona *provincialis*. See the preceding article.

Corona, *Ital.* a crown, a *muſical* character for a pauſe; is a ſemicircle with a point under it, thus; 𝄐. it is often vulgarly called in Engliſh a bull's eye; ſee Crown and Pause. The pauſe uſed to be *ad libitum*; but in full pieces this was found inconvenient, as the whole band never reſumed the ſtrain at the ſame inſtant. Emanuel Bach, and Haydn, we believe, were the firſt compoſers who aſcertained its length by reſts; making it conſiſt of two or three bars, ſpecified alike in all the ſeveral parts. The French term this kind of ſilence, *point d'orgue*. In rondeaux and ſongs in which *da capo* occurs, it is the final mark or ſignal of termination.

mination. It likewiſe indicates the final cloſe in rounds and canons upon ſuch notes in the ſeveral parts, as form a common chord to the key notes.

CORONÆ, or Halos, in *Optics*, are luminous circles which are ſometimes ſeen round the ſun, the moon, and even round the planets and the fixed ſtars. They are ſometimes quite white, and at other times coloured: but for a full account of their different appearances, and for the various conjectures reſpecting the cauſes upon which they depend, ſee the article Halo.

Corona *Lucida*, in *Aſtronomy*, a ſtar of the firſt magnitude in Corona *Borealis*. See Lucida, and Constellation.

Coronæ *jus*. See Jus, and *Right of the* Crown.

Coronæ *placitorum cuſtos*. See Custos.

CORONÆA, in *Ancient Geography*, a town of Greece, in Phthiotis, a country of Theſſaly, according to Strabo and Ptolemy.—Alſo, a place in Greece, in the Peloponneſus, ſituated between Sicyone and Corinth.—Alſo, a town ſituated in the northern part of the iſle of Cyprus: it was epiſcopal; and called alſo Cyrenia and Cerunia.—Alſo, the name of a peninſula of Greece, placed by Steph. Byz. near Attica.

CORONAL Suture, in *Anatomy*, the ſuture which joins the ſemi-circular edge of the frontal bone to the anterior margin of the two parietal bones. See Skeleton.

Coronale *Os*, a term which has been ſometimes applied to the frontal bone.

CORONARIA, in *Botany*, Hort. Clif. See Agrostemma *coronaria*.

CORONARIÆ, the ninth natural order in the Syſtema Naturæ of Linnæus, and the tenth in the Poſthumous Prælections. "A coronary flower," ſays Linnæus, "implies a beautiful one; which is inſerted in crowns or garlands." Nothing can be more evident than that this is an accidental circumſtance, which cannot be ſtrictly defined, and which, in no point of view, has a right to conſtitute a natural order. In the Syſtema Naturæ, the following ſix only are arranged under this order: ornithogalum, ſcilla, hyacinthus, aſphodelus, anthericum, and polianthus. In the Prælections, the following are added, partly taken from the aboliſhed orders, liliaceæ and muricatæ: albuca; cyanella; *lanaria*, Ait.; *lachenalia*, Jacq.; *phormium*, Forſt.; aletris; aloe; yucca; agave; bromelia; *hepetis*, Swartz; tillandſia; burmannia; hypoxis; hemerocallis; veratrum; melanthium; *wurmbea*, Thunb.; helonias; fritillaria; *eucomis*, L'Herit.; lilium; tulipa. Thoſe printed in Italics are inſerted by Giſeke. All the genera belong to the third claſs of Juſſieu, which conſiſts of monocotyledonous plants, with perigynous ſtamens; and are diſtributed by him among his orders, junci, lilia, bromeliæ, aſphodeli, and narciſſi. But Linnæus has admitted into his coronariæ only thoſe plants which have no ſpatha, having formed his order ſpathaceæ expreſsly for the others. In ſome of the coronariæ, he obſerves, the root is tuberous; in others, furniſhed either with a ſolid or with a ſcaly bulb. He connects aloe, yucca, &c. with lilium in this manner: the ſcaly bulb of lilium is nothing more than the permanent baſes of the leaves (ſee Bulb); but in the aloe, and plants allied to it, not only the baſe but the whole leaf is permanent, and is a kind of bulb out of the earth, the ſcales of which are dilated and fleſhy. The ſtamens are ſix; the germ ſuperior; and the capſule three-celled and three-valved.

CORONARY, in *Anatomy*, is a term applied to ſeveral parts of the body, and particularly to the blood-veſſels which ſupply the heart.

Coronary *Arteries of the Heart*, are two in number: an anterior and poſterior, or right and left. See Arteries.

Coronary *Ligament of the Liver*, is an adheſion of the poſterior parts of this viſcus to the tendinous centre of the diaphragm. See Liver.

Coronary *Arteries of the Lips*, are two branches (a ſuperior and inferior) of the external maxillary artery. See Arteries.

Coronary *Stomachic Artery*, or *arteria coronaria ventriculi*, is a branch of the cœliac trunk, going to the ſtomach. See Arteries.

Coronary *Vein of the Heart*, is the veſſel which returns the blood from this viſcus to the cavity of the right auricle. See Veins.

Coronary *Gold*, in *Ancient Hiſtory*, a kind of free gift, which, under the Roman empire, conſiſted of occaſional offerings, that retained the name and ſemblance of popular conſent. It was an ancient cuſtom that the allies of the republic, who aſcribed their ſafety or deliverance to the ſucceſs of the Roman arms; and even the cities of Italy, which admired the virtues of their victorious general, adorned the pomp of his triumph by their voluntary gifts of crowns of gold, which, after the ceremony, were conſecrated in the temple of Jupiter, to remain a laſting monument of his glory to future ages. The progreſs of zeal and flattery ſoon multiplied the number, and increaſed the ſize of theſe popular donations; and the triumph of Cæſar was enriched with 2822 maſſy crowns, which might have amounted to 20,414 pounds of gold. This treaſure was immediately melted down by the prudent dictator, who was ſatisfied that it would be more ſerviceable to his ſoldiers than to the gods: his example was imitated by his ſucceſſors; and the cuſtom was introduced, of exchanging thoſe ſplendid ornaments for the more acceptable preſents of the current gold coin of the empire. The Tarragoneſe Spain preſented the emperor Claudius with a crown of gold of ſeven, and Gaul with another of nine, hundred pounds weight. The ſpontaneous offering was at length exacted as the debt of duty; and inſtead of being confined to the occaſion of a triumph, it was ſuppoſed to be granted by the ſeveral cities and provinces of the monarchy, as often as the emperor condeſcended to announce his acceſſion, his conſulſhip, the birth of a ſon, the creation of a Cæſar, a victory over the Barbarians, or any other real or imaginary event which graced the annals of his reign. The peculiar free gift of the ſenate of Rome was fixed by cuſtom at ſixteen hundred pounds of gold, or about 64,000*l.* ſterling. The oppreſſed ſubjects celebrated their own felicity, that their ſovereign ſhould graciouſly conſent to accept their feeble but voluntary teſtimony of their loyalty and gratitude. The ſenators were ſuppoſed to be exempt from the "Aurum Coronarium;" but the "Auri Oblatio," which was required at their hands, was preciſely of the ſame nature.

CORONATION. See Crown, King, and Oath.

Coronation of *the Pope*, a ceremony deſcribed by l'Enfant, in his "Hiſtory of the Council of Conſtance," in his account of the coronation of Martin V., created pope in a peculiar manner, agreed by that council, in the room of John XXIII., whom they had depoſed. On this occaſion there was erected in the court of the palace, a grand theatre, capable of containing 100 perſons. "Cloſe to the wall was a very high throne, above which there was a canopy of cloth of gold, the ſeat deſtined for his holineſs. On the right hand, and on the left, were ranged ſeveral other ſeats, a little lower, but magnificent, for the princes and the prelates to ſit on. At eight o'clock in the morning, the two patriarchs, (for ſince the time of the cruſades, they had got titular Latin patriarchs in the eaſtern patriarchal ſees ſubdued

dued by the Mahometans) the twenty-two cardinals, (for there were no more then preſent) the archbiſhops, the biſhops, the mitred abbots, entered the court of the palace, on horſeback, in pontifical habits. The emperor, and the other princes, followed on foot. When all the people were aſſembled, the pope mounted the theatre, preceded by the clergy, carrying the croſs and waxen tapers. On the forepart of the theatre there was an excellent choir of muſic, which ſang and played on all ſorts of inſtruments. The pope had on his head a ſuperb tiara, ſeeded with gold crowns, with a golden croſs on the top. At his right hand, a little behind, were cardinal Viviers, and a patriarch; at his left, cardinal Brancas, with another patriarch. Then marched the other cardinals, and the grand maſter of Rhodes, who were all received by the emperor, the electors, and the princes. The pope being placed on the throne, the patriarch of Antioch took his tiara, or crown, off his head, and kneeled before him, holding his crown in his hand. Near him other cardinals kneeled alſo; one of whom carried ſome tow at the end of a ſtick, another a croſs, and the reſt wax tapers. At the pope's right hand ſat cardinal de Brancas, with eight other cardinals; at his left, the grand maſter of Rhodes, with eight cardinals. Next them, on the right, the emperor, on the left, the elector of Brandenburg, both attended by archbiſhops. Next them, electors, princes, biſhops, and other prelates, as many as the place could contain. The reſt ſat on the ſtairs, which had been made very wide for the purpoſe. There was, beſide theſe, in the court, a great number of archbiſhops, biſhops, and other great lords, both eccleſiaſtic and ſecular, who ſurrounded the theatre on horſeback. There was, likewiſe, an immenſe crowd of people, who could not get into the court. When the muſic had ceaſed, one of the cardinals, who was kneeling before the pope, and who carried the tow, lighted it, and twice ſaid aloud, addreſſing himſelf to the pope, "Sancte pater, ſic tranſit gloria mundi." After which, three cardinals, who had been ſelected for putting the crown on the pope's head, ſtanding up with the grand maſter of Rhodes, and taking the crown from the hands of the pope, they all four kneeled on the higheſt ſtep of the throne, whence, after ſaying a prayer, they aroſe, and put the crown on the pope's head: after which, reſuming their former places, they heard the *Te Deum*, and the muſic. When they left the place, the pope mounted his white horſe, which was preceded by three led horſes, that were alſo white, and had red capariſons. The inferior clergy walked before, followed by the abbots, biſhops, archbiſhops, and cardinals, on horſeback. The emperor, on foot, held the reins of the pope's bridle on the right, walking in the dirt, (which is particularly obſerved by the hiſtorian) whilſt the elector of Brandenburg did the ſame on the left. Thus the pope was carried in proceſſion from the cathedral to the Auguſtin monaſtery, and thence reconducted to the epiſcopal palace. Here ended the ceremony."

CORONATORE Eligendo, in *Law*, a writ at common law, which, after the death or diſcharge of any coroner, is directed to the ſheriff, out of the chancery, to call together the freeholders of the county, for the choice of a new coroner, to certify into chancery both the election, and the name of the party elected, and to give him his oath, &c. F. N. B. 163.

Coronatore *exonerando*, is a writ for the diſcharge of a coroner, for negligence or inſufficiency in the execution of his duty: and where coroners are ſo far engaged in any other public buſineſs, that they cannot attend the office; or if they are diſabled by old age, or diſeaſe, to execute it; or have not ſufficient lands, &c. they may be diſcharged by this writ. See Coroner.

CORONE, Coron, in *Ancient Geography*, a town of the Peloponneſus, on the gulf of Meſſina, according to Pauſanias; it was otherwiſe called Œpeia; but after the re-eſtabliſhment of the Meſſenians, Epimelides. the chief of a colony, which they had brought thither, called it Corone, after the name of his native town in Bœotia. This town had many temples, among which were thoſe of Diana, Bacchus, and Æſculapius. Each deity had a marble ſtatue. The public place was ornamented with a bronze-ſtatue of Jupiter Salvator. In the citadel was a Minerva, holding in her hand a crown. The harbour of this city was called the "port of the Achæans." The territory of Corone extended as far as Colonis; and at the diſtance of 80 ſtadia from the city, on the ſea coaſt, was a temple of Apollo, very ancient and the moſt celebrated of the country. Pliny ſays that from this city the gulf in which it was ſituated was called "Sinus Coronæus." See Coron.

Corone, in *Ornithology*, a ſpecies of Corvus, which ſee.

CORONEA, Κορωνεια, in *Ancient Geography*, a town which ſubſiſted for a long time in Bœotia, as it is mentioned by Plutarch, Cornelius Nepos, Diodorus, Strabo, and Pauſanias. It was ſituated on an eminence, near mount Helicon, at ſome diſtance to the ſouth of Cheronæa, and not far to the ſouth-weſt of the temple of Minerva Itonia, in which the eſtates of Bœotia were accuſtomed to aſſemble. In the public place of this city was an altar of Mercury Epimelius, another conſecrated to Venus, and at a ſmall diſtance a temple of Juno, in which was a very ancient ſtatue, executed by Pythiodorus of Thebes. This town was epiſcopal; but it is now only a village.

CORONEL, Paul, in *Biography*, a native of Spain, and diſtinguiſhed by his great proficiency in the Oriental tongues. He was profeſſor of theology at the univerſity of Salamanca, and was employed by cardinal Ximenes in publiſhing his edition of the Polyglot bible. He died A.D. 1524. Moreri.

CORONELLA, in *Zoology*, a ſpecies of coluber, the Coluber *Pethola*; which ſee.

CORONELLI, Vincent, in *Biography*, a native of Venice, to which city in 1685 he was appointed coſmographer. He afterwards was public profeſſor of geography. His works are numerous, and it is ſaid he compoſed with ſo much facility that the writing of a folio was to him leſs labour than that of a pamphlet to another man. He began "An Univerſal Library," which he meant to extend to 40 volumes folio, but ſeven only appeared. He publiſhed 400 maps with explanations, and in 1683 he completed two globes very nearly 12 feet in diameter, curiouſly ornamented with emblems, inſcriptions, &c. which were placed in the royal library in Paris, and of which M. de la Hire publiſhed a deſcription in the year 1704. Moreri.

CORONER, a very ancient officer at common law in this kingdom, ſo called, becauſe he hath principally to do with the pleas of the crown; or ſuch in which the king is more immediately concerned. In this view of the office the lord chief juſtice of the king's bench is the principal coroner in the kingdom, and may, if he pleaſes, exerciſe the juriſdiction of a coroner in any part of the realm. (4 Rep. 57.) But there are particular coroners for every county of England; they are uſually four, ſometimes ſix, and ſometimes fewer, in each county. (F. N. B. 163.)

This officer is of equal antiquity with the ſheriff, and was ordained together with him to keep the peace when the earls gave up the wardſhip of the county. Mention is made of this officer as early as the time of king Athelſtan, anno 925.

Indeed the office of the coroners in England is ſo ancient, that the commencement of it is loſt in obſcurity. "It ſeems (ſays Mr. Millar, in his "Hiſtorical View of the Engliſh Government,") to have been an immemorial cuſtom of the Anglo-Saxons, that ſeveral perſons of diſtinction ſhould be named by the freeholders in each county, with power to ſecure and impriſon criminals of all ſorts, to the end that they might be brought to a trial. From this employment, theſe officers, as in after-times the juſtices of the peace, found the means of aſſuming a criminal juriſdiction, which gradually became more extenſive. Another branch of buſineſs, devolved upon the coroner, and which may be regarded as an appendage or conſequence of the former, was that of aſcertaining and determining the value of the fines, amerciaments, and forfeitures, or of any other emoluments, which occurred to the ſovereign, either from the condemnation of public offenders, or from the right of the crown to all the goods, of which no other proprietor could be found. When the coroner had occaſion to inquire into the truth of any fact, either with a view to determine thoſe matters which fell under his own juriſdiction, or in order to tranſmit an account of it to ſome other criminal court, he proceeded, in the ſame manner that was cuſtomary in the courts of the hundred, and of the county, by the aſſiſtance of an inqueſt or jury; and the number of jurymen, who, in thoſe caſes, were called from the neighbouring townſhips, was not leſs than was employed in other judicial inveſtigations.

"After the Norman conqueſt, when the aula regis drew to itſelf the cognizance of the greater part of crimes, it became the duty of the coroner to certify to that court his inquiſition concerning thoſe offences which fell under its juriſdiction; and upon this information, the moſt authentic that could well be procured, a trial before the grand juſticiary was commenced. Upon the eſtabliſhment of the king's bench, and of the commiſſions of oyer and terminer and gaol delivery, the like certification, and for the ſame purpoſe, was made by the coroner to theſe tribunals.

"But in proportion to the advancement of the prerogative, the authority of the coroner, an officer elected by the county, was diminiſhed; his juriſdiction was daily ſubjected to greater limitations; and his reports became gradually more narrow and defective: whether it be that, by having a fellow-feeling with the inhabitants, he endeavoured to ſcreen them from juſtice, or that, from the ruſt and relaxation to which every old inſtitution is liable, his operations became tardy and inaccurate; certain it is, that he came to overlook the greater part of the offences which require the interpoſition of the magiſtrate, and his inquiſition was at length confined to a few of thoſe enormous crimes, which excite univerſal indignation and reſentment.

"To ſupply the deficiency of the coroner's inqueſt, the ſheriff, who had come, in a great meaſure, under the appointment of the crown, was directed, upon the meeting of judges in the circuits, or of the other criminal courts, to call a jury, in order to procure information concerning the crimes committed in particular diſtricts. Hence the origin of what is called the grand jury, by whoſe inquiſition the judges were authorized to proceed in the trial of public offenders.

"The employment of the coroner in Scotland, was the ſame as in England: and he appears to have uſed the ſame forms in the exerciſe of his juriſdiction. With the aſſiſtance of a jury, he enquired into the commiſſion of crimes; and either puniſhed them by his own authority, or tranſmitted information concerning them to the competent court. The negligence of this officer ſeems, in that country, to have likewiſe produced the interpoſition of the ſheriff, or chief magiſtrate of particular diſtricts, by calling a jury for the ſame purpoſe."

The coroners are choſen by the freeholders of the county, by virtue of a writ out of chancery; and the choice is for life, unleſs they become ſheriffs or verderors, or are diſcharged by the writ *de coronatore exonerando*, or by ſtat. 25 Geo. II. cap. 23. for extortion, neglect, or miſbehaviour.

This officer, by the ſtatute of Weſtminſter, (3 Edw. I. c. 10) ought to be a knight; and there is a writ in the regiſter, now obſolete, called *niſi ſit miles*, whereby it appears to be a ſufficient cauſe for removal of a coroner choſen, if he were not a knight and had a hundred ſhillings *per ann.* freehold. This qualification, however, is now diſregarded; and perſons are choſen into this office merely for the ſake of the fees annexed to it by 3 Hen. VII. cap. 1. and 25 Geo. II. cap. 29.

The coroner is to take the oaths of allegiance, ſupremacy, and abjuration, and then the oaths of office; and when he is elected and ſworn into his office, he is to remember the qualification-acts, and, in due time, to take the ſacrament and oaths of abjuration. Impey's Sheriff. By the ſtat. 25 Geo. II. c. 29. above cited, for every inquiſition, not taken upon the view of a body dying in gaol, which ſhall be taken by any coroner in any townſhip or place contributing to the rates directed by ſtat. 12 Geo. II. c. 29., the ſum of 20*s*. and for every mile which he ſhall travel from the place of his abode, the further ſum of 9*d*. ſhall be paid him out of the money ariſing from the ſaid rates; but for every inquiſition taken upon the view of a body dying in gaol, ſo much money not exceeding 20*s*. ſhall be paid him as the juſtices at ſeſſions ſhall think fit to allow, out of the money ariſing from the ſaid rates. Provided that over and above the recompence by the ſtatute appointed, the coroner who ſhall take an inquiſition upon the view of a body ſlain or murdered, ſhall have the fee of 13*s*. 4*d*. payable by ſtat. 3 Hen. VII. c. 1. out of the goods of the ſlayer or murderer, or out of the amerciaments upon the townſhip if the ſlayer or murderer eſcape. Coroners taking farther fees are guilty of extortion. The ſtat. 1 Hen. VIII. c. 7. enacts, that where a perſon is ſlain by miſadventure, the coroner is to take no fee, on pain of 40*s*.

Their authority is judicial and miniſterial; judicial, aſcertained in great meaſure by ſtat. Edw. I. "de officio coronatoris," and conſiſting, firſt, in inquiring, when a perſon is ſlain, or dies ſuddenly, or in priſon, concerning the manner of his death. And this muſt be "ſuper viſum corporis;" (4 Inſt. 271.); for if the body be not found, the coroner cannot ſit. He muſt alſo ſit at the very place where the death happened; and his inquiry is made by a jury from 4, 5, or 6 of the neighbouring towns, over whom he is to preſide. If any be found guilty by this inqueſt of murder or other homicide, he is to commit them to priſon for further trial, and he is alſo to inquire concerning their lands, goods, and chattels, which are forfeited thereby: but, whether it be homicide or not, he muſt inquire whether any deodand has accrued to the king, or the lord of the franchiſe, by this death; and he muſt certify the whole of this inquiſition (under his own ſeal and the ſeals of the jurors) together with the evidence thereon, to the court of King's Bench, or the next aſſizes. Another branch of his office is to inquire concerning ſhipwrecks; and certify whether wrecks or not, and who is in poſſeſſion of the goods. Concerning treaſure-trove, he is alſo to inquire who were the finders, and where it is; and whether any one be ſuſpected of having found and concealed a treaſure: "and that may be well perceived (ſaith an old ſtatute of Edward I.) when one liveth riotouſly, haunting taverns, and hath done ſo of long time:" whereupon he might be attached, and held to bail, upon this ſuſpicion only. The miniſterial office of the coroner is only as the ſheriff's ſubſtitute. For when juſt exception can be taken to the ſheriff, for ſuſpicion of partiality, (as that he is intereſted in the ſuit, or of kindred to either plaintiff or defendant,) the proceſs muſt then be awarded to the coroner, inſtead of the ſheriff, for the execution of the king's writs. (4 Inſt. 271.) In their former capacity the act of one has the ſame force as if they had all joined; in the latter, their acts are void, unleſs they join. 4 Inſt. 271. 1 Plowd. 73. And the authority of coroners does not determine by the demiſe of the king; as that of judges, &c. doth, who act by the king's commiſſion. 2 Inſt. 174.

If the coroner be remiſs in coming to perform his office, when he is ſent for, &c. he ſhall be amerced by virtue of the ſtatute "De Coronatoribus." Coroners, concealing felonies, &c. are to be fined and ſuffer one year's impriſonment. 3 Ed. I. c. 9.

There are alſo certain *ſpecial coroners* within divers liberties, as well as the ordinary officers in every county; and ſome colleges and corporations are empowered by their charters, to appoint the coroner within their own precincts. (4 Inſt. 271.) The biſhop of Ely alſo hath power to make coroners by a charter of Henry VII.; and there are coroners of particular lords of franchiſes and liberties, who, by charter, have power to create their own coroners, or to be coroners themſelves; eſpecially the juriſdiction of the admiralty, as well as that of the verge. The coroner of Portſmouth hath juriſdiction on board a man of war in Portſmouth harbour; for though the admiralty has a coroner of its own, he never takes inquiſition of *felo de ſe*.

Coroner *of the king's houſehold*, hath an exempt juriſdiction within the verge, and the coroner of the county cannot intermeddle within it; as the *coroner of the king's houſe* may not intermeddle in the county, out of the verge. (2 Hawk. P. C. c. 9. § 15.) If an inquiſition be found before the coroner of the county, and the coroner of the verge, where the homicide was committed in the county, and ſo it is entered and certified, it will be error. (4 Rep. 45.) But if a murder be committed within the verge, and the king removes before any indictment be taken by the coroner of the king's houſehold; the coroner of the county, and the coroner of the king's houſe, ſhall enquire of the ſame: and according to ſir Edward Coke, the coroner of the county might enquire thereof at the common law. (2 Hawk. P. C. c. 9. § 15. 2. Inſt. 550.) If the ſame perſon be coroner of the county, and alſo of the king's houſe, an indictment of death taken before him as coroner, both of the king's houſe, and of the county, is good. 4 Rep. 46. 2 Inſt. 134. See ſtat. 33 Hen. VIII. 12. Parl. 1 & 3.

Coroner *of London*, is eligible by the charter of King Edward IV. by the mayor and commonalty of the city, and no other coroner has any power there. The lord mayor of London is by charter, 18 Edward IV., coroner of London: Alſo the lord mayor, &c. may chuſe two coroners in Southwark. When any one is killed, or comes to an untimely death in London, the coroner upon notice ſhall attend where the body is, and forthwith cauſe the beadles of the ward to ſummon a jury to make the neceſſary inquiry, how ſuch perſon came by his death; and after inquiſition taken, he ſhall give a certificate to the churchwarden, clerk, or ſexton of the pariſh, to the intent the corpſe may be buried: the coroner's fee in this caſe formerly amounted to 25*s*. but now to about double that ſum; unleſs the friends of the deceaſed are poor, and then he ſhall execute his office for nothing. The coroners in London and Middleſex, and in other cities, may bail felons and priſoners, according to former cuſtom. Stat. 1 & 2 P. & M. c. 13. § 6. 1 Lil. Abr. 327.

Coroner, *court of*. See Court.

CORONET, in *Farriery*. See Cornet.

Coronet, in *Heraldry*. See Crown, Dukes, Earls, &c.

CORONIL, in *Geography*, a town of Spain, in the province of Andaluſia; 30 miles S. of Seville.

CORONILLA, in *Botany*, (a little crown, ſo called from the flowers crowning the branches in a corymb.) Linn. gen. 883. Schreb. 1198. Willd. 1367. Gært. 891. Juſſ. 361. Vent. 3. 422. Claſs and order, *diadelphia decandria*. Nat. Ord. *Papilionaceæ*, Linn. *Leguminoſæ*, Juſſ.

Gen. Ch. *Cal.* one-leafed, very ſhort, campanulate, five-toothed; the two upper teeth near together, the three lower ſmaller; permanent. *Cor.* papilionaceous; ſtandard ſomewhat heart-ſhaped, reflexed on all ſides, ſcarcely longer than the wings; wings egg-ſhaped, obtuſe, connivent near the top, dehiſcent towards the bottom; keel compreſſed, acuminate, aſcending, often ſhorter than the wings. *Stam.* Filaments diadelphous, nine and one, aſcending, broader at the top; anthers ſimple, ſmall. *Piſt.* Germ ſuperior, cylindrical; ſtyle briſtle-ſhaped, aſcending; ſtigma ſmall, obtuſe. *Peric.* Legume long, generally cylindrical, jointed, contracted more or leſs between each joint, often ſeparating at the joints. *Seeds* one in each joint.

Eſſ. Ch. Calyx two-lipped; upper lip with two connate teeth, lower with three; ſtandard ſcarcely longer than the wings. Legume contracted between the ſeeds.

Linnæus has included in this genus the coronilla, ſecuridaca, and emerus of Tournefort. Juſſieu thinks that ſome of the Linnæan ſpecies ſhould be placed under the ornithopus, and that Tournefort's genera ſhould be reſtored. Mr. Saliſbury (Parad. Lond. 13.) is decidedly of opinion, that they are very diſtinct. In *coronilla*, the legume is cylindrical and apparently jointed; and the ſeeds rather oblong. In *ſecuridaca*, the legume is compreſſed, with one ſuture flat, the other narrow; the ſeeds tetragonous. In *emerus*, the claws of the petals longer than the calyx; the legume narrow and awl-ſhaped; the ſeeds cylindrical.

Sp. 1. C. *emerus*. Linn. Sp. Pl. 1. Mart. 1. Lam. 1. Willd. 9. Bot. Mag. 445. (Colutea ſiliquoſa ſive ſcorpioides major; Bauh. Pin. 397. Colutea ſcorpioides 1. elatior; Cluſ. hiſt. 97. Emerus Cæſalpini; Tourn. 650. Duham. arb. 1. 215. tab. 90. Mill. Pl. 132. fig. 1.) β Colutea ſcorpioides minor; Bauh. Pin. 397. Colutea ſcorpioides 1. humilior; Cluſ. hiſt. 97. Emerus minor; Tourn. Pl. 132. fig. 2. Scorpion ſenna of the Engliſh gardeners. "Shrubby; peduncles about three-flowered; claws of the petals three times longer than the calyx; ſtem angular." A much branched, ſpreading, buſhy ſhrub, from two to ſix, and in gardens eight or nine feet high. *Stem* not very ſtraight, ſometimes ſo weak as to need ſupport. *Leaves* alternate; leaflets ſeven or nine, inclining to inverſely heart-ſhaped, green above, ſomewhat glaucous underneath, ſmooth. *Flowers* entirely yellow, or tinged with orange-red, about three together on common axillary peduncles; pedicels ſhorter than the calyx; calyx broad, four-toothed; ſtandard very remote from the other petals. *Legume* ſlender, with ſcarcely apparent joints. *Seeds* cylindrical. A native of

France and Germany; common in the Engliſh gardens, flowering in May and June, and ſometimes again in autumn. Neatly trained to a wall or paling, it makes a beautiful appearance in flower; for which purpoſe it is well fitted by the ſhortneſs of its ſhoots. The leaves properly fermented are ſaid to produce a dye, nearly equal to that of indigo. 2. C. *juncea*. Linn. Sp. Pl. 2. Mart. 2. Lam. 5. Willd. 10. (Polygala major maſſiliotica; Bauh. Pin. 349. Colutea caule geniſtæ fungoſo; Bah. hiſt. 1. p. 383. Dorichnium luteum; Barr. ic. 133.) "Shrubby; leaves quinate and ternate, linear-lanceolate, ſomewhat fleſhy, obtuſe." *Stems* about two feet high, erect; branches quite erect, ſlender, filiform, almoſt naked, or with very few leaves, green. *Leaves* ſmall, in diſtant pairs; the loweſt pair remote from the ſtem. *Flowers* yellow, ſix or ſeven together in ſmall peduncled terminal umbels. *Legumes* ſlender, jointed, ſlightly compreſſed, with ſmall wings at the edges. A native of Spain and the South of France, flowering the greater part of the ſummer. 3. C. *glauca*. Linn. Sp. Pl. 4. Mart. 4. Lam. 2. Willd. 12. Bot. Mag. 13. (Colutea ſcorpioides maritima glauco folio; Bauh. Pin. 397. Coronilla maritima; Tourn. Juſſ. 650.) "Shrubby; leaflets ſeven, very obtuſe, mucronate; lower ones diſtant from the ſtem; ſtipules lanceolate." *Stem* about three feet high; branches numerous, green or reddiſh, more or leſs bent at each joint. *Leaflets* ridge-ſhaped, ſometimes inverſely heart-ſhaped, ſomewhat fleſhy, with a ſmall reflexed point, glaucous; ſtipules very ſmall. *Flowers* yellow, ten or twelve in an umbel, on common peduncles longer than the leaves, remarkably fragrant in the day, almoſt ſcentleſs during the night. A native of the South coaſt of France. A conſtant ornament to our green houſes, and almoſt perpetually in bloſſom. 4. C. *valentina*. Linn. Sp. Pl. 3. Mart. 3. Willd 11. Mill. Pl. 289. fig. 1. Bot. Mag. 185. Gært. tab. 155. fig. 1. (C. ſtipularis. Lam. 4. C. hiſpanica Mill. Mart. 13?) "Shrubby; leaflets nine or eleven, very glaucous, ſmooth; lower ones rather remote from the ſtem; upper ſtipules larger, roundiſh, mucronate." *Stem* a foot and half or two feet high, erect, ſmooth branches alternate, glaucous, zig-zag. *Leaves* alternate, ſhorter than the common peduncles; leaflets ſmaller than thoſe of the preceding ſpecies, more truly glaucous, ſomewhat wedge-ſhaped, retuſe, with or without a ſmall joint; ſtipules deciduous as the plant comes into flower. *Flowers* deep yellow, powerfully ſcented by day and by night. *Legume* long, erect; joints from three to ſeven, elliptical, turgidly lenticular, valveleſs. *Seeds* ovate-oblong, ſlightly compreſſed, of a red ferruginous colour. A native of Spain and Italy. A hardy green-houſe plant, flowering in May, June, and July. 5. C. *coronata*. Linn. Sp. Pl. 5. Mart. 5. Lam. 3. Willd. 14. Jacq. Auſt. 1. tab. 95. Lam. Ill. Pl. 630. fig. 4. Bot. Mag. 907. (C. montana; Scop. Carn. 912. tab. 44. Colutea ſiliquoſa minor coronata; Bauh. Pin. 397. C. ſcropioides altera; Clus. hiſt. 1. 98.) "Somewhat ſhrubby; leaflets nine, elliptical; lower ones almoſt cloſe to the ſtem; ſtipule oppoſite the leaf, two-parted; legumes pendulous." A ſhrub about a foot and half high, woody at the bottom, but dying down to the ground every year. *Stems* erect, ſmooth, greeniſh, but little branched. *Leaves* alternate; leaflets ſmooth, glaucous; ſtipules ſmall, embracing the ſtem, ſhrivelling, falling off very early. *Flowers* yellow, with a greeniſh tint at the end of the petals, eſpecially of the keel; peduncles erect, longer than the leaves, riſing from the upper axils, and bearing about twenty flowers; claws of the petals a little longer than the calyx. *Legumes* with three or four joints, ſomewhat angular. A native of the South of Europe. 6. C. *viminalis*. Salis. Par. Lond. 13. "Stem ſcarcely angular; leaflets from ſeven to eleven, more or leſs inverſely egg-ſhaped, retuſe, mucronate, glaucous; peduncles from ſix to ten-flowered; legumes very long; bowed upwards." Gathered near Mogadore by Brouſſonet, and raiſed in England from ſeeds ſent to Mr. Saliſbury by that botaniſt. Cuttings from it readily take root, and it ripens its ſeeds in our green-houſes every year. 7. C. *ſquamata*. Willd. 13. Cavan. 1. 43. tab. 153*. "Herbaceous; leaflets eleven, inverſely egg-ſhaped, ſomewhat tomentous; ſtipules lanceolate; legumes beſet with ſcurfy ſcales, pendulous." A native of Spain. 8. C. *minima*. Sp. Pl. 7. Mart. 6. Lam. 6. Willd. 15. Jacq. Auſt. 3. tab. 271. Tourn. 650. (Ferrum equinum, ſiliquis in ſummitate; Bauh. Pin. 349. Polygalon Cortuſi; J. Bauh. hiſt. 2. 351. Lotus enneaphyllos; Dalech. hiſt. 510.) "Somewhat ſhrubby, procumbent; leaflets nine, egg-ſhaped; ſtipule oppoſite the leaf, emarginate; legumes angular, knotty." β C. ſive colutea minima; Tourn. 650. Lob. ic. 87. (Polygala altera; Bauh. Pin. 344. Polygala valentina; Clus. 1. 98. Colutea, parva ſpecies; J. Bauh. 1. 383.) "The ſame with more erect and more ſhrubby ſtems." *Stems* ſeveral, woody, two or three inches long, proſtrate; branches herbaceous, annual, pale-green, proſtrate and extending five or ſix inches. *Leaflets* very ſmall, obtuſe with a ſmall point, of a fine glaucous colour; the two lower ones cloſe to the ſtem; ſtipules very ſmall, often deciduous. *Flowers* yellow, with a greeniſh tint at the ends of the petals, eight or ten together on a common peduncle, longer than the leaves. *Legumes* pendulous, ſlightly angular, with three or four oval-oblong joints. A native of the ſouth of Europe, on dry uncultivated hills. 9. C. *pentaphylla*. Willd. 16. Desfont. atl. 2. 170. "Shrubby; leaflets generally five, wedge-ſhaped, emarginate; ſtipules egg-ſhaped." A very ſmooth ſhrub, two or three feet high, erect, much branched. *Stipules* large, deciduous. *Flowers* yellow, from ten to twenty in an umbel. A native of hills about Algiers. 10. C. *argentea*. Linn. Sp. Pl. 6. Mart. 7. "Shrubby; leaflets eleven, ſilky; the outer one larger." La Marck thinks it very dubious what plant Linnæus intended, and has referred to his ſtipularis the ſynonym from Alpinus, the only one quoted in the Species Plantarum. The ſtipularis is, we think, beyond a doubt the C. valentina of Linnæus and the Botanical Magazine. Mr. Miller has a C. argentea which ſeems to be diſtinct. He has figured it in Pl. 106, with the following deſcription. A very humble ſhrub, rarely more than two feet high, and in a dry barren ſituation not more than one. *Stem* hard and woody, producing branches on every ſide near the ground. *Leaves* produced at the joints; ſtipules two, ear-ſhaped. *Flowers* yellow, very ſweet-ſcented, on long ſlender axillary common peduncles. A native of the iſland of Crete, flowering in May, and ripening its ſeeds in Auguſt and September. It has a ſilky appearance only when it grows in a poor ſoil. 11. C. *cappadocica*. Willd. 18. (C. orientalis; Mill. Mart. 14. C. orientalis herbacea, flore magis luteo; Tourn. cor. 44.) "Herbaceous; leaflets nine, inverſely heart-ſhaped; ſtipules roundiſh, wedge-ſhaped." *Leaflets* glaucous underneath; ſtipules ſmaller than thoſe of C. valentina, retuſe, permanent. *Flowers* yellow, numerous, on ſtrong peduncles upwards of ſix inches in length. *Legumes* ſhort, thick, about an inch long. A native of Cappadocia. 12. C. *vaginalis*. Lam. 7. Willd. 19. (Polygala montana italica, flore aureo; Barrel. ic. 721?) "Somewhat ſhrubby, very ſmall; leaflets about eleven, inverſely egg-ſhaped; lower ones remote from the ſtem; ſtipules oppoſite to the leaves, ſolitary, emarginate, ſheathing." *Flowers* yellow, from five to eight in a terminal umbel; claws of the petals longer than the calyx.

lyx. Obſerved by Vahl in Italy, and communicated to him by La Marck. 13. C. *ſecuridaca.* Linn. Sp. Pl. 8. Mart. 8. Lam. 9. Willd. 20. (Securidaca lutea major; Bauh. Pin. 348. Tourn. Inſt. 399. S. vera; Cluſ. Hiſt. 2. 236. S. legitima; Gært. tab. 153. fig. 3. Hedyſarum ſive S. major. Lob. ic. 2. p. 76.) Hatchet vetch. "Herbaceous; leaflets numerous, oblong, wedge-ſhaped; legumes compreſſed, ſword-ſhaped." *Root* annual. *Stems* about a foot long, procumbent, ſtriated, hollow. *Leaflets* fifteen or ſeventeen, green, ſmooth, obtuſe. *Flowers* yellow, from eight to twelve in an umbel; common peduncles axillary, ſtriated, hiſpid towards the baſe. *Legume* near four inches long, compreſſed, a little bent like a ſickle, but ſhaped like a broad ſword, terminated by the ſhort ſtigma, pubeſcent in the middle, and a little ſwollen by the ſeeds, ſmooth at the ſides with a broad margin, many-celled, two-valved; partitions membranous, very thin, permanent; the ſeed-bearing ſuture deeply furrowed. *Seeds* about twelve, oblong, quadrangular, compreſſed, ſmooth, ferruginous-red. It ſleeps with the leaflets, converging above the petiole, and bent towards its baſe. A native of Spain, flowering in July. 14. C. *varia.* Linn. Sp. Pl. 9. Mart. 9. Lam. 8. Willd. 21. Bot. Mag. 258. (C. herbacea, flore vario; Tourn. 650. Riv. tetr. tab. 94. Hedyſarum purpureum; Tabern. 516. Securidaca dumetorum major; Bauh. Pin. 349. S. 2. altera; Cluſ; 2. 237.) "Herbaceous; leaflets numerous, lanceolate, ſmooth; legumes cylindrical, erect." *Root* annual: Linn. Lam. Willd. perennial; Mill. *Stems* climbing, if ſupported, to the height of four or five feet, otherwiſe trailing on the ground. *Leaves* a little reſembling thoſe of ſaintfoin; leaflets from ſeventeen to twenty-one, rather obtuſe; lower pair cloſe to the ſtem; ſtipules ſmall, lanceolate, ſpreading. *Flowers* about twelve in an umbel, either entirely purple, or entirely white, or with the ſtandard purple and the wings white; common peduncles axillary, about the length of the leaves. *Legumes* ſlender, from two to three inches long. A native of Germany, France, and other parts of Europe. It has been recommended as a proper food for cattle, and cows are ſaid to eat it readily. 15. C. *globoſa.* Lam. 11. Willd. 22. (C. cretica herbacea, flore magno, candido; Tourn. Cor. 44. Hedyſarum argenteum; Alp. exot. 314.) "Herbaceous; leaflets numerous, elliptical; umbels globular; legumes cylindrical, pendulous." *Stems* ſtriated, ſmooth, branched. *Leaflets* eleven or thirteen, obtuſe, ſmooth, larger than thoſe of the preceding ſpecies; ſtipules ſmall, egg-ſhaped, acute. *Flowers* white, large, from twenty to thirty in a denſe umbel, on common axillary peduncles. *Legumes* ſlender, ſmooth. A native of Crete. 16. C. *cretica.* Linn. Sp. Pl. 10. Mart. 10. Lam. 10. Willd. 24. Jacq. Hort. tab. 25. (C. cretica flore parvo purpuraſcente; Tourn. Cor. 44.) "Herbaceous; leaflets fifteen, wedge-ſhaped, retuſe; legumes about five together, cylindrical, erect." *Root* annual. *Stems* aſcending, ſlender, angular, about a foot long. *Leaflets* ſmooth, the terminal one not larger than the others; ſtipules ſmall, linear or lanceolate, ſpreading. *Flowers* purple, ſmall; common peduncles axillary, hiſpid towards the baſe. *Legumes* ſlender, cylindrical, ſlightly jointed, a little curved, eſpecially towards the ſummit. A native of Crete. 17. C. *parviflora.* Willd. 24. (C. cretica, flore luteo parvo; Tourn. Cor. 44.) "Herbaceous; leaflets nine, wedge-ſhaped, emarginate; legumes about five together, cylindrical, bowed; ſtem hiſpid." *Root* perennial. *Stem* ſix inches high, much branched, covered with ſmall, rigid, reflexed, ſcattered hairs. *Leaves* ſmooth; ſtipules very ſmall. *Flowers* yellow, ſmall. *Legumes* filiform, ſpreading. A native of Crete. 18. C. *ſcandens.* Linn. Sp. Pl. 11. Mart. 11. Lam. 12. Willd. 25. Plum. MSS. Burm. Amer. 98. tab. 107. fig. 3. "Stem climbing, flaccid." *Stem* ſlender, hairy, twiſting about neighbouring plants, and riſing to the height of eight or ten feet. *Leaves* alternate; leaflets five, an inch long, elliptical, tender; ſtipules in pairs, acute. *Flowers* pale yellow, large; peduncles axillary, in pairs, one-flowered, beſet in all their length with ſmall acute bractes. *Legumes* more than three inches long, taper, erect, cloathed with a ſhort, ſoft, white down. A native of Guiana, Carthagena, and Martinico. 19. C. *cochinchinenſis.* Mart. 12. Lour. Cochinch. 452. "Somewhat ſhrubby; leaflets about fifteen; peduncles about three-flowered; legumes erect, ſwollen with the ſeeds." *Stem* four feet high, erect, branched. *Leaflets* oblong, obtuſe, with a ſlender point. *Flowers* yellow, axillary. *Legumes* filiform. *Seeds* nearly cylindrical. A native of Cochinchina.

To theſe more generally acknowledged ſpecies of coronilla, which, with one or two exceptions, have their flowers in ſimple umbels, Willdenow has a ſeparate ſection of plants with flowers in racemes, chiefly taken from the æſchynomene of Linnæus and other authors. As none of theſe are particularly deſcribed, and ſome not inſerted in our article ÆSCHYNOMENE, we ſhall ſubjoin them here.

20. C. *grandiflora.* Willd. 1. (Æſchynomene. Linn. Sp. Pl. Seſban affinis; Breyn. prod. 1. 47. Comm. mal. 244. Galega affinis malabarica; Rai. Hiſt. 1734. Turia; Rumph. amb. 1. 188. tab. 76. Agaty; Rheed. mal. 1. 95. tab. 51. Dolichos arboreus; Forſk. deſc. 134.) "Racemes about three-flowered; leaflets oblong, emarginate, ſmooth; legumes filiform, erect, compreſſed; ſtem arboreous." From ten to fifteen feet high. *Trunk* erect; branches ſomewhat ſpreading, cylindrical, pubeſcent. *Leaves* a foot long, alternate; petioles thicker, at the baſe ſmooth; leaflets very numerous, ſmooth, on very ſhort petioles. *Flowers* very large, the ſize of a hen's egg, white, pendulous, peduncles axillary, ſhort, bifid or trifid; pedicels one-flowered. *Legumes* two-feet long, linear, compreſſed. A native of the Eaſt Indies. 21. C. *coccinea.* Willd. 2. (Æſchynomene; Linn. jun. Supp. 330. Forſk. Prod. 273. Toeri-mera; Rumph. Amb. 1. 190. tab. 77.) "Racemes about three-flowered; leaves oblong, emarginate, pulverulent; legumes ſomewhat bowed, filiform, a little compreſſed; ſtem arboreous." A ſmaller and lower tree than the preceding. *Leaves* about a foot long; leaflets very numerous. *Flowers* large, red, mixed with purple. *Legumes* a foot and half long. A native of the Eaſt Indies, and of the iſlands Otaheite and Huaheine, in the South Seas. 22. C. *occidentalis.* Willd. 3. (Emerus; Plum. Spec. 19. ic. 125. fig. 1.) "Racemes few-flowered; leaflets elliptical; legumes cylindrical, filiform; ſtem ſhrubby." 23. C. *ſeſban.* Willd. 4. (Æſchynomene; Linn. Sp. Pl. Seſban; Alpin. ægypt. 81. tab. 82. Galega ægyptiaca, filiquis articulatis; Bauh. Pin. 352. Dolichos; Forſk. deſc. 134.) "Racemes many-flowered; leaflets linear, obtuſe, mucronate; rachis ſmooth and even; legumes filiform, cylindrical; ſtem ſhrubby." *Flowers* ſmall, deep yellow, in long, axillary, pendulous racemes. *Legumes* ſmooth, taper-pointed, not apparently jointed. A native of Egypt. 24. C. *aculeata.* Willd. 5. (Æſchynomene biſpinoſa; Jacq. ic. rar. 3. tab. 564.) "Racemes few-flowered; leaflets linear, obtuſe, mucronate; rachis prickly; legumes filiform, cylindrical; ſtem herbaceous." *Root* annual. 25. C. *cannabina.* Willd. 6. (Æſchynomene; Retz. obſ. 5. p. 26.) "Peduncles ſolitary or in pairs, one-flowered; leaflets linear, obtuſe, mucronate; rachis ſmooth and even; legumes compreſſed, tetragonous." *Root* annual. A native of the Eaſt Indies. 26. C. *picta.* Willd. 7. (Æſchynomene;

Cavan. ic. 4. 7. tab. 314.) "Racemes many-flowered, pendulous; leaflets linear, obtuſe; legumes filiform, cylindrical, moniliform; ſtem herbaceous.' *Root* biennial. Rachis of the leaves not prickly. *Flowers* yellow; ſtandard with black ſpots on the outſide. A native of New Spain. 27. C. *virgata.* Willd. 8. (Æſchynomene: Cav. ic. 3. 47. tab. 293.) "Racemes many-flowered; leaflets elliptical; legumes linear, ſword-ſhaped, compreſſed, tetragonous; ſtem herbaceous." *Flowers* yellow. A native of New Spain.

C. *zeylanica, flore albo; et flore purpuraſcente.* Burm. See Galega *villoſa β* and G. *purpurea.*

Coronilla, in *Gardening,* compriſes plants of the evergreen and deciduous ſhrubby kinds. Of which there are ſeveral ſpecies in cultivation, as the linear-leaved coronilla (C. *juncea*); the ſmall ſhrubby coronilla (C. *valentina*); ſilvery-leaved coronilla (C. *argentea*); great ſhrubby coronilla (C. *glauca*); and the ſcorpion ſena (C. *emerus*). See the preceding article.

Method of Culture.—From the four firſt ſorts, and particularly the ſecond, being rather tender, though they are capable of ſucceeding in the open air, in mild winters, they ſhould in common be potted, to be moved to the ſhelter of a green houſe, or glaſs frame, or ſome ſheltered ſituation in the full ground. The two laſt are hardy and elegant flowering ſhrubs, for the clumps and other parts of extenſive pleaſure and other ornamented grounds. It is eaſy to raiſe the four firſt ſort by ſeeds, which ſhould be ſown in the ſpring, either on a warm border, or in a ſlender hot bed; but the latter is the better mode, as it produces them more forward in pots of rich earth, half an inch in depth, plunging them in a hot-bed when neceſſary. After the plants are two or three inches in height, they ſhould be pricked out in ſeparate ſmall pots, giving ſhade, water, and air, hardening them gradually to the full air, about the middle of ſummer, in which they may remain till autumn, then removing them to the ſhelter of a frame during winter, covering them only in time of froſt or very ſevere weather in the winter.

With reſpect to the laſt ſort, the ſcorpion ſena, it may be raiſed plentifully both by ſeeds, layers, and cuttings; the ſeeds ſhould be ſown in March, in a bed of light earth, and covered half an inch deep, giving occaſional waterings in dry weather. When the plants have had one or two years growth, they muſt be removed into nurſery rows, and in two or three more, they will be large enough for planting in the ſhrubbery, or other places. The layers of the young ſhoots may be laid down in autumn, or winter, giving them a gentle twiſt before they are put down. When they are perfectly rooted, they ſhould be taken off, and planted in the above manner. The cuttings of the young ſhoots may be planted in the ſpring or autumn, in ſhady borders, giving them water the following ſpring and ſummer. When well rooted, they ſhould be removed, as in the above method.

The firſt ſort have a fine effect in the green houſe, and the laſt in the ſhrubbery borders.

CORONOPUS, in *Botany,* (from κορωνη, *a crow,* and πους, *foot.*) Gært. 831. Smith Flor. Brit. 298. Vent. 3. 109. Claſs and order, *pentandria ſiliculoſa.* Nat. Ord. *Siliquoſæ,* Linn. *Cruciferæ,* Juſſ.

Gen. Ch. *Cal.* Perianth four-leaved. *Cor.* Petals four. *Stam.* Filaments ſix; two or four ſometimes wanting. *Piſt.* Germ heart-ſhaped; ſtyle ſimple, very ſhort, permanent; ſtigmas obtuſe. *Peric.* Silicle, roundiſh-kidney-ſhaped, compreſſed, wrinkled, two-celled, without valves. *Seed* one in each cell.

Eſſ. Ch. Silicle wrinkled, valveleſs.

Sp. 1. C. *ruellii.* Gært. tab. 142. fig. 1. Smith Eng. Bot. 1660. (Cochlearia coronopus. Linn. Naſturtium ſupinum, capſulis verrucoſis; Rai. Syn. 304.) "Silicles undivided, creſted with ſharp points; ſtyle prominent; corymbs with few flowers." *Root* annual. *Stems* quite proſtrate, depreſſed, branched, leafy, ſmooth. *Leaves* alternate, ſmooth, ſomewhat glaucous, pinnatifid; ſegments often half pinnatifid or pectinate on their fore-ſide. *Corymbs* oppoſite to the leaves, ſeſſile, ſhort, elongated into racemes as the fruit advances. *Flowers* ſmall, white. *Silicles* tranſverſely rugged, their plaits extended into little marginal teeth, which form a ſort of creſt, not emarginate, but terminated by the ſhort pyramidal ſtyle, cells leathery. *Seeds* large, brown. The whole plant is ſlightly ſucculent, with an unpleaſant muſtard-like acid flavour. Dr. Smith. A native of England, and other parts of Europe, on road ſides, and other waſte places, flowering from June to September. 2. C. *didyma.* Smith, Flor. Brit. (Lepidium didymum; Linn. Sp. Pl. Eng. Bot. 248.) "Silicles emarginate, didymous, reticularly wrinkled; ſtyle obſolete; corymbs many flowered." Leſs than the preceding. *Root* annual. *Stems* procumbent, cylindrical, hairy, branched, leafy. *Leaves* alternate, ſmooth, pinnatifid; ſegments toothed, eſpecially on the fore-ſide. *Corymbs* generally oppoſite to the leaves, ſoon elongated into racemes. *Flowers* ſmall, white; ſtamens ſeldom more than two or four. *Silicle* very diſtinctly two-lobed. A native of Pembrokeſhire, Devonſhire, and Cornwall.

Coronopus *hortenſis*; Bauh. Pin. Tourn. See Plantago *Coronopus.*

Coronopus *maritimus major*; Bauh. Pin. See Plantago *Maritima.*

CORONOS, or Coronus, *Mons,* in *Ancient Geography,* a mountain of Aſia, which made a part of mount Taurus. The weſtern part of this mountain was in Media.

CORONTA, a town of Acarnania, according to Thucydides.

COROORA, in *Geography,* one of the Pelew iſlands; the capital of which is Pelew, whence the whole group derived its appellation. See Pelew.

COROPA, or COROPE, in *Ancient Geography,* a town of Greece, in Theſſaly.

COROPASSUS, a village of Aſia Minor, in Lycaonia, according to Strabo, on the confines of Cappadocia.

COROPITÆ. See Agonistici.

COROSAIM, a town of the Decapolis, ſituated on the banks of the ſea of Galilee, N. of this ſea, and near Bethſaida. It is placed by Euſebius about two miles from Capernaum.

CORPACH, in *Geography,* a ſmall village in Argyleſhire, in Scotland, is about 2 miles nearly north from Fort-William, ſituate on the eaſtern ſhore of Loch Eil. This place cannot fail of obtaining celebrity in future, on account of the great works which are now carrying on for the weſtern entrance-baſon and locks of the great Inverneſs and Fort-William, or Caledonian, canal, intended to form a communication for large ſhips between the Eaſt and Weſt ſeas, and avoid the large and often dangerous paſſage round the north of Scotland. The laborious operation of excavating, or rather hewing and blaſting the hard rock, in which the locks at this place are to be built, was begun in July 1804; and, in December of the ſame year, the formation of two immenſe banks of earth, (nearly ſimilar to thoſe we have mentioned as conſtructing at the eaſtern entrance at Clachnacary) was begun to extend into Eil Loch, for ſurrounding and protecting the ſea or entrance lock, which is to be formed where the ſurface of the rocky ſtratum of this diſtrict is 20 feet under the line of high water of ordinary neap tides, but where the rock ſhelves off, ſo that no cutting will be required at the tail of the rock, from whence the depth of water in the lock gradually deepens through 4, 5, 6, 7, 8, and 13 to 16 fathoms, at the diſtance of about three quarters of a mile. There is a projecting head of rock in this place, which will form the body of a pier to protect the tide-lock. The riſe of thoſe locks, which are to be conſtructed behind Corpach houſe, will bring the bottom of the canal upon the top of the ſtratum of rock; into which the lock, connecting with the firſt or ſea-lock, will be cut 11 feet 9 inches, and the third lock will be cut 4 feet into the rock. For the ſpace of a mile and quarter from theſe locks eaſtward, the cutting of the canal is level on Corpach Moſs, in ſtrong compact ſandy gravel, under about two feet of peat-moſs. According to the report of Meſſ. T. Telford and W. Jeſſop, the principal engineers in this important concern, which was ordered to be printed by the houſe of commons on the 2d June 1806, it appears, that an engine-houſe had been built, and one of Boulton and Watt's 20 horſe ſteam-engines fitted up, for pumping the water from the foundations of the firſt and ſecond locks at Corpach; where the ſide-walls of the third lock from the entrance of the canal had been built, to the height of 12 feet above the bottom, which is rock, requiring no inverted arch upon it; the fore-bay was completed, and alſo the tail-bay, forming here, alſo, the fore-bay of the ſecond lock; for theſe ingenious engineers have adopted the plan of placing the locks on this great canal in groups, and making the head-gates of one lock act as the tail-gates of the reſt, as they do at Runcorn, on the duke of Bridgewater's canal. The mortar uſed in theſe works, is from the lime-ſtone of Linmore iſland, at the mouth of the bay of Lochyol in Argyleſhire, and is found to be an excellent water cement, after being expoſed to the tide during a winter. The bank which is to incloſe the north ſide of the ſea-lock, had been carried forwards from high water mark, a hundred and forty yards into the lock, and two rail-ways of eight hundred, and five hundred yards long, reſpectively, had been laid for conveying gravel to this ſea-lock, and to the ſecond and third locks, as well as rough quarry ſtones, for facing the outſide of the bank, as it proceeds, and defending it from the ſurf of the lock. The timbers and piles have been prepared for forming a coffer dam at the extremity and within this bank, for putting in the foundations of the ſea-lock.

The firſt aqueduct at this end of the canal at Bannavie, is finiſhed, conſiſting of two arches, 9 feet wide, 10 feet high, and 252 feet long, this being the width of the canal and its banks in this place, conſtructed of ſtone quarried near the ſpot. The locks at Corpach are building with ſtone of good quality, quarried at Faſſefern, about 2½ miles north of that place, on the eaſtern bank of Loch Eil. The ſecond aqueduct at this end of the canal, over the long river at Strone, was commencing, conſiſting of a centre arch of 25 feet diameter, and two ſide-arches 10 feet wide each; theſe laſt being paved with ſtones on edge, are intended as road-arches for communication between the different ſides of the canal, except perhaps during the height of the largeſt floods in this river. Great part of the cutting and banking for the canal between Corpach and Loch Lochy, was in hand or finiſhed, but the grand chain of eight locks between Corpach Moſs and Bannavie was not begun, or intended ſo to be, until the ſea-lock and the other two locks at Corpach are completed, ſo as to admit the ſtone veſſels to proceed thus far up the line, to diſcharge their cargoes for building theſe ſtupendous locks. See Canal.

CORPEAU, a town of France, in the department of the Cote d'Or, and diſtrict of Beaune; 7 miles S. of Beaune.

CORPICENSII, in *Ancient Geography*, a people of the iſland of Sardinia.

CORPILIACA, a country and government of Thrace, on the ſide of Macedonia.

CORPIELI, a people of Thrace, according to Pliny. Hardouin aſſigns them the towns of Perinthus, Ganos, and Sapros.

CORPOON'S Bay, a bay on the N. W. coaſt of the iſland of St. Chriſtopher; two miles S. W. of Diep town.

CORPORA *cavernoſa penis et clitoridis*, in *Anatomy*. See Cavernosa *corpora*.

Corpora *olivaria*, two ſlight eminences in the commencement of the medulla ſpinalis. See Brain.

Corpora *pyramidalia*, two ſmall projections ſituated cloſe to the former ones.

Corpora *quadrigemina*, a ſquare portion of medullary ſubſtance, ſituated behind and below the thalami nervorum opticorum, and divided in its ſurface into four eminences, which are alſo called the nates and teſtes. See Brain.

Corpora *ſtriata*, the grey pyriform bodies which occupy the anterior and outer part of the lateral ventricles of the brain. See Brain.

Corpora *ſubrotunda*, or *mamillaria*, or *candicautia*; two ſmall hemiſpherical medullary bodies in the baſis of the brain, behind the infundibulum. See Brain.

Corpora *Habeas*, in *Law*. See Habeas.

CORPORAL, in *Military Language*, a rank and file man, with ſuperior pay to that of common ſoldiers, and with nominal rank as a ſergeant. He has charge of one of the ſquads of the company, places and relieves centinels, and keeps good order in the guard to which he belongs. He receives the word of the inferior rounds, that paſs by his guard. Every company has three or four corporals.

The word comes from the Italian *corporale*, which ſignifies the ſame thing; and that from *caput*, *head*, *chief*; the corporal being the firſt of the company.

Corporal *Lance*, a perſon who acts as corporal, but receives pay only as a private.

Corporal *of a ſhip*, is an officer who hath the charge of ſetting the watch and centries, and relieving them; and who ſees that all the ſoldiers and ſailors keep their arms neat and clean: he alſo teaches them how to uſe their arms, and hath a mate under him.

Corporal *oath*. See Oath.

Corporal, *Corporale*, is alſo an ancient church term, ſignifying the ſacred linen ſpread under the chalice in the euchariſt and maſs, to receive the fragments of the bread, if any chance to fall. Some ſay it was pope Euſebius who firſt enjoined the uſe of the corporal; others aſcribe it to St. Silveſter. It was the cuſtom to carry corporals, with ſome ſolemnity, to fires, and to heave them againſt the flames, in order to extinguiſh them. Philip de Comines ſays, the pope made Louis XI. a preſent of the corporale, whereon my lord St. Peter ſung maſs.

CORPORATE county. See County *corporate*.

CORPORATION, a body politic, or incorporate; ſo called, becauſe the ſeveral members thereof are formed into one body; and are qualified to take, purchaſe, grant, have a common ſeal, ſue and be ſued, &c. in their joint capacity.

Of theſe corporations a great variety is ſubſiſting, for the advancement of religion, of learning, and of commerce; in order to preſerve entire and for ever thoſe rights and immunities, which, if granted only to the individuals compoſing the body corporate, would upon their death be utterly loſt and extinct. In proof of the advantage of theſe incorporations, judge Blackſtone adduces the caſe of a college in either of our univerſities, founded *ad ſtudendum et orandum,* for the encouragement and ſupport of religion and learning. As a mere voluntary aſſembly, the members that compoſe it might read, pray, ſtudy, and perform ſcholaſtic exerciſes together, ſo long as they could agree to do ſo; but they could neither frame, nor receive any laws or rules for their conduct; none at leaſt, which would have any binding force, for want of a coercive power to create a ſufficient obligation. Neither could they be capable of retaining any privileges or immunities; for, if ſuch privileges be attached, which of this whole unconnected aſſembly has the right, or ability, to defend them? and, when they are diſperſed by death or otherwiſe, how ſhall they transfer theſe advantages to another ſet of ſtudents, equally unconnected as themſelves? So alſo, with regard to holding eſtates or other property, if land be granted for the purpoſes of religion or learning to twenty individuals not incorporated, there is no legal way of continuing the property to any other perſons for the ſame purpoſes, but by endleſs conveyances from one to the other, as often as the hands are changed. But when they are conſolidated into a corporation, they and their ſucceſſors are conſidered as one perſon in law; as one perſon, they have one will, which is collected from the ſenſe of the majority of the individuals; this one will may eſtabliſh rules and orders for the regulation of the whole, which are a ſort of municipal laws of this little republic; or rules and ſtatutes may be preſcribed to it at its creation, which are then in the place of natural laws:—the privileges and immunities, the eſtates and poſſeſſions of the corporation, when once veſted in them, will be for ever veſted, without any new conveyance to new ſucceſſors; for all the individual members that have exiſted from the foundation to the preſent time, or that ſhall ever hereafter exiſt, are but one perſon in law, a perſon that never dies.

Theſe political conſtitutions were firſt invented and introduced, according to Plutarch, among the Romans by Numa, in order to break the force of the two rival factions of Sabines and Romans; by inſtituting ſeparate ſocieties of every manual trade and profeſſion.

They were afterwards much conſidered by the civil law, in which they were called *univerſitates,* as forming one whole out of many individuals, or *collegia,* from being gathered together; they were adopted alſo by the canon law, for the maintenance of eccleſiaſtical diſcipline; and from them our ſpiritual corporations are derived. For the riſe and gradual advancement of corporations or communities, and their favourable influence with regard to the introduction of regular government, police, and arts, and the diffuſion of them through Europe, together with the invaluable advantages of perſonal ſecurity and general liberty; ſee City and Charter's of *Community.* Theſe communities, which by augmenting the wealth and importance, and concentrating the powers of individuals, were eminently uſeful in checking the oppreſſion of the feudal government, and extending perſonal and political liberty, became, however, in proceſs of time injurious, by their excluſive privileges and reſtraining laws, to the freedom and liberty of individuals, and to the general intereſts of commerce. In order to erect a corporation, no other authority in ancient times was requiſite in many parts of Europe, but that of the town corporate, in which it was eſtabliſhed. In England, indeed, a charter from the king was likewiſe neceſſary. But this prerogative of the crown ſeems to have been reſerved rather for extorting money from the ſubject, than for the defence of the common liberty againſt oppreſſive monopolies. Upon paying a fine to the king, the charter ſeems generally to have been readily granted; and when any particular claſs of artificers or traders thought proper to act as a corporation without a charter, ſuch "adulterine guilds," as they were called, were not always diſfranchiſed upon that account; but obliged to pay an annual fine to the king for permiſſion to exerciſe their uſurped privileges. The immediate inſpection of all corporations, and of the bye-laws which they might think proper to enact for their own government, belonged to the town corporation in which they were eſtabliſhed; and whatever diſcipline was exerciſed over them, proceeded commonly, not from the king, but from that greater incorporation of which theſe ſubordinate ones were only parts or members. The government of towns corporate was altogether in the hands of traders and artificers; and it was the manifeſt intereſt of every particular claſs of them to prevent the market from being over-ſtocked, as they commonly expreſs it, with their own particular ſpecies of induſtry; which is, in reality, to keep it under-ſtocked. Each claſs was eager to eſtabliſh regulations for this purpoſe, and, provided it was allowed to do ſo, was willing to conſent that every other claſs ſhould do the ſame. In conſequence of ſuch regulations, indeed, each claſs was obliged to buy the goods they had occaſion for from every other within the town, ſomewhat dearer than they otherwiſe might have done. But in recompence, they were enabled to ſell their own juſt as much dearer; and in the dealings of the different claſſes within the town with one another, none of them were loſers by theſe regulations. But in their dealings with the country they were all great gainers; and in theſe latter dealings conſiſts the whole trade which ſupports and enriches every town; becauſe every town draws its whole ſubſiſtence, and all the materials of its induſtry, from the country. Dr. Smith, in his "Nature and Cauſes of the Wealth of Nations" has ſhewn in what way corporations check the operations of competition; and how their internal regulations ſerve to produce effect as combinations againſt the public, and as injuries even to the members of theſe corporations. Corporation laws, he ſays, obſtruct the free circulation of labour, from one employment to another; and this effect they produce in a greater degree than they obſtruct the circulation of ſtock from one place to another for this obvious reaſon; becauſe it is every where much more eaſy for a wealthy merchant to obtain the privilege of trading in a town corporate than for a poor artificer to obtain that of working in it. The obſtruction which corporation laws give to the free circulation of labour is common to every part of Europe; but that which is given to it by the poor laws is, as far as Dr. Smith knows, peculiar to England. It conſiſts in the difficulty which a poor man finds in obtaining a ſettlement, or even in being allowed to exerciſe his induſtry in any pariſh but in that to which he belongs. It is the labour of artificers and manufacturers only of which the free circulation is obſtructed by corporation laws. The difficulty of obtaining ſettlements obſtructs even that of common labour. After illuſtrating and comparing the condition of ſoldiers and ſeamen with that of manufacturers, and obſerving that the former are at liberty to exerciſe any trade within any town or place of Great Britain or Ireland, Dr. Smith adds, "Let the ſame natural liberty of exerciſing what ſpecies of induſtry they pleaſe, be reſtored to all his majeſty's ſubjects, in the ſame manner as to ſoldiers and ſeamen; that is, break down the excluſive privileges of corporations, and repeal the ſtatute of apprenticeſhip, both which are real encroachments upon natural liberty, and add to theſe the repeal of the law of ſettlements, ſo that a poor workman, when thrown out of employment either in one trade or in one place, may ſeek for it in another trade or in another place, without the fear either of a proſecution or of a removal, and neither the public nor the individuals will ſuffer much more from the occaſional diſbanding ſome particular claſſes of manufacturers than from that of ſoldiers."

It is beſide our purpoſe to detail the hiſtory of particular corporations; and to trace, either to their cauſes or their conſequences, the irregularities that have ariſen from the eſtabliſhment of reſtraining, excluſive and oppreſſive laws; and from the aſſumption and exerciſe of improper powers, on the part of thoſe with whom the conduct and ſuperintendance of them have been intruſted. Without deſcending into this minute detail, and pointing out errors and abuſes of a local nature that require to be corrected in particular inſtances, we ſhall proceed with our account of corporations in general.

Of corporations, ſome are *aggregate* and others *ſole*. The former conſiſt of many perſons united together into one ſociety, and are kept up by a continual ſucceſſion of members, ſo as to continue for ever; ſuch are the mayor and commonalty of a city, the head and fellows of a college, the dean and chapter of a cathedral church. The latter conſiſt of one perſon only and his ſucceſſors, in ſome particular ſtation, who are incorporated by law, in order to give them ſome legal capacities and advantages, particularly that of perpetuity, which they could not have had in their natural perſons. In this ſenſe the king is a ſole corporation; ſo is a biſhop; ſo are ſome deans, and prebendaries, diſtinct from their ſeveral chapters; and ſo is every parſon and vicar. (See PARSON.) Again, corporations, both ſole and aggregate, are divided into *eccleſiaſtical* and *lay*. *Eccleſiaſtical* corporations are formed of members, who are altogether ſpiritual perſons; ſuch as biſhops, certain deans, and prebendaries; all archdeacons, parſons, and vicars; deans and chapters, at preſent, and formerly prior and convent, abbot and monk, and the like, bodies aggregate. Theſe were created for the furtherance of religion, and for perpetuating the rights of the church. *Lay* corporations are either *civil* or *eleemoſynary*. The *civil* are eſtabliſhed for a variety of temporal purpoſes. Thus the king is made a corporation to prevent in general the poſſibility of an *interregnum* or vacancy of the throne, and to preſerve entire the poſſeſſions of the crown. Other lay corporations are created for the good government of a town, or particular diſtrict;—as a mayor and commonalty, bailiff and burgeſſes, &c.;—ſome for the advancement and regulation of manufactures and commerce; as the trading companies of London; and of other towns;—and ſome for the more effectual accompliſhment of various ſpecial purpoſes; as churchwardens, for conſervation of the goods of the pariſh; the college of phyſicians and that of ſurgeons in London, for the improvement of the medical ſcience; the royal ſociety for the advancement of natural knowledge; and the ſociety of antiquaries for promoting the ſtudy of antiquities. To this claſs judge Blackſtone is inclined to refer the univerſities of Oxford and Cambridge. (See UNIVERSITY.) The *eleemoſynary* corporations are ſuch as are conſtituted for the perpetual diſtribution of the free alms, or bounty, of the founder of them to purpoſes agreeable to his direction. Of this kind are all hoſpitals for the maintenance of the poor, ſick, and impotent; and all colleges, both in our univerſities, and out of them, ſuch as at Mancheſter, Eton, Wincheſter, &c.; which colleges are founded for the promotion of piety and learning by proper regulations and ordinances, and for affording aſſiſtance to the members of theſe bodies, in order to enable them to proſecute their devotion and ſtudies with greater eaſe and aſſiduity. All theſe eleemoſynary corporations are, ſtrictly ſpeaking, lay and not eccleſiaſtical, even though compoſed of eccleſiaſtical perſons (1 Ld. Raym. 6.), and although they partake in ſome things of the nature, privileges, and reſtrictions of eccleſiaſtical bodies.

Corporations are created by common law, by preſcription, and by act of parliament. Indeed, by the civil law, corporations ſeem to have been created by the mere act, and voluntary aſſociation of their members; provided ſuch convention was not contrary to law, for then it was "illicitum collegium." The conſent of the prince does not ſeem to have been neceſſary, or to have been actually given, to the foundation of them: but, in England, the king's conſent is abſolutely neceſſary to the creation of any corporation, either implicit or expreſs. This implicit conſent is found in corporations which exiſt by force of the *common law*, to which our former kings are ſuppoſed to have given their concurrence. Of this ſort are the king himſelf, all biſhops, parſons, vicars, church-wardens, and ſome others, who, by common law, have ever been held to have been corporations, "virtute officii;" and this incorporation is ſo inſeparably annexed to their offices, that we cannot frame a complete legal idea of any of theſe perſons, but we muſt alſo have an idea of a corporation, capable of tranſmitting his rights to his ſucceſſors, at the ſame time. Another method of implication, by which the king's conſent is preſumed, is as to all corporations *by preſcription*, ſuch as the city of London, and many others, which have exiſted as corporations for time immemorial, and are therefore regarded in law as well created. The methods by which the king's conſent is expreſsly given are either by act of parliament, or by charter. With regard to corporations created by act of parliament, it is obſerved, that (till of late years) moſt of thoſe ſtatutes, which are uſually cited as having created corporations, do either confirm thoſe which have been before created by the king, as in the caſe of the college of phyſicians, erected by charter 10 Hen. VIII., which charter was afterwards confirmed in parliament; or they permit the king to erect a corporation *in futuro*, with ſuch and ſuch powers, as is the caſe of the bank of England (ſtat. 5 & 6 W. & M. c. 20.), and the Society of the Britiſh fiſhery (ſtat. 23 Geo. II. c. 4.): ſo that the immediate creative act was uſually performed by the king alone, in virtue of his royal prerogative. All the other methods by which corporations exiſt, by common law, by preſcription, and by act of parliament, are for the moſt part reducible to this, of the king's letters patent, or charter of incorporation. The parliament, by its abſolute and tranſcendent authority, may perform this, or any other act whatſoever; and actually did perform it, to a great extent, by ſtatute 39 Eliz. c. 5. which incorporated all hoſpitals and houſes of correction, founded by charitable perſons; and the ſame has been done in other caſes of charitable foundations. But otherwiſe it has not formerly been uſual thus to intrench upon the prerogative of the crown, and the king may prevent it when he pleaſes.

The king, it is ſaid, may grant to a ſubject the power of erecting corporations, though the contrary was formerly held (Yearbook, 2 Hen. VII. 13.); that is, he may permit the ſubject to name the perſons and powers of the corporation at his pleaſure; but it is really the king that erects, and the ſubject is merely the inſtrument; for though none but the king can make a corporation, yet "qui facit per alium, facit per ſe." Thus the chancellor of the univerſity of Oxford has power, by charter, to erect corporations; and has actually often exerted it, in the erection of ſeveral matriculated companies, now ſubſiſting, of tradeſmen ſubſervient to the ſtudents. When a corporation is erected, it receives a name, by which it muſt ſue and be ſued, and do all legal acts; and this name is eſſential to its conſtitution, for, without it, it could not perform its corporate functions. After a corporation is erected and named, it acquires many powers, rights, capacities, and incapacities, which are neceſſarily and inſeparably incident to every corporation. Theſe powers and rights are, 1. To have perpetual ſucceſſion. 2. To ſue or be ſued, implead or be impleaded, grant or receive, by its corporate name, and do all other acts as natural perſons may. 3. To purchaſe lands, and hold them, for their own benefit and that of their ſucceſſors. 4. To have a common ſeal, the fixing of which, and that only, unites the ſeveral aſſents of the individuals who compoſe the community, and makes one joint aſſent of the whole. 5. To make by-laws or private ſtatutes, for the better government of the corporation; which are binding upon themſelves, unleſs they are contrary to the law of the land, in which caſe they are void. This right of making by-laws was allowed by the law of the Twelve Tables at Rome. But no trading company is, with us, allowed to make by-laws, which may affect the king's prerogative, or the common profit of the people, under penalty of 40*l.*, unleſs they be approved by the chancellor, treaſurer, and chief juſtices, or the judges of aſſiſe in their circuits; and even though they be ſo approved, ſtill, if contrary to law, they are void. (19 Hen. VII. c. 7. 11 Rep. 54.) Theſe *five* powers are inſeparably incident to every corporation, at leaſt to every corporation *aggregate;* for two of them, though they may be practiſed, are nevertheleſs unneceſſary to a corporation *ſole; viz.* to have a corporate ſeal to teſtify his ſole aſſent, and to make ſtatutes for the regulation of his own conduct.

To an aggregate corporation belong certain privileges and diſabilities, which are not applicable to ſuch as are ſole: It muſt always appear by attorney; it can neither maintain, nor be made defendant to, an action of battery, or ſuch like perſonal injuries. A corporation cannot commit treaſon, or felony, or other crime, in its corporate capacity; neither is it capable of ſuffering a traitor's or felon's puniſhment. It cannot be executor or adminiſtrator, or perform any perſonal duties; for it cannot take an oath for the due execution of the office. It cannot be ſeiſed of lands, to the uſe of another; for ſuch kind of confidence is foreign to the end of its inſtitution. Neither can it be committed to priſon, for no man can apprehend or arreſt it, as its exiſtence is merely ideal; of courſe, it cannot be outlawed; and, therefore, the proceedings, to compel a corporation to appear to any ſuit of attorney, are always by diſtreſs on its lands and goods. A corporation cannot be excommunicated, nor is it liable to be ſummoned, on any account, into the eccleſiaſtical court. (10 Rep. 32. Plowd. 538. Bro. Abr. tit. *Corporation*, 11. 43. Outlawry, 72.) There are other incidents and powers, which belong to ſome corporations and not to others: *e.g.* An aggregate corporation may take goods and chattels for the benefit of itſelf and its ſucceſſors, which a ſole corporation cannot do. In eccleſiaſtical and eleemoſynary foundations, the king or the founder may give them laws and ſtatutes, which they are bound to obſerve; but corporations merely lay, conſtituted for civil purpoſes, are ſubject to no particular ſtatutes, but the common law, and to their own by-laws, not contrary to the laws of the realm. Aggregate corporations alſo, that have a head by their conſtitution, as a dean, maſter, warden, &c. cannot perform any acts, during the vacancy of the headſhip, excepting only the appointment of another; neither are they capable of receiving any grant, for ſuch corporation is incomplete without a head. But a corporation aggregate may be conſtituted without a head; as the collegiate church of Southwell in Nottinghamſhire, which conſiſts only of prebendaries; and the governors of the Charter-houſe, London, who have no preſident or ſuperior, but are all of equal authority. In aggregate corporations alſo, the act of the major part is eſteemed the act of the whole: by the civil law, this major part conſiſted of two-thirds of the whole; but with us, any majority is ſufficient to determine the act of the whole body: and, for ſettling this point, it was enacted by ſtatute 33 Hen. VIII. c. 27. that all private ſtatutes ſhall be utterly void, whereby any grant or election, made by the head, with the concurrence of the major part of the body, is liable to be obſtructed by one or more, being the minority: but this ſtatute does not extend to any negative or neceſſary voice, given by the founder to the head of any ſuch ſociety. At common law, corporations have a capacity of purchaſing lands for themſelves and their ſucceſſors; but they are excepted out of the ſtatute of wills (34 Hen. VIII. c. 5.); ſo that no demiſe of lands to a corporation by will is good, except for charitable uſes, by 43 Eliz. c. 4.; which exception is again greatly narrowed by 9 Geo. II. c. 36. (Co. Litt. 46. L. Raym. 8. Co. Litt. 263, 264. 10 Rep. 30. Bro. Abr. tit. *Corporation*, 31. 34. Hob. 136.) See MORTMAIN.

The general duties of all bodies politic, conſidered in their corporate capacity, may be reduced to this ſingle principle: that of conforming to the end or deſign, whatever it be, for which they were created by their founder. As all corporations are liable to deviate from the end of their inſtitution, they are ſubject to inſpection and viſitation. The ordinary is the viſitor of all eccleſiaſtical corporations, ſo conſtituted by the canon law, and thence derived to us. Thus, the king (formerly the pope), as ſupreme ordinary, is the viſitor of the archbiſhop or metropolitan; the metropolitan has the charge and coërcion of all his ſuffragan biſhops; and the biſhops, in their ſeveral dioceſes, are, with regard to eccleſiaſtical matters, the viſitors of all deans and chapters, of all parſons and vicars, and of all other ſpiritual corporations. With reſpect to all lay corporations, the founder, his heirs, or aſſigns, are the viſitors, whether the foundation be civil or eleemoſynary; for, in a lay incorporation, the ordinary neither can nor ought to viſit. (10 Rep. 31.) The founder of all corporations, in the ſtricteſt and original ſenſe, is the king alone; for he only can incorporate a ſociety: and in civil incorporations, ſuch as mayor and commonalty, &c. where no poſſeſſions or endowments are given to the body, the king is the ſole founder; but in eleemoſynary foundations, ſuch as colleges and hoſpitals, where there is an endowment of lands, the law diſtinguiſhes and makes two ſpecies of foundation: the one, "fundatio incipiens," or the incorporation, in which ſenſe the king is the general founder of all colleges and hoſpitals; the other, "fundatio perficiens," or the dotation of it, in which ſenſe the firſt gift of the revenues is the foundation, and he who gives them is in law the founder: and thus we generally call a man the founder of a college or hoſpital. (10 Rep. 33.) But the king has here his prerogative; for, if the king and a private man join in endowing an eleemoſynary foundation, the king alone ſhall be the founder of it. And, in general, the king being the ſole founder of all civil corporations, and the endower the perficient founder of all eleemoſynary ones, the right of viſitation of the former reſults, according to the rule laid down, to the king; and of the latter, to the patron or endower. The place in which the king viſits all civil corporations is the court of king's bench; where, and where alone, all miſbehaviours of this kind of corporations are inquired into and redreſſed, and all their controverſies decided.

As to eleemoſynary corporations, by the dotation the founder and his heirs are, of common right, the legal viſitors, to ſee that ſuch property is rightly employed, as might otherwiſe have deſcended to the viſitor himſelf; but if the founder has appointed and aſſigned any other perſon to be viſitor, then his aſſignee is inveſted with the whole power of the founder, in excluſion of his heir. Eleemoſynary corporations are chiefly hoſpitals, or colleges in the univerſities. With regard to hoſpitals, it has been long held, (Yearbook, 8 Edw. III. 28. 8 Aſſ. 29.) that if the hoſpital be ſpiritual, the biſhop ſhall viſit; but if lay, the patron. By ſtat. 14 Eliz. c. 5. the biſhop is directed to viſit ſuch hoſpitals only, where no viſitor is appointed by its founders; and all hoſpitals, founded by virtue of the ſtatute 39 Eliz. c. 5. are to be viſited by ſuch perſons as ſhall be nominated by the reſpective founders. But if the founder appoint no viſitor, the biſhop of the dioceſe muſt viſit. (2 Inſt. 725.)

Colleges in the univerſities were formerly conſidered by the popiſh clergy, to whoſe direction they were ſubject, as *eccleſiaſtical*, or, at leaſt, as *clerical*, corporations; and therefore the right of viſitation was claimed by the ordinary of the dioceſe. In ſome of our colleges, where no ſpecial viſitor is appointed, the biſhop of the dioceſe, in which Oxford was formerly compriſed, has immemorially exerciſed viſitatorial authority, which can be merely aſcribed to his ſuppoſed title as ordinary to viſit this, among other eccleſiaſtical foundations. Nor is it impoſſible, that the number of colleges in Cambridge, that are viſited by the biſhop of Ely, may in part be derived from the ſame original. But whatever might formerly be the opinion of the clergy, it is now held as eſtabliſhed common law, that colleges are lay corporations, though ſometimes wholly compoſed of eccleſiaſtical perſons; and that the right of viſitation does not ariſe from any principles of the canon law, but, of neceſſity, was created by the common law. (Lord Raym. 8.) In a diſputed caſe, which was reviewed in the court of king's bench, and there redreſſed under the ſanction of the three puiſne judges; lord chief juſtice Holt, being of a contrary opinion, held, that by the common law, the office of viſitor is to judge according to the ſtatutes of the college, and to expel and deprive on all juſt occaſions, and to hear all appeals of courſe; and that from him, and him only, the party grieved ought to have redreſs. The houſe of lords, on a writ of error, concurred in this opinion, and reverſed the judgment of the court of king's bench. To this leading caſe, all ſubſequent determinations have been conformable. But when the viſitor is under a temporary diſability, then the court of king's bench will interpoſe to prevent a defect of juſtice. (Stra. 797.) And, it is ſaid, (2 Lutw. 1566.) that if a founder of an eleemoſynary foundation appoint a viſitor, and limit his juriſdiction by rules and ſtatutes, if the viſitor in his ſentence exceeds thoſe rules, an action lies againſt him; but it is otherwiſe when he miſtakes in a thing within his power.

A corporation may be diſſolved in various ways: 1. By act of parliament. 2. By the natural death of all its members, in caſe of an aggregate corporation. 3. By ſurrender of its franchiſes into the hands of the king, which is a kind of ſuicide. 4. By forfeiture of its charter, through negligence or abuſe of its franchiſes; in which caſe the law judges, that the body politic has broken the condition upon which it was incorporated, and therefore the incorporation is void. In this caſe, the regular courſe is to bring an information in nature of a writ "quo warranto," to inquire by what warrant the members now exerciſe their corporate power, having forfeited it by ſuch and ſuch proceedings. The exertion of this act of law, for the purpoſes of the ſtate, in the reigns of king Charles and king James II., particularly by ſeizing the charter of the city of London, gave great and juſt offence; but the judgment againſt that of London was reverſed by act of parliament (ſtat. 2. W. and M. c. 8.) after the revolution; by which ſtatute it is enacted, that the franchiſes of the city of London ſhall never more be forfeited for any cauſe whatſoever. And, becauſe by the common law, corporations were diſſolved, in caſe the mayor or head officer was not duly elected on the day appointed in the charter, or eſtabliſhed by preſcription; it is now provided, (ſtat. 11. Geo. I. c. 4.) that for the future no corporation ſhall be diſſolved upon that account; and ample directions are given for appointing a new officer, in caſe there be no election, or a void one, made upon the preſcriptive or charter day. Blackſt. Com. vol. 1.

CORPORATION *act*, is that which prevents any perſon from being legally elected to any office relating to the government of any city or corporation, unleſs, within a twelvemonth before, he has received the ſacrament of the Lord's ſupper, according to the rites of the church of England; and which enjoins him to take the oaths of allegiance and ſupremacy when he takes the oath of office; otherwiſe his election is void. Stat. 13. Car. II. ſtat. 2. cap. 1. By this act, all non-conformiſts were turned out of every department of magiſtracy at once, and rendered incapable of ſerving their country in the offices of a common-councilman, or a burgeſs or bailiff of the ſmalleſt corporation. Accordingly they have complained of their ineligibility to ſuch offices, in common with the reſt of their fellow-ſubjects, as a grievance, and have often, but hitherto unſucceſsfully, ſought redreſs. If they poſſeſs every other qualification, which pertains to loyal ſubjects and zealous patriots, for occupying civil offices, with the honours and emoluments connected with them, in the corporate towns, to the wealth and proſperity of which they have contributed by their induſtry and activity, beſides external conformity to a religious rite, according to the forms of the eſtabliſhed church, which, it has been ſaid, is no unequivocal and deciſive evidence of being actually members of that church, their advocates allege, that they ought not to be excluded. On the other hand, it has been pleaded, that offices of truſt and influence ſhould be conferred only on *bona fide* members of the eſtabliſhed church; and that by this reſtriction, the ſafety of the church and of the ſtate is moſt effectually guarded and promoted. How far the corporation and teſt acts are founded in juſtice and ſound policy, and to what degree they ſerve to ſecure our civil and religious liberties, as judge Blackſtone conceives them to do, are queſtions which have been frequently diſcuſſed both in and out of parliament; and, by the determination of the majority, they are ſtill continued. For a view of the arguments in their favour and againſt them, we refer to the article TEST. Soon after the corporation act was paſſed in the year 1661, commiſſioners were appointed, and employed during that and the following year, to viſit the ſeveral corporations in England, and to turn out of office ſuch as were in the leaſt ſuſpected. Theſe commiſſioners executed their office with ſo much rigour, that the corporations had not one member left, who was not entirely devoted to the king and the church.

CORPORATION *courts* are ſuch as are held in corporations, by preſcription, charter, or act of parliament. See Court *of Huſtings* and *Mayor's* Courts.

Corporation *of the ſons of the clergy*. See Clergy.

CORPOREAL. See Corporeity and Incorporeal.

Corporeal *hereditaments*. See Hereditaments.

Corporeal *qualities*. See Quality.

CORPOREITY, the quality of that which is corporeal, or has body; or that which conſtitutes or denominates it ſuch.

The corporeity of God was the capital error of the Anthropomorphites. Some authors reproach Tertullian with admitting a corporeity in the Deity; but it is manifeſt, by *body* he means no more than *ſubſtance*.

The Mahometans reproach the Samaritans at this day, with a belief of the corporeity of God. Many of the ancients believed the corporeity of angels.

Corporeity, *form of*. See Form.

CORPORIFICATION, in *Chemiſtry*, the operation of recovering ſpirits into the ſame body, or at leaſt into a body nearly the ſame with that which they had before their ſpiritualization.

CORPS, in *Architecture*, is a term borrowed from the French, ſignifying any part that projects or advances beyond the naked of a wall; and which ſerves as a ground for ſome decoration, or the like.

Corps, in *Geography*, a ſmall town of France in the department of the Iſére, in the diſtrict of Grenoble, 27 miles S.E. of that place, and ſix miles N. of Leſdiguiéres. It contains 1038 inhabitants, and the canton, of which it is the chief place, has 13 communes, with a population of 4441 individuals, on a territorial extent of 120 kiliometres.

Corps, in *Military Language*, any body of troops or forces, deſtined to act in a body together under one perſon who commands them.

Corps *de Bataille*, Fr. is the main body of an army that marches between the advanced and the rear-guard.

Corps-*de-garde*, Fr. an inferior poſt, which is ſometimes covered in, and at other times is in the open air, garriſoned and defended by troops, who are occaſionally relieved, and whoſe immediate and principal duty is to prevent a poſt of greater conſequence from being ſurpriſed. It is frequently a lodgment level with the ground for putting the ſoldiers under cover, who are deſtined to defend a poſt, and it ought always to be vaulted to provide againſt accidents by fire. *Corps de garde*, in the French acceptation of the term, ſignifies not only the place itſelf, but alſo the men, who are ſtationed there to protect it.

Corps-*de gard avancés*, Fr. advanced corps-de-garde.—Theſe poſts are occupied by cavalry or infantry according to the exigency of the ſervice, and the nature of the ground. When a camp is covered by intrenchments, and has one line of defence, the corps-de-garde, or advanced poſt of the cavalry, is on the outſide of the line, and each part has its quarter and main-guard, which are always within ſight of the ſaid line, unleſs the irregularity or unevenneſs of the ground obſtruct their view. The quarter-guard, or petit corps-de-garde, is more in front, but always in ſight of the main-guard, and the *vedette* is ſtill farther advanced for the ſecurity of both.

In garriſoned places, the officers on guard are indiſpenſibly obliged to lodge in the *corps-de-garde*, without ſtripping or taking their cloaths off. They cannot commonly quit it but for one hour to dine, and another to ſup; and, on particular emergencies, they ſhould even be obliged to take their meals in it, without quitting it at all. If there be any waſte and deſtruction, or breaking of things in it, the commandant ſhould make them be replaced, or made good at the expence of the officers, ſergeants, and corporals of the guard relieved.

Corps *d'une place*, Fr. Body of a place, is that which forms the *Enceinte* or perimeter of the place, in the directions of the curtains and baſtions. For though the buildings in a fortified place are properly enough ſaid to be the body of the place; yet, in the language of fortification, the encloſure round them is generally underſtood by it. For we ſay, *to conſtruct the body of the place*, by which is meant to fortify and encloſe it with baſtions and curtains.

Corps *de Reſerve*, Fr. Body of reſerve: A conſiderable part of an army poſted in time of battle at ſome diſtance behind the ſecond line, to be in readineſs to furniſh ſuccour or ſupport to the weakeſt poſts, or whereſoever it is moſt wanted.

Vegetius, an ancient military writer, expreſſes his decided opinion, that a corps de reſerve was indiſpenſibly neceſſary. "It is," ſays he, "an excellent method, and muſt contribute greatly to the gaining of a battle, to have in reſerve, behind the army, ſome choſen troops, both cavalry and infantry, under the command of lieutenant-generals, or other ſuperior officers, not employed in the line. Some of theſe troops are to poſt themſelves towards the wings, and others towards the centre; being in conſtant readineſs to fly to the aſſiſtance of any quarter that may be too hardly preſſed, in order to hinder the general diſpoſition from being broken, fill the chaſms occaſioned by diſorder, and check the ardour of the enemy, &c." "If the general, in conſequence of not having any troops in reſerve, ſhould be obliged to take them from the main body; by thus endeavouring to cover one part, he will only ſtrip another, and increaſe the danger of the whole.

When a general has no troops to ſpare, he had better ſhorten his front, in order to have the more conſiderable corps de reſerve. He ſhould have one towards the centre, compoſed of choſen infantry, to form the wedge and break the enemy's line; and likewiſe, ſome of cuiraſſiers pikemen and light infantry, towards his wings, to turn the enemy's. "The two laſt of theſe maxims of Vegetius, are founded on the practice of the moſt able generals before his time. Cyrus took care to have reſerves at Thymbræa: Julius Cæſar made reſerves of ſix cohorts at Pharſalia: Epaminondas deſtined the diviſions of the phalanx to form the embolon at Mantinæa: Alexander employed different lines of light cavalry and light infantry at the battle of Arbela: and his ſucceſſors imitated his example in their orders of battle.

Theſe kinds of reſerve had a fixed deſtination: that is, they were placed with a deſign to attempt ſome blow againſt the enemy, or parry any, which he might be ſuppoſed to attempt: and in this ſenſe Vegetius ſays, a general ſhould always have a corps de reſerve to form the "Wedge" or "forceps;" for if, in order to execute theſe evolutions, he ſhould take any troops from his line, he may, then, replace the latter with thoſe that are poſted in the rear for that purpoſe.

This manœuvre the Greeks called "parembolos." Arrian has deſcribed it in his "Tactics," and claſſed it with the ſeveral diſpoſitions of the phalanx. "The natural effect," ſays Onoſander, a military writer, "of a reinforcement of freſh troops, is to inſpirit thoſe they join, and diſpirit an enemy, already weakened by the length of the engagement." Vegetius and Onoſander had eſtabliſhed their precepts on the practice of the preceding ages. It appears, however, notwithſtanding the acknowledged advantage of corps de reſerve, that the Greeks did not always make uſe of them, except in a ſmall number of extraordinary inſtances. They always drew up in a ſingle line of cavalry and infantry; depending on the depth of their order, and on their light-armed troops, which they formed into a line, in their front or rear; or poſted on their flanks, according to the nature of the ground on which they were to engage.

It appears that this uſe of the corps de reſerve is not very ancient. Vegetius attributes the invention of them to the Lacedæmonians; and ſays, they were firſt adopted by the Carthaginians, and then by the Romans. The Greeks, better acquainted with tactics, and better diſciplined than the Carthaginians, always engaged in ſingle lines of infantry and cavalry; and they derived courage from the depth and ſolidity of their phalanx. When they had recourſe to corps de reſerve, it was not with a deſign to ſupport one line with another, like the Carthaginians. Theſe corps de reſerve were either detached troops, formed expreſsly to make certain independent manœuvres; and ſometimes bodies poſted to fruſtrate the enemy's ambuſcades; and theſe are probably the troops meant by Vegetius, when he tells us, that the Romans borrowed the uſe of them from the Carthaginians. The Triarii, who in their orders of battle formed the ordinary reſerve, entered into the compoſition of their tactics, which had been perfected a long time before they knew any thing of the Carthaginians. The modern tactic is the ſame with that of the Romans, but ſpoiled and corrupted. We draw up, ſays Maizeroy, in two lines, at 300 paces diſtance from each other, with the cavalry in like manner on our wings. Theſe two lines, which uſed to be four deep, are now three; ſo that the depth of the two, taken together, does not equal half the depth of the phalanx: they are even far from equalling, in depth, a ſingle line among the Romans; and the diſtance between them ſeems only to increaſe their weakneſs. With an ordonnance ſo feeble as this of the moderns, reſerves are abſolutely neceſſary; and indeed much more neceſſary than among the ancients. "Troops muſt be ſo diſpoſed," ſays Montecuculi, (B. i. c. 6.) "as to be able to fight again and again: the firſt line ſhould be the ſtrongeſt, ſince it has the greateſt efforts to make and to ſupport; the ſecond, a little leſs; the third may be wholly compoſed of ſome reſerves." When the order of battle is of little extent, it will be impoſſible to have more than one reſerve of infantry and cavalry behind the centre, or at ſuch a diſtance as to be able to ſuccour any part of the line, that may happen to want it: if, on the contrary, the enemy makes a great front, it will be better to divide the reſerve. In this caſe, it is uſual to make three corps of it, one of which is to be ſtationed behind the centre of the infantry, and the other two behind the wings. In a regular order of battle, the reſerve of infantry is generally placed in the centre; and all the cavalry or dragoons, that can be ſpared for the ſame purpoſe, behind the ſecond line of each wing of the cavalry. On this ſubject, ſee M. Joly de Maizeroy's Syſtem of Tactics, by Mante, vol. ii.

Corps *les ſix vieux*, Fr. By this expreſſion was meant the regiments of Picardy, Piedmont, Champagne, Navarre, Normandy, and La Marine, becauſe they were raiſed or formed before any other regiments, and enjoyed prerogatives in the way of honours and command over all other regiments of infantry.

CORPSE, Stealing of, in *Law*, is not felony, but puniſhable as a miſdemeſnor by indictment at common law; but if a perſon, in taking up a dead body, ſteals the ſhroud, or other apparel, it is felony; for the property thereof remains in the executor, or perſon who was at the charge of the funeral. 3 Inſt. 110. 12 Rep. 113. 1 Hal. P. C. 515

CORPSUND-les-Trois-Maries, in *Geography*, a town of France, in the department of the Ille and Vilaine; 3 leagues S. of Rennes.

CORPULENCE, or Corpulency, from *corpus*, the *body*, ſignifies an unuſual bulk of the body; and as the increaſe of bulk is commonly produced by an accumulation of fat in the cells of the adipoſe membrane, it is ſynonymous with *obeſity* or fatneſs. The noſologiſts have denominated it *polyſarcia*, from πολὺς, *much*, and σὰρξ, *the fleſh*. Corpulency, however, is to be diſtinguiſhed from the mere ſize and quantity of muſcle, which conſtitutes the athletic ſtructure, and which neither produces diſeaſe nor inconvenience, nor occaſions any deformity in the appearance of the body.

The fat, which in the living body is generally fluid, *i. e.* in the ſtate of an oil, is a ſecretion from the blood, and is depoſited in the common cellular ſubſtance. This ſubſtance is not only ſituated under the ſkin, over the whole body, but penetrates into its inmoſt receſſes, between the different muſcles, and even the fibres of the muſcles, and enters into the compoſition of almoſt all the ſoft parts. Hence, when the body is corpulent, the fat is found, not only under the ſkin, but abundantly in the cavity of the belly, about the kidneys and meſentery; in the loins; and particularly in the omentum or caul; whence the general protuberance of the abdomen in fat people. It is found alſo in the cheeks, in the ſubſtance of the mammæ, and about the heart; and it lies between the muſcles, filling up the furrows and cavities, and thus rendering the ſurface of the body and of the limbs round and ſmooth. With this ſtate of obeſity a fullneſs of the vaſcular ſyſtem, or a plethora, is uſually combined.

When theſe circumſtances are taken into conſideration, it muſt be obvious, that although corpulency may exiſt to a certain, even to a conſiderable, degree, in ſome perſons, without being deemed a diſeaſe; yet there is a point to which it cannot advance, without being admitted to be a diſeaſe, and conducing to the excitement of other maladies, which tend to ſhorten life. Hippocrates obſerved, that corpulent perſons are ſhorter-lived, and more frequently die ſuddenly, than lean people. Aphor. 44. § 2. Great corpulency neceſſarily contributes to impede the free exerciſe of the animal functions. The omentum, as well as other parts of the abdomen, being loaded with fat, the deſcent of the diaphragm is obſtructed, and therefore reſpiration is performed imperfectly, and with difficulty, and the power of taking exerciſe is almoſt totally loſt. This load of fat preſſes alſo on the large blood-veſſels, and on the viſcera, and neceſſarily impedes the full flow of the circulating blood through them. Hence the pulſe is generally weaker in fat perſons than in others. This general preſſure upon the blood-veſſels, and impediment to a free circulation, cauſe an accumulation of blood in the veſſels of thoſe parts, where no fat exiſts, as in the brain and the lungs; whence alſo reſpiration is ſtill farther impeded, and the functions of the brain are imperfectly performed. Thus the corpulent often grow dull and ſleepy, their memory is impaired, and indiſpoſition to motion enſues; and at laſt, the brain being oppreſſed with too great fullneſs, or by a burſting of the veſſels, they die apoplectic, or are ſeized with a palſy, which adheres to them for life. The compreſſion of fat in the abdomen extends to the viſcera of the pelvis; and Hippocrates has deduced even barrenneſs itſelf from this cauſe. "But if a woman grows preternaturally fat," he ſays, "ſhe does not conceive; for the womb is compreſſed by the ſuperincumbent diſtended omentum, whereby conception is prevented." Aphor. 46. § 5. This, however, though frequently, is not invariably, the caſe. Corpulency alſo gives riſe to gout, gravel, indigeſtion; even to epilepſy and other violent diſeaſes.

The prediſpoſition to corpulency is very various in different conſtitutions. In ſome perſons, a depoſition of fat takes place, in ſpite of a conſtant moderation in the gratification of the appetite; while in others, the unlimited indulgence of it is not productive of any degree of fatneſs. This depends much upon other peculiarities of habit: ſuch as a laxity in the ſolids, which is connate, often hereditary; a ſtrong digeſtive power in the ſtomach: and a cheerful and contented diſpoſition, which is not ruffled into anxiety by trifling occurrences, (whence the truth of the adage, "laugh and be fat:") for corroding cares and anxieties diſturb the corporeal functions, eſpecially the digeſtion and aſſimilation of the aliment, and of courſe diminiſh the ſupply of blood.

The general exciting cauſe of corpulency is certainly a free indulgence of the appetite, in the uſe of nutritious food and fermented liquors. A very curſory obſervation will be ſufficient to prove this. For example, it is only among thoſe, who enjoy the means of obtaining the comforts of life without hard labour, that corpulency is at any time obſerved. The money-making citizen, the ſubſtantial farmer, (and more eſpecially their wives, who enjoy all their feeding, with leſs exerciſe and anxiety,) the indolent rector, the ſerjeants of a regiment in peaceable quarters, the maſters of well-accuſtomed inns and poſt-houſes, &c. &c.; theſe are the people, whoſe rotundity of belly marks the ſuperabundance of their *ingeſta,* and who wheeze and perſpire under a load with which they have voluntarily encumbered themſelves. It is not ſo with the active and the laborious, who are alſo the poorer part of mankind: the porters and ploughmen, the hewers of wood and drawers of water, do not diſfigure and encumber their limbs with fatneſs; the clerk and the ſexton do not vie with the rector in prominence of abdomen; and the common ſoldier is ſufficiently diſtinguiſhed from his non-commiſſioned officers, by the mediocrity of his ſize. The fact, indeed, is too well known and admitted to require any illuſtration. Whenever a perſon, of a conſtitution in the leaſt prediſpoſed to fatneſs, is enabled to indulge in good feeding, and leads a calm indolent life, free from mental inquietude, and uſing little corporeal exerciſe, corpulency generally enſues.

The cauſes of corpulency being thus well underſtood, the means of diminiſhing it are not leſs obvious, as we ſhall preſently demonſtrate.

Inſtances of conſiderable degrees of corpulency, giving riſe to much inconvenience, impeding the functions, and even ultimately leading to fatal diſeaſes, are very frequent in this country, in conſequence of the general conſumption of animal food. And occaſionally, when the conſtitutional prediſpoſition conſpires with exciting cauſes, examples of enormous corpulence occur, which are deemed worthy to be recorded. We ſhall notice only the following:

Mr. John Love was, in the early part of his life, ſo thin and meagre, that a *tabes,* or conſumption, was apprehended; and having, by the advice of phyſicians, been provided with every kind of nutritious food, he was led into ſuch habits of indulgence, that he reſigned himſelf entirely to the pleaſures of the table. Having commenced buſineſs as a bookſeller at Weymouth, which required little corporeal exerciſe, he gave full ſcope to his propenſity for good living, and ſoon grew as remarkably corpulent and heavy as he was before light and ſlender; his weight amounting to 26 ſtone, or 364 pounds. At length, ſuffocated by fat, he died in the 41ſt year of his age, in October 1793.

The bulk of this man was, however, conſiderably exceeded by that of Edward Bright, a grocer, of Malden in Eſſex. The diſpoſition to corpulence was, in this caſe, hereditary; many of his anceſtors having been remarkably fat, and ſo early as the age of twelve years and a half, he weighed 10 ſtone 4 pounds, or 144 pounds. Before he attained the age of twenty, he weighed 24 ſtone; and increaſed about 2 ſtone in each year, ſo that at the time of his death his weight amounted to 44 ſtone, or 616 pounds. He was 5 feet 9 inches and a half high; his body round the cheſt, juſt under the arms, meaſured 5 feet 6 inches; and round the belly, 6 feet 11 inches; his arm, in the middle, was 2 feet 2 inches in circumference; and his leg, 2 feet 8 inches. He died at the early age of 30 years, in November 1750. The great conſtitutional prediſpoſition to fatneſs was here evinced by the circumſtance, that from his childhood to within three years of his death, when he became unwieldy, he took much exerciſe, and was a nimble and quick walker. But this prediſpoſition of the conſtitution was not counteracted by his mode of living; for he had always a good appetite, and in his youth was rather remarkable in that reſpect, and he drank alſo a conſiderable quantity of ale and ſtrong beer: latterly his chief drink was ſmall beer, of which he uſually drank a gallon a-day. He enjoyed good health during the greater part of his life; but within the laſt three years he ſuffered ſeveral inflammatory attacks, one of which terminated fatally. After his death, ſeven men of 21 years of age were encloſed in his waiſtcoat, in conſequence of a wager, "without breaking a ſtitch or ſtraining a button."

Sennertus mentions an inſtance of a woman of 36 years of age, who weighed 480, and another of a man whoſe weight was 600 pounds.

But in Mr. Daniel Lambert, who exhibited himſelf in London, in the ſpring of 1806, we have an example of the greateſt bulk, perhaps, to which the human body ever arrived. Mr. Lambert was born at Leiceſter in the year 1770, and was very ſtrong and active in his youth, being an expert ſwimmer, and much addicted to the ſports of the field. Before the age of 20, he found that he was diſpoſed to obeſity, and in his 23d year he weighed 30 ſtone: when he arrived in London, he attained the enormous weight of *fifty ſtone,* four pounds, or 704 pounds. His height is five feet, eleven inches. He ſucceeded his father in the office of keeper of the priſon at Leiceſter; and it was within a year after this appointment, that his bulk received the greateſt and moſt rapid increaſe. This he juſtly attributes to the confinement and ſedentary life to which he was then obliged to ſubmit; eſpecially, as he had formerly been accuſtomed to active exerciſe. Mr. Lambert is ſaid to have been temperate; but we have no particular account of his mode of living, except that, in his younger days, he was never accuſtomed to drinking, although he ſpent all his evenings in convivial parties, and that at preſent he drinks no other beverage than water, and eats of one diſh only at a time. It is ſaid that he ſcarcely knows what indiſpoſition is, is chearful and intelligent, without any difficulty of reſpiration, and not diſpoſed to drowſineſs. Notwithſtanding his enormous bulk, he is able to go up ſtairs with great eaſe, and "conceives himſelf," ſays his biographer, "that he could walk a *quarter of a mile.*" He meaſures nine feet, four inches, round the body, and three feet, one inch, round the leg. The feet and hands are not much enlarged, but the ſkin, diſtended with fat, hangs in folds over the ancles. See Eccentric Mirror, vol. i. p. 1. *et ſeq.* 1806.

Cure. In the diſeaſe of corpulency, (for whatever condition of body impedes any of its functions, even that of loco-motion only, muſt be conſidered as morbid) the patient muſt principally miniſter to himſelf; the cure, and the prevention, will depend almoſt excluſively upon the proper regulation of his diet and mode of life, and medicine can only be reſorted to in order to relieve any caſual effects of the corpulent ſtate. The three principal points to which the attempts to remove obeſity, or to prevent its increaſe in the incipient ſtate, muſt be directed, are the diet, exerciſe, and ſleep; but more eſpecially to the firſt, as the ſource of ſupport and increaſe to the body.

It is obvious, that where the ſtomach poſſeſſes a powerful digeſtive faculty, and is capable of converting into chyle every digeſtible part of the aliment that is taken in, and when the veſſels, at the ſame time, take up this chyle, and depoſit much fat, that the moſt direct method to diminiſh this depoſition, will be to diminiſh the quantity of the food, or to take articles of a leſs nutritious quality. Celſus recommends us to take but one meal a day; and this may be partly effected, in this country, by omitting ſupper, or, at leaſt, by taking no animal food at that time. At dinner, the food ſhould be plain and lean, all poignant and ſtimulating ſauces being diſpenſed with, and one diſh only uſed: a larger proportion of vegetables than of animal food ſhould be taken, as containing leſs nutriment; and, upon the ſame principle, weak animal broths may be much uſed, as tending, by their bulk, and the diſtenſion of the ſtomach which they occaſion, to allay the uneaſy ſenſations of appetite, without conveying much nutritious matter to the conſtitution. It will be always uſeful to attend to the old adage of the temperate, and "riſe with an appetite," or, at leaſt, ceaſe from eating, before the ſenſations of ſatiety begin to ariſe, and ſo that no heavineſs, or indiſpoſition to active purſuits, may enſue. In a word, whoever would rid himſelf of the incumbrance of a corpulent habit, muſt reduce the nutriment which he takes as far as prudence will ſuggeſt, and his patience will enable him to ſubmit to. The effect of ſuch a plan, in reducing preternatural obeſity, is infallible. "Any one may loſe a pound of blood," ſays Dr. Cheyne, "take a purge, or a ſweat; by dropping the great meal, or by abſtaining from animal food, or fermented liquors, for four or five days, as effectually as by opening a vein, ſwallowing a doſe of pills, or taking a ſudorific bolus." "Eſſay on Health," p. 35. The article of drink deſerves an equal conſideration; and the regulation of it is of ſcarcely leſs importance. We have already ſeen, in the caſe of Bright, how much the free uſe of even ſmall beer ſeemed to contribute to augment his corpulency; and the importance of diminiſhing the quantity of the drink, will be ſtill farther apparent from the caſe of the miller of Billericay, which we ſhall mention preſently. Wine, and fermented liquors, ſhould certainly be omitted; or, if any wine is taken, it ſhould be in ſmall quantity, and much diluted, or the thin acid wines ſhould be uſed. But water, the beverage of nature, will be generally found to be the moſt wholeſome in ſuch caſes. The good effects of a diet, thus reduced and regulated, both in quantity and quality, were long ago illuſtrated by the example and precept of a noble Italian, CORNARO, who was early incumbered with a corpulent habit, but who relieved himſelf, and lived in health and comfort to an extreme old age, by a rigid adherence to temperance and ſobriety. See his treatiſe *ſulla vita ſobria*. He reſtricted his diet to twelve ounces of ſolid food a day, which compriſed one egg, and bread; and his drink to fourteen ounces, never including more than one glaſs of wine. It has been apprehended, indeed, that a very great change, from a highly nouriſhing to a weak diet, is liable to be productive of ſerious detriment to the conſtitution; but the example which we are about to quote, will ſhew the importance of ſuch a change in the diet, and the extent to which it may be carried, not only with impunity, but with the moſt beneficial conſequences. It will ſupply the place of a volume on the ſubject.

The caſe, to which we allude, is that of Mr. Thomas Wood, a miller, at Billericay, in the county of Eſſex, which is related by ſir George Baker, in the ſecond volume of Medical Tranſactions of the College of Phyſicians, p. 259, *et ſeq.* Thomas Wood was born on the 30th of November, 1719, of parents who were apt to be intemperate in their manner of living, and was ſubject to various diſorders, particularly the rheumatiſm, until he attained the age of thirteen years. He then had the ſmall-pox in a favourable way; and from that time became healthy, and continued to have no complaints, to the age of about forty three years. From his attaining the ſtate of manhood to this period, but eſpecially during the latter part of the time, he indulged himſelf, even to exceſs, in fat meat, of which he uſed to eat voraciouſly three times a day, together with large quantities of butter and cheeſe. Nor was he more cautious with reſpect to ſtrong ale, which was his common drink. About his fortieth year he began to grow very fat; but, finding that he had a good appetite, and digeſted his food without difficulty, and that his ſleep was undiſturbed, he made no alteration in his diet. It was in his forty-fourth year when he firſt began to be diſturbed in his ſleep, and to complain of the heart-burn, of frequent ſickneſs at his ſtomach, pain in his bowels, headache, and vertigo. He was now ſometimes coſtive, at other times in the oppoſite extreme; had an almoſt conſtant thirſt, a great lowneſs of ſpirits, violent rheumatiſm, and frequent attacks of gout. He had likewiſe two epileptic fits. But the ſymptom which appeared to him to be the moſt formidable, was a ſenſe of ſuffocation, which often came on him, particularly after his meals. Under ſuch a complication of diſeaſes, every day increaſing, he continued till Auguſt 1764, when the reverend Mr. Powley, a worthy clergyman in the neighbourhood, obſerving his very ill ſtate of health, and the extreme corpulence of his perſon, recommended to him an exact regimen; and pointed out the "Life of Cornaro," as a book likely to ſuggeſt to him a ſalutary courſe of living. This book convinced him that intemperance was the cauſe of all his complaints; and he determined to try the effects of a change of life. At firſt he confined himſelf to one pint only of his ale every day; and uſed animal food ſparingly. Finding this method to anſwer to his ſatisfaction, (for he felt eaſier and lighter, and his ſpirits became leſs oppreſſed,) he was encouraged to proceed; and, after having purſued this regimen during two months, he deducted half the quantity from his allowance of ale, and was ſtill more ſparing of groſs animal food. In January 1765, he left off all malt liquor; and, in the following month, began to drink only water, and to eat only the lighter meats. Under this degree of abſtinence, although ſome of his complaints were relieved, yet others remained in full force; the rheumatiſm tormented him, and he had, now and then, ſlight fits of the gout. In June 1765, he began the exerciſe of the dumb-bell, which he conſtantly perſevered in. He continued to drink water only until the 25th of October in the ſame year; but from that time he abſtained altogether from drink, (except on the 9th of May in the following year, 1766, when he drank two glaſſes and a half of water,) and took no liquor whatever, except what he ſwallowed in the form of medicine. From June 1767, he abſtained from butter and cheeſe; and the 31ſt of July, in the ſame year, was the laſt time of his eating any animal fleſh; his diet, from that date, being principally confined to pudding made of ſea-biſcuit. He allowed himſelf very little ſleep, generally going to bed at eight o'clock in the evening, ſometimes even earlier, and riſing about one o'clock in the morning, very rarely being in bed after two.

Under this ſtrict courſe of abſtinence he ſtill continued to live till the year 1783, expreſſing, in the higheſt terms, the great pleaſure and tranquillity of mind which he enjoyed in conſequence of it. The poor diet, to which he had accuſtomed himſelf, became as agreeable to his palate, as his former food uſed to be; and he had the additional ſatisfaction, to find his health eſtabliſhed, his ſpirits lively, his ſleep no longer diſturbed by frightful dreams, and his ſtrength ſo far improved, that he could carry a quarter of a ton weight; which weight he in vain attempted to carry when he was about the age of thirty years. His voice, which was entirely loſt for ſeveral years, became clear and ſtrong. In ſhort, to uſe his own expreſſion, he was metamorphoſed from a monſter, to a perſon of a moderate ſize; from the condition of an unhealthy, decrepit old man, to perfect health, and to the vigour and activity of youth. He uſed much exerciſe, his buſineſs leading him to ride a great deal on horſeback; continued the dumb-bell, and took every occaſion of leiſure to dig in his garden. Mr. Wood was a great enemy to all fermented liquors, to butter, and to ſalt; and he found that a pudding of common fermented bread was leſs agreeable to his ſtomach than one of ſea-biſcuit. The pudding, which was his ſole ſupport during two years, was made as follows: Three pints of ſkimmed milk, boiling, were poured on one pound of the beſt ſea-biſcuit, broken into pieces: This was done over night, and the ingredients were left to ſtand together until the following morning, when two eggs were added: This compound, being boiled in a cloth about the ſpace of an hour, became a pudding of ſufficient conſiſtence to be cut with a knife. Of this, his quantity uſed to be one pound and a half, at four or five o'clock in the morning, as his breakfaſt, and the ſame at noon, as his dinner; after which, he abſtained from food until the next day. But having grown fatter under this diet, he judged it neceſſary to quit it, as being too nutritious; and during three months he lived on the following compoſition, viz. one pound of coarſe flour, and one pint of water, boiled together. This he was at firſt much pleaſed with; but afterwards found it diſagreeable to his ſtomach, and not eaſily digeſtible. The pudding which he afterwards uſed, was compoſed of one pound of the flour, of which the coarſe or ordinary kind of the ſea-biſcuit is made, boiled with a pint and half of ſkimmed milk, without any other addition.

Mr. Wood continued in this courſe of abſtemiouſneſs, lively, active, and full of ſtrength, until the 21ſt of May 1783, when he died, in the ſixty-fourth year of his age, of an inflammation in his bowels, by which diſeaſe his mother and brother had been carried off. A few days previous to his death, he had travelled more than ſixty miles on horſe-back, without any ſenſe of fatigue.

The principal reaſon which led Mr. Wood to refrain from drinking, was, that it excited a deſire for a larger quantity of food. Much drink operates, he ſaid, as a provocative to eating, as ſalted meats and high ſauces excite a deſire for drinking. But, in order to be able to abſtain from drinking, the food ſhould be of a moiſt nature, and all dry and ſalted meats, and indeed every thing commonly called reliſhing, ſhould be ſhunned. He did not mean to aſſert, that any animal can live without moiſture; but conſidered eating his pudding to be the ſame thing as eating the quantity of dry flour, of which it was made, and drinking afterwards the quantity of water which it contained. See the ſequel to the caſe in the 3d vol. of the Med. Tranſact., by the ſame writer.

The importance of an attention to the other two points, which we have mentioned, namely, the uſe of *exerciſe*, and the regulation of *ſleep*, are alſo well illuſtrated, in this hiſtory of unexampled perſeverance in a rigid abſtinence. The principal value of active exerciſe conſiſts, apparently, in the increaſe of the natural diſcharges, eſpecially of the cutaneous perſpiration. The experiments of Sanctorius ſhew ſatisfactorily the extent to which the quantity of the fluids, and therefore the weight of the body, are regulated by this diſcharge; and the diminution of the circulating fluids, the ſource of the ſecretion of fat, neceſſarily implies the diminution of the ſecretion. Hence the obvious utility of active exerciſe to thoſe, who are diſpoſed to corpulency: ſuch as various mechanical labours, digging, threſhing, &c. or long continued walking, as taking a pedeſtrian tour. And let it be obſerved, ſince the abſtract conſiderations of reaſon alone, ſeldom conquer the alluring ſuggeſtions of appetite and indolence, that the rich man, who fares ſumptuouſly every day, eats his viands of luxury with leſs real gratification, than the labourer his coarſe and uninviting meal. This will be fully conceded by all who have made the experiment, by a walk of a few hundred miles. Such is the benevolence of nature in equalizing the happineſs of mankind!—'Beati, ſua ſi bona nôrint.' See Exercise.

Moderation in the quantity of ſleep is not leſs neceſſary than abſtinence and exerciſe, with a view to the removal or prevention of corpulency. Much ſleep implies much inaction, and inaction leads to an accumulation of fluids in the body, and the conſequent depoſition of fat, in habits prediſpoſed to that ſecretion. It is impoſſible to recommend any certain portion of time, which ought to be devoted to ſleep, ſince this muſt depend upon the peculiarities of individual conſtitution, as well as of age, &c. For an adult perſon, of ordinary ſtrength, ſeven hours, we apprehend, will afford ample reſtoration of the powers, exhauſted during the activity of the day. See Sleep.

Where urgent morbid ſymptoms ariſe from corpulency, or where the rules of temperance and exerciſe are not ſubmitted to, relief may be given by producing evacuations by artificial means, as by directly emptying the blood-veſſels by means of the lancet, or cupping; or indirectly by the uſe of cathartic medicines, which produce a great diſcharge of fluids into and through the inteſtines. But when either of theſe operations has been frequently repeated, the conſtitution becomes habituated to them, and actually produces an increaſed ſupply of fluids, to compenſate the loſs; ſo that evacuations muſt alſo be habitually repeated, or a dangerous plethora may enſue. A regular diſcharge from the bowels is moſt ſafely promoted by means of diet; as by the free uſe of the ſubacid fruits, either freſh, or preſerved with ſugar; by the uſe of coarſe bread, inſtead of that which is fine, &c.

Dr. Flemyng recommended ſtrongly the uſe of ſoap, as a diuretic, for the reduction of corpulency, and relates a caſe, in which the ſoap, given firſt in the doſe of a drachm once a day, increaſed gradually to two, three, or even four drachms, and continued for three or four months, effectually removed the accumulation of fat, and its conſequences. Whether it operated by increaſing the ſecretion of urine, or, like the vegetable acids, when freely uſed, by impeding the work of digeſtion, it may not be eaſy to determine. But we ſhould apprehend that conſiderable danger to the conſtitution might accrue, from the continued uſe of any medicine, which muſt act either by morbidly increaſing the functions of one organ, or diminiſhing thoſe of another; and therefore conclude that the regulation of the diet, exerciſe, and ſleep, affords the ſafeſt, as well as the moſt effectual antidote to corpulence. See Dr. Flemyng's pamphlet on Corpulency. See alſo Cullen,

len, firſt lines, § 1621, *et ſeq.*—Sauvages, Noſol. Meth. claſs 10. Gen. Polyſarcia.

CORPUS, *body*, in *Anatomy*, is applied to ſeveral parts in the animal ſtructure; as *corpus calloſum*, *corpus glanduloſum*, *corpus reticulare*, &c.

Corpus *calloſum*, is a part of the brain. See Brain.

Corpus *cavernoſum urethræ*. See Cavernosum.

Corpus *ciliare*, is a term, which includes the anterior part of the choroid coat with all the folds, that connect it to the vitreous humor. See Eye.

Corpus *luteum*. The *corpora lutea* are oblong bodies, of a yellowiſh colour, and glandular ſtructure, only diſcernible in the ovaria of animals when pregnant. They are ſuppoſed to be the calyces, containing the ova. The number of them, therefore, is equal to the number of ova, contained in the ovaria. The corpus luteum is extremely vaſcular, but the veſſels are inconſpicuous, until one or more ova become impregnated, when they are enlarged. On the ovum detaching itſelf, and falling into one of the fallopian tubes, the corpus luteum, or calyx, withers and decays, a cicatrix only remaining, on its upper or moſt prominent part, whence the ovum had eſcaped. Its office is to nouriſh the ovum, or it is the medium through which the nouriſhment paſſes to the ovum, until it is fitted to be tranſmitted to the uterus. That it performs this office appears from hence, there are always as many corpora lutea viſible, as there are ova in the ovaria or fœtuſes in the uterus. See Denman's Introduction to the Practice of Midwifery. This ſubject will be again noticed under the word *ovarium*.

Corpus *pampiniforme*, is a venous plexus, formed by the veins of the teſtis. See Generation, *organs of*.

Corpus *ſpongioſum urethræ*; the vaſcular ſubſtance, which ſurrounds the urethra of the male ſex from its membranous part to its termination. See Generation, *organs of*.

Corpus is alſo uſed in matters of learning, for ſeveral works of the ſame nature, collected, and bound together.

Of this kind is the *corpus juris canonici*, or body of the Roman canon law. See Canon *law*.

The *Corpus juris civilis*, or body of the civil law, is compoſed of the digeſt, code, novels, and inſtitutes. See Civil law; ſee alſo Code, Digest, &c.

We have alſo a *corpus* of the Greek poets; and another of the Latin poets. See Body.

Corpus-*Chriſti day*, a feaſt held always on the next Thurſday after Trinity Sunday. It was inſtituted in the year 1264, in honour of the bleſſed ſacrament, to which alſo a college in Oxford is dedicated. We find it mentioned in 32 Hen. VIII. cap. 21. By which ſtatute Trinity-term is appointed for ever to begin the morrow after this feaſt. See Term.

Corpus *cum cauſa*, in *Law*, a writ iſſuing out of chancery, to remove both the body, and record, touching the cauſe of any man lying in execution upon a judgment for debt, into the king's bench, &c. there to lie till he has ſatiſfied the judgment. F. N. B. 251. See Habeas Corpus.

Corpus *cepi*. See Cepi.

Corpus *habeas*. See Habeas.

CORPUSANSE, in *Meteorology*, a name given by mariners to thoſe luminous bodies, which, in thick hazy weather, ſkip about the maſts and yards of ſhips; and which were the *Caſtor* and *Pollux* of the Ancients. Corpuſanſe is a corruption of *Cuérpo Santo*, as this meteor is called by the Spaniards. Plin. l. ii. c. 37.

CORPUSCLE, (from the Latin *corpuſculum*,) a very ſmall body. But large and ſmall being relative terms, it is evident that the very ſame body is ſaid to be large when compared with a ſmaller, and ſmall when compared with a larger body. By the word corpuſcle, however, in philoſophy, is moſtly meant one of the elementary, or of the minuteſt, particles of a body; a phyſical atom. And here it is neceſſary to remark, that the exact meaning of the word is far from being determined or underſtood. By ſome philoſophers the corpuſcles are ſaid to be thoſe elementary components of a body, which cannot be divided into ſmaller parts; but it is not in our power to aſſert whether ſuch indiviſible particles do, or do not, exiſt. According to others, by the word corpuſcles are meant not the elementary particles; but ſuch, whether of a ſimple or a compound nature, as cannot be diſſolved nor diſſipated by the action of an ordinary heat. But this meaning likewiſe is indefinite and equivocal.

The various opinions of philoſophers reſpecting the conſtitution of matter are all hypothetical, generally obſcure, and often abſurd; nor does it appear, that the preſent ſtate of philoſophical knowledge affords data ſufficient for inveſtigating the nature of the elementary parts of bodies. Leucippus and Democritus imagined that the component atoms or corpuſcles of bodies were of different unalterable forms; that they were continually in motion; and that they were ſuſceptible of a variety of arrangements. Epicurus attributed to the atoms an innate power of mutually affecting each other's motions, and a power of forming all the various natural bodies, according to their different ſpontaneous arrangements. Des Cartes ſuppoſed, that there exiſted atoms of different forms, and that theſe poſſeſſed no other property beſides extenſion; deriving all their other qualities from the agency of an etherial fluid infinitely elaſtic. Other philoſophers have ſuppoſed that what appears to us as body or matter, is nothing more than an aſſemblage of properties, ſuch as reſiſtance, opacity, &c. for they ſay, the idea we have of a body before us, is ſomething which obſtructs the ſight, or hinders the motion of our hands, &c. therefore we ought to conclude that the object we perceive is nothing more than an aſſemblage of thoſe properties by which it is rendered manifeſt to our ſenſes. In ſhort, the real conſtitution of matter, and of its ultimate elementary components, is ſo far removed from the groſs apprehenſion of our ſenſes, and even of our reaſoning faculty, as not to admit the formation of a true, or at leaſt a plauſible theory. Therefore the word corpuſcle muſt be allowed to remain an expreſſion of a relative nature. See Matter.

CORPUSCULAR Attraction, denotes that power by which the minute component particles of bodies are united, and adhere to each other. It may be diſtinguiſhed into *attraction of aggregation*; viz. that power by which the *homogeneous* particles of bodies are united; and *attraction of affinity or of compoſition*, viz. that power by which the *heterogeneous* particles of bodies are united.

The phenomena of aggregation may be ſaid to comprehend the greateſt part of the operations of nature. The various conſiſtencies of bodies, the yielding ſoftneſs of ſome, the rigid hardneſs of others, the cryſtallization or regular configuration of ſeveral ſubſtances, the various appearances which are often aſſumed by the ſame body under different circumſtances, &c. are all depending upon the different degrees of that power, whatever it be, by which the particles of bodies tend towards each other. But though the effects of that power fall continually under the cognizance of our ſenſes; though the formation of the parts of our bodies in their different ſtate of conſiſtency, tenacity, &c., and though the fabric of the univerſe, depend almoſt entirely upon it; yet we muſt reluctantly acknowledge our ignorance of its nature. And whilſt we endeavour to inveſtigate, and to aſcertain the laws under which it acts, ſo as to apply the ſame to our wants; we muſt conſider the power itſelf as an original and innate property of matter.

That the celeſtial bodies, at leaſt thoſe which belong to our ſolar ſyſtem, are kept in their orbits at proper or proportionate diſtances from each other, by the general power of attraction, otherwiſe called univerſal gravitation, has been proved by ſir Iſaac Newton, who has ſhewn that all the planetary movements are ſtrictly conformable to the laws of that gravitating power, which is proportionate to the quantity of matter, and the action of which decreaſes inverſely as the ſquares of the diſtances. But the coheſion of the particles of bodies cannot be attributed to the ſame power; firſt, becauſe it is exceedingly powerful at certain diſtances, or rather in cloſe contact, and, inſtead of decreaſing regularly, it vaniſhes on the leaſt ſeparation; and, ſecondly, becauſe it differs in different bodies. A diamond, for inſtance, is incomparably harder than a piece of gold, *viz.* its particles adhere to each other with much greater force than thoſe of gold; nor does that attractive power ſeem to accompany any of the other ſenſible qualities of the bodies, *viz.* neither their ſpecific gravity, nor tranſparency, nor other property, ſeems to be concerned with it. The ſudden decreaſe of that power is a very remarkable circumſtance; for inſtance, a piece of glaſs, or ſteel, or ſtone, or any other hard ſubſtance, when once broken, if the fractured parts are again placed contiguous to each other, no adheſion takes place.

The principal phenomena relative to the attraction of aggregation are as follow. 1ſt. Its power is different in different bodies; *viz.* the particles of one ſort of matter adhere to each other with much greater force, than thoſe of another ſort of matter; the gradation being infinite. 2dly. In the formation of a body from depoſition; *viz.* when the particles of a certain ſubſtance are depoſited from their ſolution in water or other fluid menſtruum, (for by this means ſeveral ſtones, ſalts, &c. are formed into ſolids of conſiderable bulks,) it has been obſerved, that the aggregate, or body, reſulting therefrom is harder, and more regular in ſhape, when the depoſition has been performed gradually during a conſiderable length of time, when the particles were finer, and the ſolution more perfect, than with the reverſe of thoſe circumſtances; viz. the compound is ſofter and leſs regular when the ſolution contained groſſer particles of that ſubſtance, and the depoſition was quickly performed. 3dly. When the bodies are rendered ſolid after their fuſion by heat, ſometimes the foregoing reſults take place; but at other times the bodies acquire a remarkable degree of hardneſs in conſequence of a ſudden cooling, and a conſequent ſudden tranſition from the fluid into the ſolid ſtate; whereas they remain much ſofter if they are ſuffered to cool and to harden ſlowly. 4thly. The attraction of aggregation is counteracted by the attraction or the affinity of compoſition, and by heat. We ſhall now ſubjoin a few neceſſary remarks, and ſhall briefly ſtate certain facts, which belong to the abovementioned phenomena.

1ſt. The different degrees of hardneſs which bodies are poſſeſſed of, is not entirely depending upon the peculiar attraction of the homogeneous particles, but is in great meaſure to be attributed to the admixture of heterogeneous particles of matter, for even the ſimpleſt bodies which occur to us in the common affairs of life, are far from being diveſted of all extraneous matter. But taking bodies ſuch as are commonly preſented to our ſenſes, and without inquiring whether they are ſimple or compound, ſeveral ſpecies of hardneſs ought to be diſcriminated, as being of great conſequence in the arts, and eſpecially in mechanics. The principal of theſe are, the *tenacity*, the *brittleneſs* or *rigidity*, and the *elaſticity*. See the nature of thoſe ſpecies of hardneſs under their various appellations.

2dly. The depoſitions of earthy or ſaline matters from their ſolutions in water and other menſtrua, whence ſtony concretions, petrifactions, cryſtallized ſalts, and ſuch like aggregates are formed, have been commonly obſerved to be much more compact and regular when the proceſs has been performed during a conſiderable length of time, than when quickly. Thus certain waters after having been kept in a glaſs or bottle a few hours, and even after a few minutes, depoſit a conſiderable quantity of earthy matter; but that matter, ſo quickly depoſited, generally, if not always, is in a looſe powdery ſtate; whereas the very hard incruſtations are formed by the very ſlow depoſition of the minuteſt particles. Thus alſo let a ſaline ſolution be evaporated quickly, and the ſalt will be depoſitated in a ſhapeleſs and powdery ſtate; but if the evaporation be ſuffered to proceed ſlowly, as by the mere expoſure of the ſolution to the atmoſphere in an open veſſel, then the ſalt will be concreted in the form of cryſtals, poſſeſſing a regularity of form, and a conſiderable degree of hardneſs. With reſpect to the form, it is farther to be remarked that almoſt every ſpecies of matter, when the formation of it is ſuffered to proceed ſlowly, aſſumes a certain ſhape, or arranges its particles in a certain order, peculiar to itſelf. Now theſe facts ſeem clearly to point out a kind of polarity in the particles of matter, which is ſomewhat analogous to the magnetic polarity; *viz.* that a particle of matter does not attract another particle on every ſide indiſcriminately; but that one particle attracts another with one ſide and repels it with another ſide; like two magnets, the homogeneous poles of which repel, and the heterogeneous, (that is, a ſouth and a north pole,) attract each other. Upon this principle the above mentioned phenomena of depoſitions are eaſily explained; for when the depoſition proceeds gradually, the particles of matter have time and liberty to turn their friendly poles or extremities towards each other, in conſequence of which they form a compact and hard body; but when the depoſition is performed ſuddenly, the repellent extremities of the particles of matter, as well as their attractive ends, fall confuſedly, and of courſe no hardneſs of aggregate will be obtained. The ſcience of electricity offers another inſtance of two powers attractive of each other, but each repulſive of its like; *viz.* two bodies both poſſeſſed of the ſame kind of electricity, (be it vitreous or reſinous, plus or minus,) will repel each other. But when one of the bodies is electrified poſitively, and the other negatively, then the two bodies will attract each other. But in attributing a ſort of polarity to each particle of matter, we would not be underſtood to aſſert, that they are either magnetic or electrical; on the contrary it appears that their attractive power is of a very different nature; and we only wiſh to ſhew that ſuch difference or peculiarity does exiſt, and that the attraction of the particles of one ſort of matter is in ſome way or other different from the attraction of the particles of a different ſubſtance; otherwiſe the different forms of their cryſtals or configurations could not poſſibly take place. We may, for inſtance, ſuppoſe that the particles of a certain body are oblong, and that one extremity of one particle attracts one extremity of another particle, or we may ſuppoſe that the middle of one particle attracts the extremity of another. We may alſo ſuppoſe that the ſhape of the particles of one kind of matter is different from the ſhape of others; ſome for inſtance, may be globular, whilſt others are cylindrical, others angular, and ſo forth. But with reſpect to this, nothing certain is known.

3dly. Though the fuſion of ſubſtances by heat may be conſidered as a ſolution of the ſubſtances in that element;

yet the effects which ariſe therefrom cannot be entirely reconciled to the above-mentioned phenomena of ſolution; and indeed the former frequently appear to follow a law diametrically oppoſite to that of the latter. The peculiar circumſtance is, that, by cooling ſuddenly, moſt ſubſtances become much harder than when they are ſlowly cooled and rendered ſolid; ſo that if the hardening of the body after fuſion be conſidered as a depoſition from the element of heat, the effect is by no means ſimilar to that of the depoſitions from water and other fluid menſtrua. It is, however, to be remarked that the ſuperior degree of hardening of ſubſtances when quickly cooled, depends, in great meaſure, if not entirely, upon a mechanical circumſtance, which is, that the external parts of the body are ſuddenly hardened whilſt their internal parts are yet fluid, or much expanded; ſo that the former will not adjuſt their figure to the latter when theſe are afterwards rendered ſolid and compact; hence the whole aggregate remains in a ſtate of tenſion, upon which the peculiar degree of hardneſs ſeems to depend. What particularly corroborates this ſuppoſition is, that a body hardened by ſudden cooling, is larger in its dimenſions, than when cooled ſlowly. Mr. Cavallo, in the 2d vol. of his Nat. Phil. p. 77. mentions a very remarkable inſtance of this kind. Mr. Rt. Pennington, he ſays, meaſured a piece of ſteel in its ſoft ſtate, and found it 2,769 inches in length. After hardening by plunging it, when red-hot, in cold water, the ſame piece was found to meaſure 2,7785 inches; and when let down, or ſoftened, to a blue temper, it meaſured 2,768 inches. See the article CONTRACTION.

4thly. The attraction of aggregation is counteracted by the attraction or affinity of compoſition. In other words, the mutual attraction of the homogeneous particles of bodies, is diminiſhed by the attraction between the heterogeneous particles of matter; and the action of the former is inverſely as that of the latter. Thus the component particles of a metallic body form a very compact aggregate in virtue of their mutual attraction: but if the metal be placed in an acid menſtruum, then the particles of the metal are ſeparated, becauſe the attraction between them and the acid is ſtronger than their own mutual attraction.

Heat likewiſe ſeparates the particles of bodies; a metallic ſubſtance, for inſtance, is fuſed by heat; but the ſolution in a menſtruum is on various accounts different from the ſolution, or fuſion, by heat; we muſt, however, refer the farther diſcuſſion of the ſubject to other articles. See AFFINITY, CRYSTALLIZATION, FUSION, and SOLUTION.

CORPUSCULAR PHILOSOPHY, that ſcheme or ſyſtem of phyſics, wherein the phænomena of bodies are accounted for, from the motion, reſt, poſition, arrangement, &c. of the minute corpuſcles, or atoms, whereof bodies are compoſed.

The corpuſcular philoſophy, which now flouriſhes under the title of the *mechanical philoſophy*, is exceedingly ancient. Leucippus and Democritus were the firſt who taught it in Greece; from them Epicurus received it, and improved it, inſomuch that it came at length to be denominated from him, and was called the *Epicurean philoſophy*.

Leucippus, again, is ſaid to have received it from Mochus, a Phœnician phyſiologiſt, before the time of the Trojan war, and the firſt who philoſophized about atoms: though Gale, who borrows all profane philoſophy from the ſacred philoſophy in the books of Moſes, is of opinion that he might take the hint from the Moſaic hiſtory of the formation of man out of the duſt of the earth.

Indeed, Caſaubon takes Μοκος, or Μοχος, to be the name of a Tyrian, who among his own countrymen was called מוח, *Moſche*, or according to the method of writing which then obtained, Moſes: whence it is conjectured that the *Moſche*, or *Moſchus* of the Tyrians, was, in effect, the Moſes of the Hebrews.

This appears to be the ſentiment of Selden, Arcerius, &c. But the opinion of Bochart is more probable, who, from Poſidonius and others, takes Mochus for an inhabitant of Sidon, and his philoſophy to be nothing elſe but a phyſiological or natural hiſtory of the creation.

After Epicurus, the corpuſcular philoſophy gave way to the peripatetic, which became the popular ſyſtem.

Thus, in lieu of atoms, were introduced ſpecific and ſubſtantial forms, qualities, ſympathies, &c. which amuſed the world, till Gaſſendus, Charleton, Des Cartes, Boyle, Newton, and others, retrieved the old corpuſcularian hypotheſis; which is now become the baſis of the mechanical, and experimental philoſophy. See ATOMIC *Philoſophy*.

Mr. Boyle reduces the principles of the *corpuſcular philoſophy* to the four following heads.

1. That there is but one catholic, or univerſal matter, which is an extended, impenetrable, and diviſible ſubſtance, common to all bodies, and capable of all forms.

This ſir Iſaac Newton improves upon in the following manner: "All things conſidered, ſays that great author, it appears probable to me, that God, in the beginning, created matter in ſolid, hard, impenetrable, moveable particles; of ſuch ſizes and figures, and with ſuch other properties, as moſt conduced to the end for which he formed them: and that theſe primitive particles, being ſolids, are incomparably harder than any of the ſenſible porous bodies compounded of them; even ſo hard as never to wear, or break in pieces: no other power being able to divide what God made one in the firſt creation. While the corpuſcles remain entire, they may compoſe bodies of one and the ſame nature and texture in all ages: but ſhould they wear away, or break in pieces, the nature of things depending on them would be changed: water and earth, compoſed of old-worn particles, would not be of the ſame nature and texture now, with water and earth compoſed of entire particles at the beginning. And therefore, that nature may be laſting, the changes of corporeal things are to be placed only in the various ſeparations, and new aſſociations, of theſe permanent corpuſcles."

2. That this matter, in order to form the vaſt variety of natural bodies, muſt have motion in ſome, or all its aſſignable parts; and that this motion was given to matter by God, the creator of all things; and has all manner of directions and tendencies.

Theſe corpuſcles, ſays ſir Iſaac Newton, have not only a vis inertiæ, accompanied with ſuch paſſive laws of motion as naturally reſult from that force; but alſo are moved by certain active principles; ſuch as that of gravity, and that which cauſes fermentation, and the coheſion of bodies."

4. That theſe differently ſized and ſhaped particles have different orders, poſitions, ſituations and poſtures, from whence all the variety of compound bodies ariſes.

CORRA, in *Geography*, a town of Perſia, in the province of Segeſtan, on the lake Zare: 15 miles S.E. of Kin.—Alſo, a river of Perſia which runs into the lake Zare, near the town of Corra.

CORRAAN, a peninſula of Ireland on the weſt coaſt of the county of Mayo, ſeparated from Achill iſland by a narrow channel. It is in old maps, and even in ſome modern ones, erroneouſly repreſented as an iſland. It is about ſeven miles from eaſt to weſt, and from two to four miles wide. The country is mountainous and very thinly inhabited. See Burrishoole.

CORRADINI de Sezza, Peter Marcellinus, in *Biography*, was intended for the ſtudy of the law, and became, in that profeſſion, ſo diſtinguiſhed as to attract the notice of pope Clement XI. who appointed him to honourable and confidential offices. Diſguſted, however, by the intrigues of the court, he gave himſelf up to retirement, for the purpoſe of applying to literary purſuits. Here he remained till he was created cardinal by pope Innocent XIII. This dignity he enjoyed more than 20 years, and died at Rome in the year 1743, having attained to his 83d year. This cardinal was author of a learned and curious work, entitled "Vetus Latium, profanum et ſacrum," in two vols. folio: likewiſe of a hiſtory of his native place, entitled "De civitate et eccleſia Settina." He is ſaid to have written other works under aſſumed names.

CORRÆA, in *Botany*, *Sm. Tranſ. of Linn. Soc. v.* 4. 219. *Willd. v.* 2. 324. Claſs and Order, *Octandria Monogynia*. Nat. Ord. *Rutaceæ*, Juſſ.

Named by Dr. Smith in honour of Joſeph Correa de Serra, LL.D. F.R.S. F.L.S., a learned Portugueſe botaniſt, late ſecretary to the Academy of Sciences at Liſbon, and chief director of that body under the auſpices of its illuſtrious preſident the late duke of Lafoens, who was always warmly attached to Mr. Correa, under various difficulties and contrarieties to which his ſenſe and liberality expoſed him in that bigotted country. After a reſidence of ſome years in England, where he obtained and deſerved the eſteem of all the moſt diſtinguiſhed naturaliſts, he is now cultivating his favourite ſcience at Paris. See *Sm. Exot. Bot. t.* 72, and *Tour on the Continent, ed.* 2. *v.* 1. 357. and *v.* 3. 123.

This ſame genus has received the hard name of *Mazeutoxeron* from M. la Billardiere; but fortunately long after it was publiſhed, unknown to him, by the Linnæan Society. Mr. Correa had indeed already received the honour of a genus from his countryman Vandelli, but it proves to be a ſpecies of *Ochna*.

Gen. Ch. *Cal.* of one leaf, bell-ſhaped, regular, with four teeth, inferior, permanent. *Cor.* regular: Petals four, linear-oblong, cohering longitudinally, externally clothed with ſtarry pubeſcence; ſpreading at their ſummits, and obtuſe. *Stam.* Filaments eight, awl-ſhaped, ſmooth, dilated towards the bottom, four of them ſomewhat longer than the reſt. Anthers ſeſſile, incumbent, oblong, of two cells, burſting longitudinally, without any appendage. *Piſt.* Germen ſuperior, briſtly, four-lobed. Style thread-ſhaped, about as long as the ſtamens, ſmooth. Stigma in four ſmall acute lobes. *Capſules* four, cohering longitudinally, coriaceous, each lined with an elaſtic arillus. *Seeds* two in each capſule, black, kidney-ſhaped.

The fruit, which we have but lately known in perfection, proves this genus to belong to the *Rutaceæ*, not the *Rhododendra*, of Juſſieu, and its eſſential character requires correction.

Eſſ. Ch. *Calyx* of one leaf. *Petals* four, cohering. *Anthers* incumbent, ſimple, two-celled, burſting longitudinally. *Capſules* four, cohering, each lined with an elaſtic arillus.

Sp. 1. C. *alba*. White-flowered Corræa. *Willd. Sp. Pl. v.* 2. 324. *Andr. Repoſ. t.* 18. (Mazeutoxeron rufum. *Billard. Voy. t.* 17.) Leaves roundiſh, even, entire. Flowers erect.—A ſhrub four or five feet high, much branched; the branches oppoſite, downy and white. Leaves oppoſite, on ſhort and broadiſh white footſtalks, of a roundiſh elliptical obtuſe form, entire, even, not undulated, ſingle ribbed; green, but ſprinkled with minute dots of white ſtarry deciduous pubeſcence above; very white beneath, and clothed with denſe pubeſcence, which, like that of the whole genus, conſiſts of cloſely entangled ſtarry or cluſtered hairs. Stipules none. Flowers terminating the ſmall branches, ſolitary, or two or three together, on ſhortiſh ſtalks, upright, white. Calyx very obſcurely four-toothed. Petals four times as long as the calyx, cohering when young, then ſpreading into a funnel ſhaped flower. Stamens rather ſhorter than the petals, with red anthers. The petals, calyx and flower-ſtalk are all clothed with the ſame white ſtarry pubeſcence as the backs of the leaves, which when for ſome time dried, turns of a ruſty hue; and this muſt account for Billardiere's ſpecific name, his deſcription having apparently been made from dried ſpecimens after his return home. This plant is a native of New South Wales near Port Jackſon. It was originally found by ſir Joſeph Banks and Dr. Solander. We firſt ſaw it growing at Meſſrs. Lee and Kennedy's, Hammerſmith, flowering in May and June. It is a hardy green-houſe ſhrub, propagated by ſeeds or cuttings, requiring peat earth, and regular ſupplies of water.

2. C. *virens*. Green-flowered Corræa. *Sm. Exot. Bot. v.* 2. 25. *t.* 72. (C. viridiflora. *Andr. Repoſ. t.* 436, with an erroneous reference to Billardiere; ſee the preceding ſpecies. This ſeems his *Mazeutoxeron reflexum, t.* 19.) Leaves oblong, undulated; heart-ſhaped at the baſe. Flowers pendulous. Calyx-teeth elongated.—A taller ſhrub than the foregoing, which firſt flowered at the marquis of Blandford's at White Knight's, Berks, the ſeeds having been ſent from New South Wales. It thrives well under a warm wall in the open air with a little covering in winter, and flowers in the autumn. The branches are numerous, divaricated and forked, clothed when young with cluſtered ruſty pubeſcence. Leaves on ſhort ſtalks, reflexed, oblong, bluntiſh, veiny; heart-ſhaped at the baſe; undulated and ſomewhat revolute at the margin; green, dotted and roughiſh above; denſely pubeſcent and whitiſh beneath. Flowers terminal or axillary, ſolitary, pendulous, with a pair of narrow bracteas a little below the baſe of the calyx. Calyx-teeth very perceptibly elongated, linear. Corolla cylindrical, the petals cohering ſtrongly, except at the baſe and ſummit, all over downy and of a pale green. Stamens longer than the corolla. Capſules white, hairy. Seeds black. It varies with trifid as well as quinquefid flowers, but its natural and general ſtructure is quadrifid, like the other ſpecies. The flowers are without ſmell, as far as we have been able to obſerve, but their aſpect is ſingular and elegant.

3. C. *rubra*. Red-flowered Corræa. *Banks Ic. ined. apud Bibl. Linn.* Leaves oblong, undulated; ſomewhat heart-ſhaped at the baſe. Flowers aſcending. Calyx-teeth obſolete.—This has ſo much of the habit and general ſtructure of C. *virens*, that it is difficult to detect a ſpecific difference. The leaves indeed are more commonly ovate than heart-ſhaped at their baſe, though variable in this reſpect; the flowers grow rather upright than pendulous, and their calyx is almoſt perfectly even at the edge, with ſcarcely any rudiments of teeth, and nothing like the linear elongations obſervable in the laſt, which form its moſt deciſive character. The plant however is chiefly remarkable for the crimſon hue of the corolla, which, contraſted with its green extremities, renders this one of the handſomeſt New Holland ſhrubs, and it is to be regretted, that though dried ſpecimens have been brought from its native country, no ſeeds have vegetated in

our gardens. The flower-buds and their cups look exactly like ſmall acorns, and we have known them gathered for the ſeeds. Sir J. Banks and Dr. Solander firſt diſcovered this ſpecies. S.

CORRECTED Calendar. See Calendar.

CORRECTION, or Chastisement, in the *Manege*, denotes any method that is uſed to awe or puniſh a horſe, when he diſobeys; and is diſtinguiſhed from *aid*, which ſignifies any means that are uſed to aſſiſt or direct a horſe, and that enable him to execute whatever he is put to do. Accordingly, aids ſeem to prevent, and corrections to puniſh, whatever faults a horſe may commit. See Aid. Corrections are of two ſorts: you may puniſh your horſe with the ſpurs, the ſwitch, or chambriere; you may puniſh him by keeping him in a greater degree of ſubjection: but in all theſe caſes, a real horſeman will endeavour rather to work upon the underſtanding of the creature, than upon the different parts of his body; for a horſe has imagination, courage, and real judgment, which three faculties, duly regarded, will be likely to enſure ſucceſs. The corrections, which reduce a horſe to the greateſt obedience, and that diſhearten him the leaſt, are ſuch as are not ſevere; but ſuch as oppoſe and thwart the horſe conſiſt in thwarting him in what he wants to do, by reſtraining and putting him to do directly the contrary. If your horſe do not advance or go off readily, or if he is ſluggiſh, make him go ſideways, ſometimes to one hand, ſometimes to the other, and drive him forward, and ſo alternately. If he goes forward too faſt, being extremely quick of feeling, moderate your aids, and make him go backward ſome ſteps; if he preſſes forward with hurry and violence, make him go backward a great deal. If he is diſorderly and turbulent, walk him ſtraight forward, with his head in and croupe out. Theſe ſorts of correction have great influence on moſt horſes.

But with horſes of an obſtinate and rebellious diſpoſition, correction of a more ſevere kind may be neceſſary; and yet in the uſe of it requires great prudence and management. The ſpurs, properly applied, are of conſiderable ſervice in awing and correcting the animal; but when uſed improperly, they make the horſe abject and jadiſh, reſtive and vicious. The horſeman ſhould not, therefore, be too haſty in applying this correction. To give the horſe both ſpurs properly, you muſt change the poſture of your legs, and, bending your knee, ſtrike him with them at once as quick and as firmly as you can. Take care never to open your thighs and legs, in order to give both ſpurs; for the action, becoming thus irregular, could never produce a good effect. The chambriere, as a correction, ſhould be uſed with diſcretion; and the ſwitch is not often employed for puniſhment. Berenger's Hiſt. and Art of Horſemanſhip, vol. ii. ch. 9. See Aid.

Correction, in *Pharmacy*. This word has ſeveral peculiar ſenſes: and firſt, draſtic medicines, or ſuch as operate with violence, are ſaid to be corrected, when in their compoſition ſome ingredient is added, which proves a kind of check to the operation, or prevents thoſe misfortunes which they generally bring, without ſuch correcting ingredient. Thus, for inſtance, ſome carminatives, as the ſeeds of fennel or aniſe, are added to ſena leaves, which, when exhibited alone, generally excite flatulencies and gripes. The ſubſtances or ingredients thus added, with an intention to render the medicines more ſafe, are called *corrigentia*, or *correctoria*, *caſtigantia*, or *infringentia*. Secondly, medicines which operate in a ſlow and languid manner, are ſaid to be corrected, when they are ſo prepared as to accelerate or augment their operation: when, for inſtance, ſalts are mixed with evacuating medicines of a gummous or reſinous nature, that by means of being more reſolved or attenuated, they may operate more powerfully. With this intention ſalt of tartar, or *ſal polychreſtus*, is added to infuſions of ſena. Ingredients added with this view are called *adjuvantia*; and when more draſtic ſubſtances of the ſame virtues are added, in order to augment the operation of the compoſitions, theſe are called *acuentia*. Thirdly, nauſeous and ungrateful medicines are ſaid to be corrected, when they are prepared in ſuch manner as to be more agreeable and acceptable to the palate. James.

Correction, in *Printing*, the act of retrenching the faults in a work, or the reading, which the corrector gives the firſt proofs, to point out and amend the faults, to be rectified by the compoſitor.

The corrections are placed on the margin of each page, right againſt the line where the faults are found. There are different characters uſed to expreſs different corrections, as D or ∂, *dele*, for any thing to be effaced, or left out. When any thing is to be inſerted, the place is marked in the line with a caret ʌ, and the inſertion added in the margin. When a word, ſyllable, &c. is to be altered, it is eraſed out of the proof, and that to be put in its room written in the margin; always obſerving, if there be ſeveral miſtakes in the ſame line, that the corrections in the margin be ſeparated by little bars, or ſtrokes, | . If a ſpace be omitted, its place is marked with a caret, and the margin with ※. If a ſpace be wrong placed, as in the middle of a word, the two parts are connected with a cu‿rve, and the ſame character put in the margin. If a letter be inverted, it is expreſſed on the margin with Ↄ. If any thing be tranſpoſed, it is marked thus: *The ſhorteſt* | *are the* | *follies* | *beſt*; for *the ſhorteſt follies are the beſt*; and in the margin is added *tr.* in a circle. If Roman characters are to be changed for Italic, or *vice verſa*, a line is drawn under them thus, and *Roman* or *Italic* added in the margin; if to capitals, a double line. If a word or ſentence is entirely omitted, the place is marked with a *caret*, and in the margin is inſerted the word *out*. If the letters of a word ſtand too far aſunder, a line is drawn under them, and in the margin is put a crooked line, or hook, thus ‿.

Correction, in *Rhetoric*. See Epanorthosis.

Correction *of Apprentices*, in *Law*. See Apprentice.

Correction *of Children*. See Parent.

Correction *of Scholars*. See Schoolmaster.

Correction *of Servants*. See Servant.

Correction *of Wife*. See Coverture.

Correction, *Houſe of*. See House *of Correction*.

CORRECTOR *of the Staple*, an officer, or clerk, belonging to the ſtaple, who makes and records the bargains of merchants there made, anno 27 Edw. III. ſtat. 2. cap. 22, 23. The Romans called them *menſarii*.

Correctors, in *Pharmacy*, ſuch ingredients in a compoſition as guard againſt, or abate, the force, or dangerous qualities, of others. See Correction.

CORREDIUM. See Corody.

CORREGA, in *Geography*, a town of Portugal, in the province of Eſtremadura; 10 miles N.N.E. of Peniche.

CORREGGIO, or Coreggio, da, Antonio, in *Biography*, an Italian painter of the firſt eminence. The family name of this diſtinguiſhed genius was Allegri, being called Correggio from a ſmall city in the ſtate of Parma, which gave him birth in the year 1494. Upon this point, as well as the period of his death, authors are pretty well agreed; but the other circumſtances of his life are wrapped in doubt and conjecture.

Giorgio Vaſari, the firſt biographer of the painters, commiſerates the fate of this divine artiſt, whom he repreſents of a melancholy turn of mind, timid and diffident of his own powers, burthened with a numerous family, which, with all his prodigious talents, he could ſcarcely ſupport; ill recompenſed for his works: and terminates the ſad ſtory by informing us, that, having received at Parma a payment of ſixty crowns in copper money, he caught a fever, in the exertion of carrying it home on his ſhoulders, which occaſioned his death.

Whoever compares the moderate ſums Correggio received for his principal works, with the magnificent rewards heaped upon Raffaele, Tiziano, and Buonaroti, nay, even upon Vaſari himſelf, cannot feel ſurprized that the Florentine hiſtorian ſhould thus lament the untoward fortune of the great Lombard artiſt. The picture, however, is exaggerated, and, upon inveſtigation, it muſt clearly appear, that the ſituation of Correggio, though far beneath his merits, was in nowiſe deplorable. The family of Allegri was highly reſpectable, and poſſeſſed conſiderable landed property, which is ſaid to have been augmented by the earnings of Antonio; and, ſo far from his having died of the fatigue of bearing home the copper money, he was uſually paid in gold, as appears from exiſting documents. For the Cupola and Tribuna of the church of St. Giovanni, he received 472 ſequins; for that of the Duomo, 350, payments by no means inconſiderable in thoſe times. For his celebrated Notte he had 40 ſequins; for the St. Jerome, which coſt him ſix months labour, 47, beſides his board during that period: but when from theſe ſums we deduct the expence of his models and colours, which were ever of the beſt quality, it cannot appear probable that he acquired great riches; and, we may conclude, that ſcreened from the evils alike attendant on penury and affluence, he enjoyed the enviable ſituation deſcribed in the prayer of Agur the ſon of Jakeh. It is a tradition, in Correggio, that our young ſtudent acquired the firſt rudiments of his art, from an uncle named Lorenzo; he afterwards, according to Vedriani, in his "Lives of the Modeneſe Painters," frequented the ſchool of Franceſco Bianchi, called Il Frari, at Modena; there he acquired that practice in modelling ſo advantageous to a painter, and for which the Modeneſe artiſts were ſo celebrated, and there he is ſaid to have formed a friendſhip with Ant. Begarelli, whoſe admirable works in that way drew the higheſt eulogiums from the great Michelangelo. After this period, we are informed, that he viſited Mantua, and became the diſciple of Andrea Mantegna; this could not, however, have been the caſe, as Mantegna died in 1506, though there is great reaſon to ſuppoſe, that the fine works of that ancient artiſt contributed not a little to accelerate the progreſs of Antonio's ſtudies. Some aſſert, that Antonio was not the ſcholar of Andrea, but of Franceſco Mantegna his ſon, an artiſt of no mean talents, and who was much employed in Mantua after his father's death: the abbe Lanzi ſeems to ſubſcribe to this opinion, and mentions ſeveral juvenile productions of Correggio there remaining, wherein the germs of future excellence appear, blended with ſomewhat of the rigid ſtyle of the old ſchool.

It has been ſuppoſed by ſome writers, that Correggio, inſtigated by the deſire of beholding the Freſcoes of Raffaele in the Vatican, viſited Rome; and, we are told, that after having long gazed on thoſe celebrated works, conſcious of his own tranſcendent but leſs regarded talents, he broke forth into the memorable words, "anch' ioſon Pittore!"—"I alſo am a painter!"—But Lanzi, who has taken great pains in the inveſtigation, is of opinion, that the ſtory has no foundation, and that Antonio never ſaw Rome.

It would exceed our limits to enumerate any more than the principal works of this divine artiſt: his earlieſt picture of note was painted in 1512, at the age of eighteen; in it is repreſented, the Madona ſeated on a throne, with on each ſide St. Anthony and St. Francis; even in this production, the dawning genius and native grace of Correggio appear, though it poſſeſſes little of that breadth of effect which afterwards ſo eminently diſtinguiſhed his works; he advanced, however, with giant ſtrides, for we find that in 1518, or 1519, when he painted in the monaſtery of St. Paolo at Parma, a room in Freſco, with poetical devices, cupids, &c., he had ſufficiently eſtabliſhed himſelf in that novel, beautiful, and luxuriant ſtyle, which became the never equalled model of the artiſts of Lombardy, and the admiration of ſucceeding ages; but his greateſt works in freſco are, the Cupola of the church of St. Giovanni, and the Duomo, in the laſt mentioned city; in the former cupola, which, together with the tribuna, ſince demoliſhed, was executed from about 1520 to 1524, Correggio repreſented the Aſcenſion of Chriſt, ſurrounded by the Apoſtles, who, ſeated on clouds, ſupported by the Angelic Hoſt, regard the Saviour. The boldneſs of the foreſhortening in this work, the grand ſtyle of drawing, the elevation of character in the heads, added to an aſtoniſhing breadth of light and ſhadow, rendered it a miracle in the art hitherto unexampled; the tremendous Laſt Judgment of Michelangelo, not having been executed till many years afterwards. So wonderful a production could only be ſupported by the artiſt himſelf, who, in 1530, completed his matchleſs work in the Cupola of the Duomo; here the Madonna, in an attitude the moſt exquiſitely expreſſive of devotion and beatitude, riſes majeſtic amidſt myriads of ſaints and angels, who, vying with each other, in their demonſtrations of joy at the arrival of the virgin mother of Chriſt, ſtrike the lute, blow the loud trumpet, or join in the mazes of the celeſtial dance; whilſt below, are introduced, as uſual, the Apoſtles, who, with the moſt dignified expreſſions of awe and aſtoniſhment, behold her aſſumption; and here we muſt obſerve, that if the great Michelangelo, in the gloom of his ſtupendous laſt judgment, has reached the ſummit of the *terribile via*, Correggio has, in the radiant ſplendour of his work, touched the pinnacle of that ſublime which ariſes from the contemplation of the more conſoling attributes of the Divine nature, love and joy. Of the altar pieces, and ſmaller works of this maſter, the following are amongſt the moſt celebrated: the Madonna, with St. George, and other figures, in the gallery of Dreſden, where the little angels are ſo beautifully introduced, playing with the helmet and ſword of the Chriſtian Hero: the famous Notte, or adoration of the Shepherds, in the ſame collection, where the moſt ſtriking effect is produced by the principal light being made to proceed from the child; a moſt exquiſite idea, in which Correggio has been followed, though at an humble diſtance, by almoſt every painter who has ſince treated the ſubject: the Magdalen, in the deſart reading, a very ſmall picture, well worthy the magnificent frame ſet with jewels which ſurround it: the celebrated Madonna, with St. Jerome, and the Magdalen; which latter figure, in point of grace, ſtands unrivalled in modern art; this picture is now in the Louvre at Paris. But a volume would not be ſufficient to point out—the beauties ſcattered with ſo laviſh a hand throughout the works of Correggio; and when we contemplate the hard and dry manner of painting in uſe amongſt the artiſts of Lombardy when he appeared; when we recollect that he never viſited either Florence, Rome, or Venice; that he had few of thoſe advantages of education or example which the works of Signorelli Ghirlandaio, Da

Vinci, and Fra Bartholomeo, furniſhed to the more fortunate artiſts of Lower Italy, Raffaele, Michelangelo, and Del Sarto; and when we reflect, that notwithſtanding theſe diſadvantages, Antonio, ſingle-handed, and alone, at once effected ſo extraordinary a revolution in the ſyſtem of painting, changing harſh colouring and frittered light and ſhadow for ambient hues, union of effect, and never equalled breadth of Chiaroſcuro, Meagre Skeleton-like forms for ſimplicity and grandeur of deſign: we cannot deny that he was one of the moſt extraordinary geniuſes ever vouchſafed by heaven, for the guidance and advancement of mankind in the paths of art. He died A.D. 1534, aged 40. As we have occaſion to ſpeak of the merits of this divine artiſt, in our inquiries concerning painting, we beg leave to refer the reader to thoſe articles. See Painting, Invention, Composition, Design, Expression, Clair Obscure, and Colouring.

CORREGIDOR, the name of an officer of juſtice in Spain, and countries ſubject to the Spaniſh government. He is the chief judge of a town or province.

CORREGIO, in *Geography*, a town of Italy, and capital of a ſmall principality, in the duchy of Modena, united to the Modeneſe in 1635; defended by a caſtle; 8 miles N. W. of Modena, and 25 S. of Mantua.

CORRELATIVE, ſomething oppoſed to another in any certain relation.

Thus, father and ſon are *correlatives; pater & filius ſibi mutuo reſpondent.* Light and darkneſs, motion and reſt, are *correlative* and oppoſite terms.

CORRESPONDENCE, or Correspondency, denotes the relation and reciprocal adaptation of one thing to another; and alſo intercourſe and friendſhip.

Correspondence, in *Military Affairs.* By our articles of war an officer, non-commiſſioned officer, or ſoldier, that correſponds with the enemy, is liable to ſuffer death. Such a correſpondence is alſo forbidden or interdicted in other countries, under pain of death, in caſe of diſobedience, to every military perſon of whatever rank, and to every one dependent on the army, in time of war, without the permiſſion of the general who commands, or the governor or commandant, if it be in a garriſoned place.

CORRE'ZE, *the Department of the,* in *Geography,* one of the nine departments in the ſouth of France, was formerly a part of the province called Limoſin, and derives its name from the river Corréze, which partly flows through it from north to ſouth, varying a little towards the weſt. It is bounded on the north by the department of the Creuſe; on the eaſt by the department of Cantal and that of Puy de Dôme; on the ſouth by the department of the Lot; to the ſouth-weſt by that of the Dordogne, and to the north-weſt by that of the Vienne.

Though watered by ſeveral rivers, as the Corréze, Vezere, Diége, Luzege, Trivuſſonne and Douſtre, the department of the Correze has no interior navigation; its rivers are not navigable, but they yield abundance of fiſh, particularly ſalmon and trouts. Towards the north there is a chain of high mountains, called Mille Vaches, which are covered with ſnow a conſiderable part of the year. The climate is temperate; the ſoil rather bad, producing little wheat, ſome barley, rye, buckwheat, and turnips for the cattle: but the meadows yield excellent hay. Hence there is a great trade in horned cattle, horſes, mules, and ſheep, which are very fine, and the breed of which has been improved by a Spaniſh flock. Grazing is the chief employment of the inhabitants; their horſes are reckoned very good.

The wines of the department of the Correze are tolerable; that which is made in the neighbourhood of Brives is reputed almoſt equal to Burgundy. Game is abundant; there is alſo plenty of excellent cheſnuts, which in ſome cantons make amends for the ſterility of the ſoil. During the ſix winter months they conſtitute the chief food of moſt of the inhabitants.

As the department of the Correze is rather mountainous, it contains mines of iron, lead, tin, copper, and antimony; ſources of mineral water and copper forges. Its principal manufactures are thoſe of fire arms, printed linen and cotton, ſilk handkerchiefs, muſlin, gauze, ſatin, and poplins, called *Siamoiſes imprimées en Indiennes,* wax candles, and writing-paper.

The curioſities of this Department are the volcanic rock of Polignac near Brives, an ancient temple of Apollo, a chapel in which there are Roman inſcriptions, a coloſſal head, and many other remains of antiquity, in the environs of Tintinian.

The department of the Correze is divided into three diſtricts, Uſſel, Tulles, and Brives, 29 cantons and 294 communes. Tulles, Meyniac, Uſſel, Neuvie, Brives, and Uzerche are its principal towns. The extent is 5947 ſquare kiliometres, or about 900 Engliſh ſquare miles, twenty of which are covered with wood. It is inhabited by 243,654 individuals, which give 270 inhabitants for each ſquare mile. The taxes paid by this department in 1803 amounted to 1,588,354 French livres, which make the average contribution of each individual to the public expenditure amount annually to little better than ſix livres and a half, or about 5*s.* 6*d.* ſterling. Herbin's Statiſtique de la France.

Corre'ze, a town of France, in the department of the Correze, and chief place of a canton, in the diſtrict of Tulles, ſituated on a river of the ſame name, 8 miles N. E. of Tulles. The place contains 1350, and the canton 6170 inhabitants; the territorial extent comprehends 242½ kiliometres, and 9 communes.

CORRHA, in *Ancient Geography,* a town of Aſia, in the Greater Armenia, according to Ptolemy.—Alſo, a place of Aſia, ſituated, according to the ſame geographer, in Perſia Propria.

CORRHAGUM, a ſtrong town of Macedonia. Livy.

CORRIAROK, in *Geography,* a mountain of the Highlands of Scotland, near Fort-Auguſtus, N. W. of Ben Nevis; over which is a military road, in a zig-zag direction. From the foot of this mountain ariſes the rapid river Spey, and other ſtreams riſe to the weſt, indicating great elevation.

CORRIB LOUGH, a lake of Ireland, in the county of Galway, which is twenty miles long, and moſtly from two to five wide, though in the broadeſt part it is eleven. In the middle it is contracted to a ſmall channel, which is croſſed by a ferry at Knock. There are a great number of concealed rocks, which render the navigation of this lake dangerous to thoſe who are not well acquainted with it.

The lake empties itſelf into the ſea by a broad and ſtony river on which the town of Galway is ſituated about three miles from its ſouthern extremity.

There is a freſh water muſcle in this lake, which produces pearls, of which there are ſome very fine ſpecimens. Beaufort.

CORRICLE. See Coracle.

CORRIDOR. See Coridor.

CORRIENTES, Los, in *Geography,* a city of South America, in the viceroyalty of Buenos Ayres, ſituated on the eaſtern banks of the river de la Plata, near its junction with the river Parana, about 100 leagues north of Santa Fé. In magnitude and diſpoſition it is inferior to Santa Fé, and has no marks of a city except the name. This city was founded in 1589, and was at firſt greatly infeſted by the Abipons, ſo that it became neceſſary to eſtabliſh a corps of militia in order to ſuppreſs them. It has now a church and three convents; and it has its particular corregidor, as lieutenant of the governor. S. lat. 27° 32′. W. long. 57° 50′.

CORRIGIOLA, in *Botany*, (diminutive from *corrigia*, a thong of leather) Linn. gen. 378. Schreb. 516. Willd. 578. Gært. 465. Juſſ. 313. Vent. 3. 262. Claſs and order, *pentandria trigynia*. *Holoroceæ*, Linn. *Portulaceæ*, Juſſ.

Gen. Ch. *Cal.* Perianth five-leaved; leaves egg-ſhaped, concave, ſpreading, permanent. *Cor.* Petals five, egg-ſhaped, ſcarcely larger than the calyx. *Stam.* Filaments five, awl-ſhaped, ſmall. *Piſt.* Germ ſuperior, egg-ſhaped, trigonous; ſtyle none; ſtigmas three, obtuſe. *Peric.* none, except the converging calyx. *Seed* ſolitary, egg-ſhaped, trigonous. (Nut ſmall, roundiſh-trigonous, Gært.)

Eſſ. Ch. Calyx inferior, five-leaved. Petals five. Seed ſolitary, obtuſely trigonous.

Sp. 1. C. *littoralis*. Linn. Sp. Pl. Mart. Lam. Willd. 1. Flor. dan. 334. Eng. Bot. 668. (Polygonum littoreum minus, floſculis ſpadiceo-albicantibus. Bauh. Pin. 281. Moris. Hiſt. 2. 593. 57. 5. tab. 29. fig. 1. Polygonifolia; Vaill. par. 162. Dill. giſs. 95. tab. 3.) "Flowers peduncled; calyxes membranous, and white at the edges." *Root* annual. *Stems* numerous, proſtrate, but little branched, cylindrical, ſmooth, leafy. *Leaves* alternate, linear-lanceolate, obtuſe, quite entire, ſomewhat fleſhy, ſmooth, glaucous, attenuated at the baſe; ſtipules in pairs, acute, ſilvery, tranſparent. *Flowers* ſmall, white, in many-flowered terminal and lateral cluſters; petals, as well as the calyx, permanent. 2. C. *capenſis*. Willd. 2. (C. littoralis; Thunb. Prod. 53. "Flowers ſeſſile; calyxes green." A native of the Cape of Good Hope.

Corrigiola *albella*; Forſk. See Illecebrum *Arabicum*.

CORRIRA, in *Ornithology*. Authors deſcribe under this title an ambiguous kind of bird, ſuppoſed to be of the Grallæ order, but which appears to be by no means clearly determined. In the "Gmelinian Syſtem," it is placed as a genus between the tantalus and ſcolopax, or ibis and ſnipe tribe. Dr. Latham arranges it among the palmipides, between the recurviroſta (avoſet) and the phoenicopterus, or flamingo; and is, in this reſpect, followed by Vielle, and other late French writers. The Gmelinian character of the genus corrira, conſiſts in having the bill ſhort, ſtraight, and toothleſs, thighs larger than the body, feet four-toed, palmated, and the toes very ſhort. In Dr. Latham's Synopſis, the genus is deſcribed as having the bill ſhort and ſtraight, legs long, thighs ſhort, feet palmated, and furniſhed with a back toe. In the Ind. Orn. of the ſame writer, it is added, that the thighs are longer than the body, and the back toe not connected. Vielle ſays, the beak is ſhort, ſtraight, and without teeth; the legs ſhort, thighs long, feet palmated and entire, the three exterior toes connected by a membrane, and the poſterior one iſolated.

This remarkable bird is firſt deſcribed by Aldrovandus, who ſeems to be the only one acquainted with it: for Ray and Willughby, Briſſon, Gmelin, Latham, and Vielle have taken their deſcription of it entirely from Aldrovandus. This writer calls it trochilus vulgo corrira; it is alſo the corrira of Briſſon, corrira italica of Gmelin, Italian courier of Latham, and coureur of the French. The names are ſynonymous, and allude to its ſwiftneſs in running. The bird is ſaid to be an inhabitant of Italy; its ſize rather leſs than the avoſet, and with the legs, not ſo long in proportion; the bill ſhorter, ſtraight, and yellow, with the tip black; the irides of two colours, firſt white, ſurrounded with cheſnut; the head, and all the upper part of the body and wings ferruginous, the under parts white; the two middle tail feathers white tipped with black, the others ſuppoſed to be black. We have been minute in the deſcription of this bird, as it is the only ſpecies of its genus known.

CORRIVAL, a relative term, ſignifying, originally, a perſon, who derived water from the ſame ſource, or ſpring, with another; by means of ſome common canal, which carried it to both their lands; and which proved the occaſion of frequent diſputes. Hence the word came to be uſed for thoſe who have the ſame pretenſions; whether to glory, to love, or the like; but uſe has abridged the word; and we now both write and pronounce, *rival*.

CORROBORANT, or Corroborative, *Medicines*, are ſuch as tend to augment the ſtrength of the body. Theſe are chiefly vegetable bitters, and metallic ſalts and oxydes. In the language of the Materia Medica they are more commonly denominated Tonics, which ſee.

CORROCORRO, in *Navigation*, a veſſel fitted with out-riggers, having an high arched ſtem and ſtern, like the points of an half-moon. Theſe veſſels are chiefly uſed by the inhabitants of the Molucca iſlands, and the Dutch have fleets of them at Amboyna, which they employ as guarda-coſtas. They have them from a very ſmall ſize to above ten tons burthen. On the croſs pieces, which ſupport the out-riggers, are often put fore and after planks, on which the people ſit and paddle, beſides theſe who ſit in the veſſel on each gunnel. In ſmooth water they are paddled by many perſons in different ranks or rows, and are made to move with great ſpeed. They are ſteered with two *commoodies* (or broad paddles) and not with a rudder. When they are high out of the water, oars are uſed; but on the out-riggers they always uſe paddles. A ſmall corrocorro, without out-riggers, is called *orembay*.

CORRODENTIA, or Corrosiva, in *Surgery*, corroſives, or corroding medicines. See Caustic and Cautery.

CORROSION, the act of *corroding*, or gnawing away, by little and little, the continuity of the parts of bodies.

Corrosion is uſed in *Chemiſtry*, *Medicine*, and *Natural Hiſtory*; where it ſtands for a particular ſpecies of diſſolution, by an acid, or ſaline menſtruum. Corroſion is performed either by immerſion or cementation, ſprinkling, trituration, or mere contact with a proper menſtruum.

CORROSIVE *ſublimate of mercury*. See Mercury.

CORRUDA, in *Botany*, *prior*; Cluſ. See Asparagus *acutifolius*.

Corruda *altera*; Cluſ. See Asparagus *aphyllus*.

Corruda *tertia*; Cluſ. See Asparagus *albus*.

Corruda *africana*; Rai. Sup. See Asparagus *capenſis*.

CORRUGATOR, or Corrugens *ſupercilii* in *Anatomy*, a muſcle ariſing from the great canthus of the orbit of the eye, and terminating in the ſkin about the middle of the eye-brows. See Eye.

Its name declares its uſe; being formed of *con*, *together*, and *ruga*, *wrinkle*.

Some reckon this muſcle only a prolongation of the *frontales*.

Corrugator *coiteri*, or *muſculus frontalis verus*. This muſcle ariſes fleſhy from the proceſs of the *os frontis*, next to the inner or great angle of the orbit, above the joining of the *os naſi*, and ſuperior proceſs of the *os maxillare* with this bone; from thence running obliquely outward and upward, it is inſerted in the fleſhy part of the *occipito-frontalis*; ſome of its fibrillæ paſſing through into the ſkin, a little higher than the middle region of the eyebrows.

Its uſe is to ſmooth the ſkin of the forehead, by pulling it down after the action of the *occipito-frontalis;* and when it acts more forcibly, it ſerves to wrinkle the ſkin of the front between the ſupercilia; as it happens when we frown, or knit the brows.

CORRUGENT Muscle, the ſame as *corrugator ſupercilii.*

CORRUPTIBLE. See Incorruptible.

CORRUPTICOLÆ, a ſect who roſe out of the Monophyſites in Egypt about the year 519, under their chief, Severus, the pretended patriarch of Alexandria.

Their diſtinguiſhing doctrine, whence they derived their name, was, that the body of Jeſus Chriſt was *corruptible, i. e.* ſubject to the affections and changes with which human nature is generally attended;—that the fathers had owned it; and that to deny it, was to deny the truth of our Saviour's paſſion.

On the other hand, Julian, biſhop of Halicarnaſſus, another Eutychian, a refugee, as well as Severus, in Alexandria, maintained that the divine nature had ſo inſinuated itſelf into the body of Chriſt, from the very moment of the Virgin's conception, that the body of our Lord changed its nature, and became incorruptible. His followers alleged that to ſay the body of Chriſt was corruptible, was to make a diſtinction between Jeſus Chriſt and the word, and by conſequence to make two natures in Jeſus Chriſt.

The people of Alexandria were divided between the two opinions; and the partiſans of Severus were called *corrupticolæ,* q. d. worſhippers of ſomething corruptible: ſometimes they were denominated *corruptibiles;* Phthartolatræ, Ktiſtoatræ, and Creaticolæ: and the adherents of Julian Aphthartodocetæ, Docetæ, *incorruptibles,* or *phantaſiaſtæ.* The clergy and ſecular powers favoured the firſt; the monks and the people the latter.

Xenaias of Hierapolis ſtruck out an hypotheſis, which ſeemed equally remote from thoſe of both the contending parties: for he maintained, that Chriſt had, indeed, truly ſuffered the various ſenſations to which humanity is expoſed; but that he ſuffered them not in his *nature,* but by a ſubmiſſive act of his *will.*

CORRUPTION, the extinction of any thing; or the act whereby it ceaſes to be what it was.

It is an axiom in philoſophy, that *the corruption of one thing is the generation of another.*

Corruption differs from *generation,* as two contraries differ from each other.

It differs from *alteration* as a leſs from a greater, or a part from the whole: a thing being ſaid to be *altered,* when it is not ſo far changed but it may be known, and ſtill keeps its old name; both which it loſes by *corruption.*

But, as in generation, no matter is produced that did not before exiſt; ſo in corruption, nothing is loſt, but that particular modification which conſtituted its form; and made it to be of ſuch a ſpecies.

Corruption *of blood,* in *Law,* an infection accruing to a man's ſtate, attainted of felony, or treaſon, and to his iſſue: So that an attainted perſon can neither inherit lands or other hereditaments from his anceſtors, nor retain thoſe he is already in poſſeſſion of, nor tranſmit them by deſcent to any heir: but the ſame ſhall eſcheat to the lord of the fee, ſubject to the king's ſuperior right of forfeiture;—and the perſon attainted ſhall alſo obſtruct all deſcents to his poſterity, whenever they are obliged to derive a title through him to a remoter anceſtor. Moreover, if he were noble, or a gentleman, he, and all his poſterity, are thereby ignoble and degraded. Nevertheleſs, the king's pardon cleanſes the corruption of blood in thoſe children born after the pardon, not in thoſe born before it; theſe latter continuing ſtill incapable of inheriting the land of their father, purchaſed before the time of the pardon.

This corruption of blood cannot be abſolutely removed but by authority of parliament. The king may excuſe the public puniſhment of an offender; but cannot aboliſh the private right, which has accrued or may accrue to individuals as a conſequence of the criminal's attainder. He may remit a forfeiture, in which the intereſt of the crown is alone concerned; but he cannot wipe away the corruption of blood; for therein a third perſon has an intereſt, the lord who claims by eſcheat. If therefore a man hath a ſon, and is attainted, and afterwards pardoned by the king; this ſon can never inherit to his father, or father's anceſtors; becauſe his paternal blood, being once thoroughly corrupted by his father's attainder, muſt continue ſo; but if the ſon had been born after the pardon, he might inherit; becauſe by the pardon the father is made a new man, and may convey new inheritable blood to his after-born children. (Co. Litt. 392.)

Upon the whole it appears, that a perſon attainted is neither allowed to retain his former eſtate, nor to inherit any future one, nor to tranſmit any inheritance to his iſſue, either immediately from himſelf, or immediately through himſelf, from any remoter anceſtor; for his inheritable blood, which is neceſſary either to hold, to take, or to tranſmit any feodal property, is blotted out, corrupted, and extinguiſhed for ever: the conſequence of which is, that eſtates, thus impeded in their deſcent, reſult back and eſcheat to the lord. By reaſon of the peculiar hardſhip attending this corruption of blood, ariſing from feodal principles, it is declared in moſt (if not all) of the new felonies created by parliament ſince the reign of Henry VIII., that they ſhall not extend to any corruption of blood: and by the ſtatute 7 Ann. c. 21. (the operation of which is poſtponed by the ſtatute 17 Geo. II. c. 39.) it is enacted that, after the death of the late pretender, and his ſons, no attainder for treaſon ſhall extend to the diſinheriting of any heir, nor the prejudice of any perſon, other than the offender himſelf; which proviſions have indeed carried the remedy farther than was required by the hardſhip above complained of; which is only the future obſtruction of deſcents, where the pedigree happens to be deduced through the blood of an attainted anceſtor. Blackſt. Com. Book ii. See Attainder and Eſcheat.

CORSA, in *Architecture,* the ſame with Plat *band.*

CORSA, or Corsæ, in *Ancient Geography,* a town of Bœotia, ſeated on the top of a mountain above the Cyrtones. About half a ſtadium below this town was a ſacred wood, in the midſt of which was to be ſeen a ſmall ſtatue of Mercury. Pauſanias, l. ix.

CORSAIR, in *Naval Hiſtory,* a pirate, or perſon who ſcours the ſeas, eſpecially the Mediterranean, with a veſſel armed for war, without commiſſion from any prince, or power; to plunder merchant-veſſels.

The word comes from the Italian *corſare,* of *corſo,* or *à curſibus,* by reaſon of their courſes, or excurſions.

The name is commonly given to the piratical cruiſers of Barbary, who had their riſe about the beginning of the ſixteenth century, and who frequently plunder the merchant-ſhips of countries, with which they are even at peace. A corſair differs from the commander of a privateer in this reſpect, that he traverſes the ſeas in an armed veſſel without any commiſſion, and for the expreſs purpoſe of ſeizing and robbing merchant-ſhips, whereas the captain of a privateer acts under a commiſſion, and only attacks the veſſels of the enemy who are at war with the prince or ſtates from whom he has his commiſſion. A corſair or pirate pays no regard to the laws of war or peace, and when taken may of courſe be hanged without ceremony. But people belonging to privateers are guided by thoſe laws, and when taken are regarded and treated as priſoners. For an account of the riſe and progreſs of theſe pirates; ſee BARBAROSSA and BARBARY.

The piratical depredations of the Illyrians under their queen Teuta, firſt forced the Romans to viſit Illyria and Greece. And the Ætolians, who are deſcribed and repreſented by Polybius as the corſairs or pirates of Greece, contributed greatly to the ſubjugation of the Romans.

CORSANO, in *Geography*, a town of Naples, in the province of Otranto; 3 miles E. of Aleſſano.

CORSE, a town of France, in the department of the Mayne and Loire; 7 miles N. E. of Angers.

CORSEÆ, in *Ancient Geography*, an iſland of the Mediterranean ſea, on the coaſt of Ionia, and near the iſle of Samos. It is called *Corſiæ* by Strabo and *Corſeæ* by Pliny.

CORSELET, a little CUIRASS, according to ſome: and according to others, a coat, or cover for the whole trunk, anciently worn by the pikemen, commonly placed in the front and flanks of the battle, for the better reſiſtance of the enemies aſſaults, and the ſurer guard of the ſoldiers placed behind, or within them. Vaugelas obſerves, that the ſeamen were anciently armed with corſelets.

CORSENDONCENSIS CODEX, in *Biblical Hiſtory*, a name given by Eraſmus to a MS. which he uſed in the ſecond edition of his Greek teſtament, when it belonged to the Collegium Corſendoncenſe in Quampinia; containing the whole New Teſtament, the book of Revelation excepted, and ſuppoſed to have been written in the 12th century. It is noted *3* in the 1ſt, 2d, and 3d parts of Wetſtein's New Teſtament. This copy was collated by Walker, whoſe extracts were inſerted in Wetſtein's collection. At that time it was in the library of a Dominican convent at Bruſſels. It is at preſent in the imperial library at Vienna, whither it was brought from that of prince Eugene.

CORSEPRESENT, in *Ancient Authors*, denotes a *mortuary*. The word is formed of the French, *corps preſent*; and the reaſon of the denomination is probably this: that where a mortuary, after a man's death, became due, it was offered, or *preſented* to the prieſt, and carried along with the *corpſe*, when it came to be buried: and this term denotes that it was once a voluntary donation. See MORTUARY.

CORSEUL, in *Geography*, a town of France, in the department of the North Coaſts, and diſtrict of Dinan; two leagues W. N. W. of Dinan.

CORSHAM, or COSHAM, a ſmall town of Wiltſhire, in England, is ſituated in a flat and dry part of the country. It was, during the Anglo-Saxon dynaſty, a place of ſome note, as Camden obſerves, that here was anciently a "royal vill of king Ethelred," and it was "famous for the retirement of the earls of Cornwall." There is a handſome modern market houſe, which was erected at the expence of the late Paul Methuen, eſq. in the year 1784. The church is a large ancient building, with a ſteeple, and on the ſouth ſide is a chapel or chantry, raiſed by the Hungerfords, whoſe family at one period poſſeſſed this lordſhip. The vicar of Corſham poſſeſſes very peculiar privileges, having epiſcopal juriſdiction over the whole pariſh: and the bailiff of the manor always exerciſes the offices of ſheriff and coroner over the lordſhip. The town conſiſts chiefly of one long ſtreet, and the houſes, many of which are very reſpectable, are all built of free-ſtone. This town gave birth to ſir Richard Blackmore, a voluminous writer of phyſical, theological, and poetical works. (See BLACKMORE.) Contiguous to the town is (Corſham-houſe,) the elegant ſeat of Paul Cobb Methuen, eſq. The manſion is a large handſome building, and ſeveral of its apartments are filled with pictures by the moſt eminent maſters. Being only nine miles from Bath, this celebrated collection is much viſited, and the proprietor has liberally appropriated Tueſdays and Fridays to ſhow the whole to ſtrangers. For an account of theſe and the houſe ſee "An Hiſtorical Account of Corſham-houſe, 8vo. 1806," "Beauties of Wiltſhire," vol. ii. p. 264.

CORSI, in *Ancient Geography*, a people who inhabited the northern part of the iſland of Sardinia. Pauſanias and Ptolemy ſay, that they were a colony from the iſle of Corſe or Corſica.

CORSI, NICCOLO, in *Biography*, a Genoeſe painter of conſiderable merit, who flouriſhed in 1503. In the monaſtery of the monks of mount Oliveto at the village of Quarto, three miles from Genoa, were ſeveral of his freſcoes, which evinced fecundity of invention, a juſt idea of expreſſion, and ſkill in the management of colours; they were not however exempt from that dryneſs of ſtyle which characteriſes the works of the early painters. Some of theſe ſtories, particularly one relative to S. Benedetto, ſtill remain. Strutt informs us that an engraving of the portrait of Parmegiano is attributed to this artiſt. The fact is not probable. Soprani, Lanzi, Storia, Pitt.

CORSI, MARC ANTONIO, an engraver, who flouriſhed in 1760, and who executed ſeveral of the plates for the Muſeo Florentino, beſides many other prints after Cypriani, J. Zocchi, and others. Heinecken, Strutt.

CORSIARA, in *Geography*, a town of Perſia, in the province of Farſiſtan; 100 miles S.W. of Schiras.

CORSICA, or the *Iſle of Corſe*, called by the Greeks Κυρνος, *Cyrnus*, in *Ancient Geography*, an iſland of the Mediterranean, ſituated to the north of the iſland called by the ancients Sardinia. The firſt name, according to Servius, was Therapue. According to Seneca, the Greeks, who migrated from Phocæa in Aſia, founded Marſeilles in Gaul, and eſtabliſhed themſelves in the iſle of Corſe. When they left it, the Ligurians and Hiſpani occupied it. In the time of the Romans, two colonies were conducted hither: one by Marius, and another by Sylla. The inhabitants were called *Corſi*. In the middle of the iſland are mountains, and among theſe was the ancient "Mons Aureus." The principal promontories, to the north, were "Sacrum Promontorium;" to the eaſt, "Vagum Promontorium," and "Granianum Promontorium; to the ſouth. "Marianum Promontorium;" to the weſt, "Rhium Promontorium," "Viriballum Promontorium," and "Actium Promontorium." The chief ports were "Favonii Portus," and "Syracuſanus Portus," to the eaſt; and "Titianus Portus," to the weſt. The principal towns were, on the eaſt ſide, "Mantinorum Oppidum," "Mariana," and "Aleria;" and on the weſt ſide, "Mariana," and "Urcinium;" and to the north, "Canalata." Pliny aſſigns *33* towns to this iſland; but he probably included all the places that were inhabited. The Roman colonies were "Mariana" and "Aleria." Corſica was one of thoſe iſlands into which the emperors ſent their exiles. Of this number was Seneca, the philoſopher, who, being accuſed of adultery under the reign of Claudius, was baniſhed hither by that emperor. See the next article.

CORSICA, *the Iſland of*, in *Geography*, ſituated in the Mediterranean ſea, between the 41ſt and 43d degree of N. lati-

N. latitude, and the 8th and 10th degree of E. longitude, was probably firſt peopled by the inhabitants of the oppoſite coaſt of Italy. It was ſucceſſively conquered by the Carthaginians, Romans, Vandals, Goths, Lombards, and Saracens. About the year of our æra 725, the French firſt entered Corſica under Charles Martel; and the family of the Colonnas eſtabliſhed themſelves as ſovereigns in the iſland, about the end of the eighth century. But their family diviſions created troubles, and were followed by a ſtate of anarchy, which was at its utmoſt height in the beginning of the eleventh century. The popes interfered. To reſtore peace, they declared themſelves ſovereigns of the iſland; and Gregory VII. excommunicated the Genoeſe as uſurpers of eccleſiaſtical property, for having taken poſſeſſion of Corſica. In 1071, Urban II. ſold Corſica to the Piſans. Genoa diſputed this ſale. Innocent II. divided the iſland into two rival republics. Not being able to agree with the Corſicans, the Piſans ceded their part again to pope Urban IV.; and Boniface VIII., thinking that a part carried with it the reſt, made a preſent of the whole iſland to the kings of Arragon, from whom it returned under the yoke of Genoa.

The firſt known aſſembly of the Corſicans, as a national body, was held in the year 1359, to take into conſideration the evils which they ſuffered, both from the incurſions of foreigners, who diſputed with each other for the conqueſt of their country, and from the animoſity of their nobility, who in certain diſtricts had aſſumed the title and deſpotic authority of kings. The Genoeſe, who were then at the ſummit of their power, poſſeſſed a great part of the iſland. By the advice of the brave Sambuccio, and to free themſelves at once of the Piſans, of the Arragoneſe, and of the petty tyrants by whom they were oppreſſed, the Corſicans claimed the aſſiſtance of the Genoeſe, and aſſociated them in the ſovereignty of the whole iſland. But the happineſs produced by this ſemi-national adminiſtration laſted only a few years. Tired of the Genoeſe yoke, the Corſican chiefs aſſembled privately in 1380, and choſe as their head Henry de la Rocca, under whoſe command they took ſeveral of the Genoeſe garriſons; but in the midſt of his triumphs, Rocca was killed in an action, and the Corſicans again ſubmitted to Genoa. They participated for a long time in the fate of this republic; and with it belonged ſometimes to the French, ſometimes to the Milaneſe, and ſometimes to the Neapolitans. At laſt they gave themſelves up to the lords of Piombino, who, at the end of the fifteenth century, ſold Corſica to the Bank of St. George. This occaſioned new ſtipulations with the Genoeſe; but theſe were ſoon diſregarded. The perſons appointed to govern in the name of the Bank, in which the chiefs of the Genoeſe republic were intereſted, had recourſe to the moſt oppreſſive meaſures; and to ſubdue the oppoſition which they encountered, employed fire and ſword. Eighteen pieves or pariſhes were deſtroyed, and more than a hundred villages reduced to aſhes. The governors vied with each other in barbarity. One of them convoked a council of the chief men of the iſland, and, at the end of a grand entertainment, cauſed them all to be put to death by ſoldiers appointed for that treacherous purpoſe. Thus periſhed the heads of the moſt illuſtrious Corſican families. Four thouſand nobles fled; and the Genoeſe gave their eſtates to the pooreſt of their countrymen, who would chuſe to reſide in the iſland.

This horrid tranſaction inflamed every heart with the moſt violent reſentment. The people ran to arms; warriors, formed in foreign ſervice, returned to aſſiſt their country; and the French, who were at that time enemies to the Genoeſe, helped the Corſicans to break their chains. The flames of civil war raged with fury. Neither the Corſicans nor the Genoeſe gave any quarter; and whoever happened to eſcape the murderous ſword was ſold as a ſlave to the Turkiſh Corſairs, who hovered round the iſland. On reſigning their conqueſts, the French obtained for their friends conditions which would have ſoftened their fate, but which were either eluded or openly violated.

Filled with indignation againſt the unrelenting perſecutors of his country, San Pietro d'Ornano, a noble Corſican, married to a Genoeſe lady named Vannina, whom he left at Marſeilles as a place of ſafety, made a voyage to Conſtantinople, to ſolicit aſſiſtance from the Ottoman Porte. The Genoeſe imagined that if they could get Vannina into their hands, they ſhould be able, with that valuable hoſtage, to ſuſpend the fury of her huſband. They employed traitors, who, inſinuating themſelves into her confidence, perſuaded her to repair to Genoa, to effect a reconciliation between the gallant d'Ornano and the republic. She was juſt on the point of leaving Marſeilles when San Pietro returned. He conſidered her as guilty of preferring her country to her huſband, and ſtrangled her with her garters. He then carried on an obſtinate and bloody war againſt the Genoeſe; but fell into an ambuſcade, prepared for him by one of Vannina's brothers, and expired, ſaying, "I am a barbarian; Vannina is avenged."

Leonardi di Coſa Nuova, San Pietro's lieutenant, having unfortunately been taken priſoner, his youngeſt ſon, Antonio, by diſguiſing himſelf in the dreſs of the ſervant girl who uſed to carry his father's meals, got into his priſon, and enabled him to eſcape. Unmoved by this act of filial piety, the Genoeſe cauſed the young man to be hanged. They were bent upon ruling through fear. They conſidered Corſica merely as a colony deſtined to enrich their capital. Not a ſingle article was allowed to be exported to any other place than Genoa. In years of ſcarcity, the iſland was ſtripped of its proviſions; and the Corſicans were frequently expoſed to the horrors of famine, whilſt their deſpots lived in abundance. In vain did they attempt to find another maſter. When Louis XIV. bombarded Genoa, they offered him their iſland; but he declined their offer, and the unfortunate Corſicans were forced to continue ſubmiſſive to their oppreſſors.

But in the year 1729, a poor peaſant, who only wanted one penny to complete his tax, reproached them for their extortions with an energy which made a deep impreſſion on thoſe around him. At the ſame time, a Corſican ſoldier was condemned to the wooden horſe. The Corſicans uſed a few jocular expreſſions with regard to this military puniſhment, which gave occaſion to a quarrel: and theſe feeble ſparks produced a conflagration which ſoon ſet all Corſica in flames. Armed with old muſkets, ruſty lances, and hatchets, the people forced the military magazines, where they found more regular weapons. In a ſhort time they formed a diſciplined army, commanded by chiefs who knew how to make choice of proper poſts; and by their manifeſtoes, acknowledged their determination to expel the Genoeſe from the iſland. The latter called Auſtrian troops to their aſſiſtance. But the Imperial banners did not frighten the Corſicans; neither were they ſoftened by an amneſty which the ſenate of Genoa offered. They decreed, on the contrary, that the firſt perſon who propoſed the acceptance of the amneſty ſhould be put to death. They ſent their wives and children, with thoſe enfeebled by age, to the mountains; and ſwore that they would expoſe themſelves to a thouſand deaths, rather than lay down their arms, whatever propoſals might be made to them by the Genoeſe or the Imperialiſts. At laſt, however, after a conteſt of four years, they conſented to an agreement, under the guarantee of the emperor.

But at the end of two years, the troubles, which had been incompletely allayed, were again revived. The Corſicans renounced their dependance on Genoa, and openly declared themſelves ſovereigns, under the immaculate conception of the moſt bleſſed virgin Mary, whoſe image they carried on their colours. They were ſtrenuouſly exerting themſelves to defend the iſland againſt any reinforcements ſent by the enemy, when, in the month of March 1736, a ſtranger, attired in a Frankiſh robe, arrived at Aleria, on board of an Engliſh ſhip of 24 guns, and brought with him 10 pieces of cannon, 4000 muſkets, 3000 pairs of ſhoes, a quantity of proviſions, and a ſmall ſupply of money. He was Stephen Theodore, ſon of Anthony, baron de Neuhoff, deſcended from one of the moſt noble houſes in the county of Mark in Weſtphalia. His ſon, Frederic, who in the year 1768 publiſhed at London "Memoirs of Corſica," ſwells the ſuccour which his father brought to the Corſicans to 14,000 ſacks of grain; 6 pieces of braſs cannon, twelve pounders; 20,000 muſkets; bayonets, and other implements of war; 14,000 uniforms; as many pairs of ſhoes; the ſame number of hats; and a cheſt full of gold, containing 100,000 ſequins.

After various adventures in different countries of Europe, Neuhoff had got acquainted with the Corſican malcontents who were confined at Genoa, and intereſted himſelf in their behalf. He intrigued in their favour at Conſtantinople, chiefly through Rakoczy, a prince of Tranſilvania, who had been ſtripped of his principality by the emperor of Germany, and had retired into Turkey. When he arrived, the Corſicans imagined they beheld a protecting deity. Without conſulting the dictates of prudence, they conducted him to Corte, amidſt the acclamations of the people, and, in a general aſſembly, proclaimed him king of Corſica and of Capraja, under the name of Theodore the Firſt. The baron then aſſumed all the appendages of royalty, coined money, eſtabliſhed tribunals; and, being well ſupported in the moment of enthuſiaſm, took ſome fortreſſes of the enemy, and declared the Genoeſe baniſhed from Corſica, under the pain of death, if they ſhould ever again ſet foot in the iſland. The Genoeſe, on their part, ſet a price on the head of the new monarch. Anquetil juſtly remarks, that this infamous reſource is too commonly reſorted to by republics, becauſe they are not afraid of repriſals.

The aid which king Theodore had brought was not conſiderable. He promiſed his ſubjects aſſiſtance of much greater importance, and as they ſhewed ſome impatience at the tardineſs of its arrival, the monarch himſelf ſet ſail in ſearch of ſuccour, ſent proviſions to the iſland from time to time, and returned with a veſſel richly laden with neceſſaries. The wiſe regulations which he eſtabliſhed, ſtifled the murmurs of the malcontents. A ſtorm, however, more dangerous, was raiſed up againſt him. As he had arrived the firſt time in an Engliſh veſſel, the French imagined that the Britiſh government had ſome deſigns on Corſica, and anticipated its views. Informed of their intention, the Corſican monarch again embarked to procure aſſiſtance; but having, with difficulty, eſcaped from a plot which had been formed to deliver him to the Genoeſe, he wandered about from port to port, and retired at laſt to England, where he languiſhed ſeveral years in priſon for debts, and died ſoon after his releaſe, in extreme indigence, on the 11th of December 1755.

An accommodation had taken place ſome time before Theodore's death, between the Corſicans and the Genoeſe, under the guarantee of France. But when the French withdrew their troops, the iſlanders again reſiſted the Genoeſe, under the command of a nobleman named Gaffori, who communicated to his countrymen the hatred which he felt for the oppreſſor of his country. Having laid ſiege to a fortreſs, the Genoeſe made a ſortie, and took one of his children, then at the breaſt. They threatened that, if the father did not ceaſe firing, they would expoſe the child on the walls; and they were ſo cruel as to put their threat into execution. Gaffori being more attached to his country than to his family, continued his fire: but fortunately the child was not hurt, and the Corſican General made himſelf maſter of the fortreſs, and was ſoon after treacherouſly aſſaſſinated.

After the death of Gaffori, the general council, preſided by Clement Paoli, recalled Paſcal Paoli, his brother, from Naples, where he had ſought ſhelter againſt the Genoeſe, to whom he had been frequently oppoſed, and elected him on the 15th July 1755, when he was but 29 years of age, chief of the Republic; in the government of which he was to be aſſiſted by two counſellors of ſtate, and one of the moſt reputable perſons from each diſtrict, all of whom were to be changed once a month.

Paoli conducted himſelf ſo well, both in the council and the army, that he gave great uneaſineſs to the Genoeſe. Their fear induced them to ſend, in 1761, a ſolemn deputation to a general aſſembly convoked at Veſcovato, for the purpoſe of offering peace: but the Corſicans would liſten to no propoſals, unleſs they were acknowledged as a free and independent nation. The general enrolled all the inhabitants capable of bearing arms, diſciplined his troops, cauſed money to be coined, and made his adminiſtration feared and reſpected. He drove the Genoeſe from the open country, and ſhut them up in the maritime towns.

In the mean time the Genoeſe obtained aſſiſtance from France. In 1764, the French general Marbœuf, an officer of conſiderable talents, landed with ſix battalions. Paoli now employed caution and political prudence, and liſtened to propoſals for peace; but firmly adhered to the reſolution of obtaining freedom and independence for his country. This began to excite in the Engliſh nation a wiſh to ſerve the unfortunate Corſicans; and a young Scotchman, the late Mr. Boſwell, ſon of Lord Auchinleck, having been induced to viſit Corſica about the ſame time, Paoli did not diſcountenance the report that he was ſent thither on a ſecret miſſion. England, however, did not interfere; and Genoa having renounced the ſovereignty of the iſland in favour of the king of France, a French army of 5000 men, under the command of the marquis de Chauvelin, ſupported by two ſhips of the line, two frigates, and ſix armed brigantines, invaded Corſica in 1768. A furious war enſued; in which numbers, military ſcience, money, and diſcipline, were on one ſide, and on the other, an almoſt unarmed multitude, enthuſiaſm, bravery, and the cauſe of liberty. After various ſucceſſes, an action was fought on the 7th of September 1768, in conſequence of which the French retired to Baſtia. The marquis de Chauvelin left the army; the command of which was given to Count de Vaux, who, bringing with him conſiderable reinforcements, effected the ſubjugation of Corſica in 1769. Paoli, after having defended his country to the laſt, eſcaped in an Engliſh ſhip, which took him to Leghorn, from whence he repaired to London. The celebrated ex-general Dumourier, who ſerved in the French army as adjutant-general, pays high compliments to the Corſicans, and their chief, in the memoirs of his own life. See PAOLI.

In the year 1792, Paoli returned to Corſica, after having taken the oath of fidelity to the conſtituent-aſſembly of France, and was elected mayor of Baſtia, commander in chief of the national guard, and preſident of the department. When the execution of Louis XVI. rendered a civil war probable in France, Paoli thought it a favourable opportunity to effect the deliverance of his country from all foreign yoke. He therefore determined to call in the aſſiſtance of England; and invited Lord Hood, who was then at Toulon, and who had recently been foiled in an attempt againſt Corſica, to invade it anew. An expedition ſailed from the bay of Hieres on the 24th of January 1795, for the expreſs purpoſe of driving the French out of the iſland. The troops, under the command of lieutenant-general Dundas, took the tower of Morſella, Fornelli, and San Fiorenzo; and Baſtia and Calvi having likewiſe yielded to the Engliſh, a general conſulta was aſſembled at Corte, in which the union of Corſica with the Britiſh empire was unanimouſly voted. This propoſition having been readily accepted on the part of the Engliſh commiſſioner, Sir Gilbert Elliot, now lord Minto, he was immediately inveſted with the dignity of vice-roy.

But Corſica did not continue long an appendage of the Britiſh crown. Jealouſies aroſe between the Engliſh viceroy and General Paoli. The latter returned to England; and before his departure, exhorted his countrymen to remain firm in their allegiance to Great Britain. His exhortation had however little effect upon the Corſicans. The ſplendour of the victories of their countryman Bonaparte in Italy, determined them to return to their allegiance to the French. The Engliſh troops evacuated the iſland, and Corſica has ever ſince continued a province of the French empire. Anquetil's Summary of Univerſal Hiſtory, vol. vii.

Corſica is bounded to the north by the Ligurian ſea, and the gulf of Genoa; to the eaſt by the Etrurian ſea; to the ſouth by the Strait, which ſeparates it from Sardinia; and to the weſt by the Mediterranean. It is about 180 kiliometres diſtant from the coaſt of Antibes, 90 from that of Etruria, and 18 from Sardinia. Its greateſt length from the moſt northern part, which is Cape Corſo, to the ſouthernmoſt, near Bonifacio, is about 170 kiliometres. In ſome places it is 80 kiliometres broad, in others 65 kiliometres, and in ſome much leſs; its whole extent may be eſtimated at 6222½ ſquare kiliometres. A chain of mountains traverſes the iſland in form of a croſs, and divides it eaſt and weſt into two parts, called by the inhabitants *Banda di dentro*, and *Banda di fuori*, or *Di qua dai monti*, and *Di lá dai monti*, on this ſide, and on that ſide of the mountains.

The climate of Corſica is mild. The ſea-breezes temper the cold which proceeds from the mountains covered with ſnow, and the wind which blows over them, renders the ſummer's heat leſs oppreſſive. Some of the winter months are not exempted from violent ſtorms. The air in ſeveral places is bad, owing to the many ſtagnated waters and marſhes, which, however, are now in a train of being drained. Every where elſe the air is clear and ſalubrious. The inhabitants live to a very great age.

Corſica is watered by ſeveral rivers, of which the Golo is the moſt conſiderable. Like the ſea coaſts, they abound in fiſh of all ſorts, particularly ſturgeons, pilchards, and oyſters, great quantities of which are exported to Italy. Beautiful coral is found on the coaſt oppoſite to Sardinia. In the centre of the iſland are large lakes, of which the Creno and the Ino are the principal. Towards the ſhore are ſeveral marſhes, ſome of which, being filled with ſea water, yield ſalt ſufficient for the conſumption of the iſland.

The ſoil of Corſica is fertile even in the mountains. It produces wheat, rye, barley, millet, but no oats. The horſes and mules are fed with barley. Agriculture, however, is in a very imperfect ſtate. The implements of huſbandry are bad; and the uſe of manure, which might be had in abundance, is ſcarcely known. In ſeveral cantons, Corſica has excellent wine. At Cape Corſo, they make two ſorts of white wine; one of which reſembles mountain ſo well, that it is ſold in Germany for genuine Malaga, and ſent to Leghorn for the Engliſh market, where it alſo paſſes for Spaniſh wine; the other reſembles the French muſcat wine, called Frontignac. The white wine of Furiani has all the qualities of that of Syracuſe, and that of ſome villages has the flavour of Tockay. At Veſcovato and Cumpatoro, they have a wine which reſembles Burgundy. There is beſides an abundant harveſt of dry raiſins. The olive tree thrives all over the iſland, and is one of its greateſt riches. It grows thicker and higher than in the ſouthern departments of France. The oil is good; but might ſtill be better, if it were more carefully prepared. It is to the father of the extraordinary man who is at the head of the French government, that the Corſicans are indebted for the introduction of the olive tree in their country. Lemon, pomegranate, orange, almond, and mulberry trees, are alſo doing extremely well. Cheſnut trees, in particular, are ſo abundant, that their fruit forms a conſiderable branch of the Corſican exports. The fruit of this tree is collected with very little trouble; but, as it ſerves as food for both horſes and men, it renders the latter indolent. Aloës flower here as well as in the Eaſt. Oaks, fir, cedars, and eſpecially pines, grow to a great height; and, if it could be eaſily tranſported, the foreſts yield ſufficient timber for the eſtabliſhment and maintenance of a large fleet. Their produce might be increaſed to eight millions of livres, inſtead of one hundred thouſand. Flax is grown in abundance. The iſland ſwarms with bees. Their honey, however, has rather a ſharp taſte, on account of the ſtrong flavoured plants from which it is collected. That of Caccia paſſes for the beſt. The wax is famous for its goodneſs and firmneſs.

Corſica has all kinds of wild and tame animals. Its horſes are of the Sardinian breed. Like their mules and aſſes they are ſmall, but active and ſtrong. The horned cattle is larger in ſize, but inferior in quality. There is not ſufficient paſture. The cows give but little milk, and the oxen are lean. Grazing is completely neglected, or rather not underſtood. The produce of the dairy is not much in requeſt, Oil ſupplies the place of butter as in all hot countries. Some cantons however are noted for good cheeſe. The flocks of ſheep are numerous. As they have excellent paſture on the mountains the mutton is exquiſite, and makes amends for the badneſs of the beef. The ſheep in general are black and tawny. The coarſeneſs of their wool is attributed to their being of a mongrel breed, but ſome of the inhabitants pretend that it proceeds from the nature of the paſture, ſince ſheep which have but a coarſe fleece in one farm, will yield a finer wool if transferred to another farm whoſe paſture is ſuperior. It is nothing uncommon to ſee ſheep with more than two horns. Some have as many as ſix. The *muſſoli* is a kind of wild ram covered with hair inſtead of wool. Game is plentiful: but there are neither wolves nor rabbits, and very few venomous animals.

No country in proportion to its ſize is richer in mineral productions than Corſica. Lead is found at Buzaggia; copper at Verde; iron at Corte, Cape Corſo, and near Farinole; antimony at Erza; ſilver at Caccia, Farinole, Galeria, and near San Fiorenzo, where the mine yields nearly 125 livres *per cent.* or 50 kiliogrammes. There are quarries of fine ſerpentine ſtone, called *vert de corſe*, Corſican green, and at Hoſpitale, near Porto Vecchio, quarries of beautiful black porphyry ſpotted with pink. Corſica has alſo alum, granite, jaſpis, talc, aſbeſtos, and ſaltpetre.

The iſland of Corſica is not very populous. The inteſtine wars by which it has been ravaged for ages have greatly ly contributed to its depopulation. In Pliny's time there were no leſs than thirty-three large towns; their number now is reduced to nine. In 1740 Corſica contained 133 pariſhes, 427 villages, 26854 hearths, and in all 120,380 inhabitants. In 1760 their number had riſen to 130,000. In 1787 Mr. Necker eſtimated the population of Corſica at 124,000 individuals; and by the laſt returns of 1802 it was found to contain 166,813 inhabitants. It is the twenty-third military diviſion of France. For its civil adminiſtration it is divided into two departments, the *Golo*, which has Baſtia for its chief place, and the *Liamone* of which Ajaccio is the principal town. The two departments are ſubdivided into ſix diſtricts, 60 cantons, and 391 communes.

Induſtry and arts have made but little progreſs in Corſica. Manufactures are in their infancy. Their woollen and linen cloth is of the coarſeſt kind. The leather of which they make their ſhoes is not tanned, but hardened in the air, and the little they do tan for other purpoſes receives a greeniſh hue from the dried wild bay leaves which they uſe, though they are no ſtrangers to the true proceſs of tanning, and export great quantities of bark to Italy.

The trade of Corſica is inconſiderable. Beſides the articles of home conſumption it conſiſts chiefly in the ſale of the coral which is found on the coaſts. Both from its ſituation and from its produce, Corſica might enjoy a much more extenſive commerce. Its coaſt offers almoſt every where a good anchorage for veſſels of a light draught; it has numerous ports; to the north *Centuri*; to the weſt *San Fiorenzo*, *Iſola Roſſa*, *Calvo*, *Ajaccio*; to the ſouth *Bonifacio*; and to the eaſt *Baſtia*, *Macciano*, and *Porto Vecchio*, which is one of the beſt harbours in Europe; and the vicinity of the iſlands of Capraja, Gorgona, and Elba, affords a ſafe retreat to ſmall veſſels that are overtaken by a ſtorm.

The Corſicans are well made, but thin and ſwarthy. They are the deſcendants of ſo many nations that it is difficult to determine their character. Strabo calls them brutal, ſtupid, and indolent. Pliny praiſes them as juſt, generous, valiant, and humane. Some modern travellers deſcribe them as turbulent and ferocious; others as compaſſionate and hoſpitable, and reſtleſs only when they are oppreſſed. It appears however from all accounts, that beſides ignorance, indolence, want of probity and confidence, and ſuperſtition, the vice to which the Corſicans are moſt prone is revenge. They uſed to carry their vindictive ſpirit to ſuch an exceſs, that thoſe who conceived their honour injured, would ſuffer their beards to grow till they had revenged the affront. Theſe beards were ſtyled *barbe di vindetta*. And even now the proverb *Il Corſo non pardona mai ne vivo ne morto*, and the generally received expreſſion of *una inimicizia di ſangue* are ſufficient evidence that their enmities are ſtill propagated from one generation to the other. But at the ſame time it cannot be denied that the Corſicans are ſober, brave, intrepid, active, ſagacious, and hoſpitable. It is not unuſual to hear thoſe who guard flocks of ſheep in the mountains ſing ſtanzas of Taſſo's poems, but in a leſs brilliant manner than the Italian ſhepherds. Memoirs of Corſica. Herbin's Statiſtique de la France.

CORSINI, Edward, in *Biography*, was born at Fanano, in Italy, in the year 1702, and applied himſelf early in life to the ſtudy of philoſophy. Scarcely had he attained to manhood when he made himſelf known by a work in ſix volumes octavo, entitled "Philoſophical and Mathematical Inſtitutions." His next works were treatiſes on practical and theoretical geometry, intended as elementary works for the young. From the publication of theſe, he ſeems to have applied himſelf with much ardour to the ſtudy of the ancient claſſics, particularly to the Greek writers. In connection with which he publiſhed at different periods, in four volumes, a work entitled "Faſti Attici in quibus Archontum Athenienſium Series, Philoſophorum aliorumque illuſtrium Virorum Ætas, atque præcipua Atticæ Hiſtoriæ capita deſcribuntur." He was appointed profeſſor of metaphyſics in the univerſity of Piſa in 1746; and in the following year he publiſhed "Diſſertations on the ſacred Games of the Greeks," in which he has recorded a liſt of the victors in the athletic conteſts. After this we find a work of Corſini on Greek inſcriptions, and another entitled "A Courſe of Metaphyſics," intended no doubt for his pupils. He had long aſſumed the eccleſiaſtical character, and in 1754 was made general of his order. His time was now much occupied by the duties of his office, but his leiſure hours he devoted to literary purſuits, eſpecially thoſe connected with ancient times. He died in the year 1765 of an apoplexy, having juſt completed the firſt volume of "A Hiſtory of the Univerſity of Piſa," of which city he had been appointed hiſtoriographer. Moreri.

CORSINI, Peter, in *Biography*, a native of Florence, where he diſtinguiſhed himſelf towards the cloſe of the fourteenth century. Having received the diploma of doctor of law, he was ſhortly after appointed auditor of the ſacred palace, and raiſed to the epiſcopal dignity. In 1363 he was ſent by pope Urban V. legate to Germany, and in 1370 he was created cardinal by the ſame pope. After the death of Urban, Corſini embraced the intereſts of Clement VII. in oppoſition to Urban VI., and joined the court of Clement at Avignon, where he died in the year 1405. As an author he was not much celebrated, but he wrote the lives of ſome of the popes, which are noticed by eccleſiaſtical writers. Moreri.

Corsini. See Bankers, *in the Court of Rome*, and Caursini.

CORSNED Bread, *panis conjuratus*, *curſed bread*, or *morſel of execration*, a ſuperſtitious manner of trial, uſed among our Saxon anceſtors, by a piece of barley-bread, or cheeſe, firſt conſecrated by the prieſt with a form of exorciſm, then offered the ſuſpected criminal to be ſwallowed by way of purgation: from an opinion that a guilty perſon could not ſwallow a piece of bread or cheeſe, ſo accurſed, or if he did, that it would choke him.

The ceremony was accompanied with a prayer, beſeeching God, "That the criminal's jaws might be ſhut, his throat ſo narrow, that he might not ſwallow, and that he might caſt it out of his mouth." Du-Cange. This corſned was then given to the ſuſpected perſon, who at the ſame time received the holy ſacrament; if, indeed, the corſned was not, as ſome have ſuſpected, the ſacramental bread itſelf; but the ſubſequent invention of tranſubſtantiation preſerved it from profane uſes with a more profound reſpect than formerly. Our hiſtorians aſſert that Godwin earl of Kent, in the reign of king Edward the Confeſſor, abjuring the death of the king's brother, at laſt appealed to his corſned, "per baccellam deglutiendam adjuravit," which ſtuck in his throat, and killed him. Some traces of this obſolete cuſtom ſtill remain in certain caſes of abjuration retained among the common people; as "I will take the ſacrament upon it;" "may this morſel be my laſt," &c.

CORSO, in *Commerce*, a duty paid in the Caraccas, and in ſome other parts of Spaniſh America, on entering and clearing from the ſea-ports. Its produce is applied to the ſupport of veſſels employed in preventing contraband trade. It ordinarily yields 150,000 hard dollars per annum.

CORSOER, or Korsoer, in Latin *Crucifora*, a ſmall town of Denmark, ſituated in Zealand, on a point of land in the Great Belt, oppoſite the town of Nyeborg in Funen. This is the uſual paſſage acroſs the Great Belt; the diſtance between the two towns is about twenty Engliſh miles. Corſoer is a ſtaple town, and carries on a conſiderable trade, but its harbour is only fitted for veſſels which do not draw above nine feet water. Near the town is an ancient caſtle with a ditch and rampart, with a few uſeleſs cannon, more for form than ſervice. It contains the commander's houſe, formerly a royal palace, and a granary, and is garriſoned by a few invalids. Corſoer is about 52 Engliſh miles W. of Copenhagen, N. lat. 55° 22′. E. long. 11° 15′.

CORSOIDES, in *Natural Hiſtory*, a name given by ſome authors to a ſpecies of agate of a greyiſh white, full of ſlender veins, of a clearer white, reſembling hairs. It is one of the German agates, and ſometimes ſeen among our jewellers, cut into tops of ſnuff boxes, and other toys, but is not much eſteemed.

CORSOTE, Sura, in *Ancient Geography*, a town or fortreſs of Aſia, in Meſopotamia, on the banks of Maſca, according to Xenophon. M. d'Anville places it on the left of the Euphrates, at the confluence of Maſca.

CORSTORPITUM, a town of Albion, placed in the firſt route of Antonine, between Bremenium or Riecheſter and Vindomora, or Ebcheſter, now Corbridge, twenty miles from the former.

CORSURA, an iſland of Africa, placed by Strabo in the gulf of Carthage.

CORT, Cornelius, in *Biography*, a deſigner and engraver of great celebrity, was born at Hoorn, in Holland, in the year 1536. He evinced an early inclination for engraving, and is conjectured to have been educated at Antwerp, in the ſchool of Jerom Cock, an artiſt of conſiderable merit, and a great publiſher of prints. With this artiſt Cort continued ſeveral years, during which time he executed an incredible number of ſmall plates from pictures of the Flemiſh and German maſters, which, however, generally bear only the name of the publiſher. His reputation, notwithſtanding, was already eſtabliſhed, for we find, that upon his arrival at Venice, in his way to Rome, he received ſo flattering an invitation from Titian, that he was induced to make a long ſojourn in the houſe of that great artiſt, and to engrave many of his fineſt pictures. After this he took up his reſidence at Rome, where he executed a prodigious number of admirable plates from the works of Muziano, the Zuccari, and others. Here he eſtabliſhed a ſchool of engraving; and it is a ſufficient eulogium to ſay, that he numbered the celebrated Agoſtino Carraci amongſt his diſciples. He died at Rome 1578. M. Heinecken has given a complete catalogue of the works of this ſkilful artiſt; we ſhall only enumerate the following, which are fine ſpecimens of his abilities: "The Martyrdom of St. Lawrence," 1571, an upright plate, in folio, from Titian; "Diana diſcovering the incontinence of Caliſto," from the ſame painter, 1566, upright in fol.; ſix admirable large upright landſcapes, from Muziano, in which are introduced St. John the Baptiſt, Mary Magdalen, St. Jerom, St. Onofrio, St. Hubert, and St. Francis receiving the ſtigmates. Huber.

CORTACHA, or Corgatha, in *Ancient Geography*, a town of India, on the other ſide of the Ganges. Ptolemy.

CORTAN, in *Commerce*, a Spaniſh meaſure in Catalonia, 12 of which make a quartera, which is two buſhels Engliſh meaſure. Sixteen cortans make a larga of wine or brandy, or about 30 gallons Engliſh, being equal to 12 arrobas.

CORTE, Cesare, in *Biography*, a Genoeſe painter of ſome eminence, was born in the year 1550. After having received the rudiments of his art from his father Valerio, a ſcholar of Titian, and an excellent painter of portraits, but ruined in the purſuit of the philoſopher's ſtone, he was placed under the tuition of Luca Cambiaſi; and though he never equalled that great artiſt, he is conſidered one of his beſt diſciples. He was much employed in cabinet pictures and portraits, and ſometimes executed larger works. In the church of St. Piero, at Genoa, is an altar-piece of this maſter, repreſenting the Tutelar Saint at the foot of the Madonna, with ſurrounding angels, which is delicately deſigned, and well coloured. The latter part of his life was miſerably ſpent in the inquiſition, where he died about 1613. He had a ſon named Davide Corte, who was an excellent copyiſt, and who died of the plague in the year 1657. Lanzi. Storia Pittorica.

Corte, in *Geography*, a town of France, in the iſland of Corſica, in the department of the Golo, is the chief place of a diſtrict, which, upon an extent of 1445 kiliometres, contains a population of 35,342 individuals. Corte itſelf counts 2042 inhabitants. It is built on an eminence, and has a ſubprefect and a court of juſtice. The ſoil of the diſtrict is uncommonly fertile. It produces wheat, wine, and olives. There is alſo much ſalt made.

Corte is almoſt in the centre of the iſland, 30 miles S.E. of Calvi; 33 S.W. of Baſtia. N. lat. 42°. 12′.

Corte *Maggiore*, a town of Italy, in the duchy of Piacenza, ſix miles W. of Piacenza.

CORTEAU, an engine of war among the ancients, of which, however, there is no good account on record.

CORTEGANA, in *Geography*, a town of Spain, in the province of Andaluſia; 38 miles N.W. of Seville.

CORTELLAZZO, a ſmall iſland near the S.E. coaſt of the iſland of Sardinia, on the N. ſide of the gulf of Cagliari.

CORTEMIGLIA, a ſmall town of France, in the department of the Tanaro, which was formerly part of Piedmont, in Italy, and belonged to the king of Sardinia. Cortemiglia has 1990 inhabitants, and is the chief place of a canton, compoſed of 19 communes, and containing 13,304 inhabitants.

CORTES, Fernando, in *Biography*, an enterpriſing and ſucceſsful Spaniſh commander in the ſubjugation of Mexico, was born at Medellin, a ſmall town of Eſtremadura, in the year 1485, and deſcended of a noble family of very moderate fortune. His parents, deſtining him for the profeſſion of the law, ſent him to the univerſity of Salamanca; but ſtudy being ill-ſuited to his ardent and reſtleſs genius, he ſoon left the univerſity, and returning to his native town, devoted himſelf to active ſports and martial exerciſes. His temper being impetuous and overbearing, and his habits diſſipated, his father was glad to gratify his inclination by ſending him abroad as an adventurer in arms. The ſcene to which his views were directed was America; and, in the year 1504, he landed at St. Domingo, where, under the patronage of Ovando, the governor of Hiſpaniola, who was his kinſman, he was ſoon advanced to ſeveral honourable and lucrative ſtations. His ambition, however, was not ſatisfied; and therefore, in 1511, he obtained permiſſion to accompany Diego Velaſquez in an expedition to Cuba. In this ſervice he diſtinguiſhed himſelf ſo much, that he received an ample conceſſion of lands and of Indians, the uſual recompence beſtowed upon adventurers in the

New World. Cortes, naturally ardent and active, diſplayed other qualities, which adapted him for difficult and hazardous enterpriſes. With calm prudence in concerting his ſchemes, and perſevering vigour in executing them, he combined the art of gaining the confidence and governing the minds of thoſe with whom he was concerned. To theſe ſuperior accompliſhments, he added others of an inferior kind, that are ſuited to ſtrike the vulgar, and command their reſpect; a graceful perſon, an engaging aſpect, ſingular addreſs in martial exerciſes, and a robuſt conſtitution capable of enduring any fatigue. Thus qualified, Cortes was ſelected as the moſt proper perſon for conducting the projected invaſion of Mexico; and, as ſoon as he received his commiſſion, he loſt no time in making every neceſſary preparation for the enterpriſe. For this purpoſe he expended all his own funds, together with the additional money which he was able to raiſe, amounting in the whole value to about 1500*l.* ſterling, in purchaſing military ſtores and proviſions, and in ſupplying the wants of thoſe officers who were unable to equip themſelves in a manner ſuitable to their rank. Cortes, however, at the commencement of his adventure, found, that in the ſuſpicious and jealous temper of Velaſquez, he had difficulties with which to contend, that required a very high degree of prudence and reſolution, and theſe difficulties were enhanced in the progreſs of his undertaking. On the 18th of November 1518, he ſet ſail from St. Jago de Cuba; but he had no ſooner arrived at Trinidad, a ſmall ſettlement on the ſame ſide of the iſland, before Velaſquez made an attempt to deprive him of his commiſſion. Cortes, however, had ſo far engaged the eſteem and confidence of his troops, that, partly by ſoothing, and partly by intimidating Verdugo, a magiſtrate at Trinidad, to whom Velaſquez had ſent his inſtructions, he was allowed to depart without moleſtation from Trinidad. Cortes ſailed for the Havannah in order to raiſe more ſoldiers, and to complete the victualling of his fleet. During his unavoidable ſtay in this place, Velaſquez ſent orders for arreſting him, and for delaying the departure of the armament. Cortes, forewarned of the danger, had time to take precautions for his own ſafety. He announced to his troops the hoſtile intentions of Velaſquez, and found that both his officers and ſoldiers who were intent on an expedition which flattered them with the hopes of glory and wealth, were determined to perſevere; and accordingly they were unanimous in their intreaties that he would not abandon the important ſtation to which he was ſo well intitled; offering, at the ſame time, to ſhed the laſt drop of their blood in ſupporting his authority. Cortes did not heſitate in complying with their wiſhes; ſwore that he would never deſert them, and promiſed to conduct them without further delay, to that rich country, which had been ſo long the object of their thoughts and wiſhes. Every thing was now ready for their departure. The fleet conſiſted of eleven veſſels, having on board 617 men, of whom 508 belonged to the land ſervice, and 109 were ſeamen or artificers. With this ſlender and ill-furniſhed train, Cortes ſet ſail from Cuba, February 10, 1519, to make war upon a monarch, whoſe dominions were more extenſive than all the kingdoms ſubject to the Spaniſh crown. Of religious enthuſiaſm, as well as avarice, theſe adventurers availed themſelves on the preſent occaſion; and therefore they diſplayed in their ſtandards a large croſs, bearing this inſcription, "Let us follow the croſs, for under this ſign we ſhall conquer." Cortes ſailed towards the iſland of Cozumel; and there redeemed Jerome de Aguilar, a Spaniard, who had been eight years a priſoner among the Indians, and who proved extremely uſeful as an interpreter. From Cozumel he proceeded to the river of Tabaſco, where failing to conciliate the good-will of the natives, by mild methods, he had recourſe to violence; and at length induced them to acknowledge the king of Caſtile as their ſovereign, and to grant him a ſupply of proviſions, with a preſent of cotton garments, ſome gold, and 20 female ſlaves. Purſuing his courſe to the weſtward, he at length landed at St. Juan de Ulua, where he was accoſted by a number of perſons in a canoe, who approached his ſhip with ſigns of peace and amity. One of his female ſlaves, named Donna Marina, who perfectly underſtood the Mexican language, ſerved as an interpreter on the occaſion. Here he landed his troops, horſes, and artillery, and fortified his camp: the natives aſſiſting him in all his operations. In his firſt interview with two Mexican officers, who were deputed to inquire what were his intentions in viſiting their coaſt, and to offer him any aſſiſtance which he might need for the proſecution of his voyage; Cortes informed them that he came as an ambaſſador from Don Carlos of Auſtria, king of Caſtile, the greateſt monarch of the Eaſt, with propoſitions of ſuch moment that he could impart them to none but the emperor Montezuma himſelf; and he therefore required them to conduct him, without loſs of time, into the preſence of their maſter. Whilſt they heſitated in complying with his requeſt, they endeavoured to conciliate his good-will by coſtly preſents, the diſplay of which ſerved to increaſe the avidity of the Spaniards, and their eagerneſs to take poſſeſſion of a country which abounded with ſuch precious productions. The deputies diſſuaded Cortes from viſiting the capital; but he with a haughty determined tone inſiſted on his demand of being admitted to a perſonal audience of their ſovereign. During the interview ſome Mexican painters were employed in delineating upon white cotton cloths figures of the ſhips, the horſes, the artillery, the ſoldiers, and whatever elſe attracted their notice, as ſingular. Theſe pictures, as Cortes was informed, were to be ſent to Montezuma, in order to give him a better idea of the objects now preſented to their view than any words could do: and therefore he reſolved to make the repreſentation more animated and intereſting by exhibiting a ſpectacle which might give them and their monarch an awful impreſſion of the extraordinary proweſs of his followers, and the irreſiſtible force of their arms. The trumpets were ordered to ſound an alarm; the troops inſtantly formed in order of battle; the infantry performed ſuch martial exerciſes as were beſt ſuited to diſplay the effect of their different weapons; the horſe by various evolutions gave a ſpecimen of their agility and ſtrength; and the artillery, pointed towards the thick wood which ſurrounded their camp, made dreadful havoc among the trees. The Mexicans were amazed, and at the exploſion of the cannon many fled, and ſome fell to the ground; and Cortes found it difficult to compoſe their minds and preſerve their confidence in their own ſafety. The painters put their fancy on the ſtretch in inventing figures and characters for repreſenting the extraordinary things which they had ſeen. Theſe pictures were diſpatched to Montezuma, and Cortes ſent along with them a preſent of ſome European curioſities. Although the capital, in which Montezuma reſided, was above 180 miles from St. Juan de Ulua, Cortes's preſents were carried thither, and an anſwer to his demands was received in a few days. As it was ſuch as would be likely to irritate and not to ſatisfy him, the meſſengers introduced themſelves, followed by a train of 100 Indians, loaded with preſents ſent by Montezuma. Among theſe were two large plates of a circular form, one of maſſive gold repreſenting the ſun, and the other of ſilver an emblem of the moon, which latter alone was in value about 5000*l.* ſterling. Theſe were accompanied with various other coſtly articles, conſiſting of golden ornaments and boxes of pearls and precious ſtones. When theſe preſents were delivered, Cortes was informed that Montezuma would not conſent that his troops ſhould approach nearer to his capital, or even allow them to continue longer in his dominions. The Spaniſh general ſtill inſiſted on his firſt demand; and Montezuma, though haughty, violent, and impatient of controul in his own temper, inſtead of falling on the Spaniards, whilſt they were encamped on a barren unhealthy coaſt, without an ally, renewed his negociation. In order to account for this indiſcretion and timidity, it is ſaid an opinion prevailed univerſally among the Americans, that ſome dreadful calamity would befal their country by means of formidable invaders who ſhould come from regions towards the riſing ſun. The ſuperſtition and credulity of the Mexicans repreſented the Spaniards as the inſtruments of that fatal revolution which they dreaded. Hence it ceaſes to be incredible, that a few adventurers, like Cortes and his attendants, ſhould alarm the monarch of a great empire and all his ſubjects. Inſtead of taking effectual meaſures for expelling theſe invaders, Montezuma, after conſulting his miniſters, renewed his injunction in more poſitive terms, requiring them to leave the country; but this injunction was accompanied with a preſent of ſuch value, as furniſhed a freſh inducement to remain there.

The Spaniards perceiving that hoſtile meaſures would become neceſſary, began to feel uneaſineſs; and the party of Velaſquez diſſeminated jealouſies and fears. In the mean while, Cortes took every meaſure, by kind attention and a liberal diſtribution of Mexican gold, to ſecure the affection and attachment of the ſoldiers. As he perſiſted in his demand of an audience on the part of the Mexican ſovereign, the meſſenger quitted the camp with looks and geſtures which expreſſed his ſurpriſe and reſentment; and ſoon after the natives, who brought proviſions to the camp, diſcontinued their viſits. Every circumſtance indicated the ſpeedy commencement of hoſtilities; and diſſatisfaction prevailed more and more in the Spaniſh camp. Cortes temporized and ſeemed to concur in the wiſhes of thoſe, who were inclined to deſiſt from the enterpriſe; and accordingly he iſſued orders, that the army ſhould be in readineſs to reimbark for Cuba. The diſappointed adventurers exclaimed and threatened, and the whole camp was almoſt in an open mutiny. In an interview with their commander, they expreſſed their aſtoniſhment at the order which he had iſſued; declared their readineſs to follow him with alacrity through every danger, in queſt of thoſe ſettlements and treaſures which had been ſo long held out to their view; and at the ſame time, announced their reſolution, if he choſe to return to Cuba, to chuſe another general, who would conduct them in that path of glory which he had not ſpirit to enter. The experiment ſucceeded; and Cortes, finding the ſpirit that prevailed among his troops, profeſſed his readineſs to conduct them, agreeably to their wiſhes, in the career of victory, to ſuch independent fortunes as their valour merited. Upon this declaration, ſhouts of applauſe teſtified the exceſs of their joy. Cortes immediately began to execute his deſign. Having aſſembled the principal perſons in his army, he elected, by their ſuffrages, a council and magiſtrates, in whom the government of the new colony ſhould be veſted; framing the new ſettlement upon the model of a Spaniſh corporation. All the perſons choſen into office were moſt firmly devoted to Cortes. Combining the two operative principles of avarice and enthuſiaſm, he called his new ſettlement "Villa rica de la vera Cruz," *i. e.* "The rich Town of the true Croſs." When this new council was eſtabliſhed, Cortes, after an artful harangue, laid the commiſſion, which he had received from Velaſquez, upon the table, and, after kiſſing his truncheon, delivered it to the chief magiſtrate, and withdrew. The council, being well prepared for the meaſures that were to follow, did not long deliberate: the reſignation of Cortes was accepted, and he was unanimouſly elected chief-juſtice of the colony, and captain-general of the army; and the commiſſion was made out in the king's name, with moſt ample powers. The ſoldiers, with eager applauſe, ratified the choice; the air reſounded with the name of Cortes, and all vowed to ſhed their blood in ſupport of his authority. Having impriſoned the leaders of the mal-contents, who were the adherents of Velaſquez, he ſecured the confidence of his attendants, by a ſeaſonable and liberal diſtribution of Mexican gold among both his friends and his opponents.

At this time a meſſage was brought to him from Zempoalla, a conſiderable town at no great diſtance, with an offer of friendſhip; accompanied with intimations that the cazique of this town hated Montezuma, and wiſhed to be reſcued from the oppreſſion of his yoke. Cortes knew how to avail himſelf of this circumſtance, and determined to march to Zempoalla. This town lay in his way to Quiabiſlan, about 40 miles to the northward, and which, both on account of the fertility of the ſoil and commodiouſneſs of the harbour, ſeemed to be a better ſituation for a permanent ſettlement than that where he was encamped. Here he marked out ground for a town; and aided by the Indians of Zempoalla and Quiabiſlan, the place was ſoon in a ſtate fit for habitation and capable of defence. The caziques of theſe two towns, emboldened by their alliance with the Spaniards, inſulted the officers who appeared to levy tribute, and to demand a number of human victims in expiation of their guilt, for preſuming to hold intercourſe with ſtrangers, who had been ordered out of his dominions by the emperor; committed them to priſon, and prepared to ſacrifice them to their gods. From this laſt danger Cortes reſcued them. The caziques, having thus forfeited the protection of the emperor, attached themſelves to the Spaniards; and their example was followed by the Totonaques, a fierce people, who inhabited the mountainous part of the country. Cortes now wiſhed to have his authority confirmed by the king; and he therefore propoſed that the magiſtrates of his colony ſhould addreſs a letter to him, recounting the ſervices they had already performed; the extent, population, riches, and civilization, of the country which they had diſcovered; and their ſchemes and hopes for reducing the whole to ſubjection; together with their reaſons for veſting the ſupreme power, civil as well as military, in the hands of Cortes; and alſo requeſting their ſovereign to ratify what they had done by his royal authority. Cortes wrote in a ſimilar ſtrain. A preſent alſo, the richeſt of any that had hitherto been tranſmitted from the New World, accompanied theſe letters; and the chief magiſtrates of the colony were deputed to carry this preſent to Caſtile, with expreſs orders not to touch at Cuba in their paſſage thither. While a veſſel was preparing for this ſervice, a conſpiracy againſt Cortes was formed by ſome adherents of Velaſquez; but it terminated by the treachery of one of their aſſociates, who diſcloſed their deſign, when every thing was ready for execution. This conſpiracy haſtened the accompliſhment of a ſcheme, long formed by Cortes; which was that of deſtroying his fleet, ſo that he and his companions muſt either conquer or periſh. His addreſs gained their conſent; and by an effort of magnanimity, unparalleled in hiſtory, 500 men voluntarily conſented to be ſhut up in a hoſtile country, and having precluded every method of eſcape, left themſelves without any reſource but their own valour and perſeverance.

Cortes, however, was precipitated into actions inconſiſtent with the prudence that diſtinguiſhed his character: for he commanded his ſoldiers to overturn the altars and to deſtroy the idols in the chief temple of Zempoalla, and in their place to erect a crucifix and an image of the Virgin Mary. The people witneſſed this deed of ſacrilege with aſtoniſhment and horror; the prieſts excited them to arms; and it required the maſterly addreſs of Cortes to appeaſe the commotions without bloodſhed.

On the 16th of Auguſt 1519, Cortes began his march from Zempoalla into the country, with 500 men, 15 horſe, and 6 field-pieces. The reſt of his troops he left as a garriſon in Villa Rica. The cazique of Zempoalla furniſhed him with proviſions, and with 200 Indians, called "Tamoenes," whoſe office was to carry burdens, and perform all ſervile labour. He alſo ſupplied Cortes with a body of troops, amounting to 400. When he arrived on the confines of Tlaſcala, he found the inhabitants hoſtile and preparing to oppoſe their invaders. When the Spaniards entered into the Tlaſcalan territories, they were attacked with great intrepidity, and during 14 days they were expoſed to almoſt uninterrupted aſſaults; but after three battles and many ſkirmiſhes, ſo imperfect were the military weapons of theſe people, not one Spaniard was killed in the field. After ſeveral unavailing encounters, the fierceneſs of the Tlaſcalans abated, and they ſeriouſly inclined to peace. At length they yielded themſelves as vaſſals to the crown of Caſtile, and engaged to aſſiſt Cortes in all his future operations. Cortes remained 20 days in Tlaſcala, repoſing his troops after hard ſervice, and concerting the plans of his future operations. The Tlaſcalans offered to accompany him in his march to Mexico, with all the forces of the republic, under the command of their moſt experienced captains. The intemperate zeal of Cortes was very near depriving him of all theſe benefits. Explaining to the Tlaſcalans ſome of the chief doctrines of the Chriſtian religion, inſiſting upon their abandoning their own ſuperſtitions, and embracing the faith of their new friends, and mingling menaces with arguments, he at length excited the indignation of theſe people, who had long heard him with ſingular patience and candour; and they conjured him to deſiſt, leſt the gods ſhould avenge on their heads the guilt of having liſtened to ſuch a propoſition. Cortes was proceeding to violence, but was reſtrained by the interpoſition of father Bartholomew de Olmedo, chaplain to the expedition. Accordingly he left the Tlaſcalans in the undiſturbed exerciſe of their own rites, requiring only that they ſhould deſiſt from their horrid practice of offering human victims in ſacrifice. Cortes, againſt the remonſtrance of the Tlaſcalans, advanced towards Cholula, which had been an independent ſtate, but had lately been ſubjected to the Mexican empire. Finding the inhabitants to be treacherous, and to be contriving his deſtruction, whilſt they received him with ſeeming hoſpitality and kindneſs, he avenged himſelf without mercy, and ſlaughtered 6000 perſons. From Cholula Cortes advanced directly towards Mexico, which was only diſtant 20 leagues; and as he proceeded, the diſcontents againſt the Mexican government, that were manifeſted by the people, encouraged his hopes. In deſcending from the mountains of Chalco, the vaſt plain of Mexico opened to their view, and preſented the moſt beautiful proſpect on the face of the earth; fertile and cultivated fields, a lake reſembling the ſea in extent, encompaſſed with large towns, and the capital city riſing upon an iſland in the middle, adorned with its temples and its turrets. They were now fully ſatisfied that the country was rich beyond any conception they had previouſly formed of it; and they flattered themſelves that they ſhould ſoon obtain an ample recompence for all their ſervices and ſufferings. No enemy had yet appeared to oppoſe their progreſs; and Cortes was almoſt at the gates of the capital, before the monarch had determined whether to receive him as a friend, or to oppoſe him as an enemy. The Spaniards marched forward, however, with great circumſpection. At length, as they drew near the city, about 1000 perſons, apparently of diſtinction, came forth to meet them, adorned with plumes, and clad in mantles of fine cotton. They announced the approach of Montezuma, who advanced in the midſt of a great number of attendants, with extraordinary magnificence and pomp, in a chair or litter richly ornamented with gold, and feathers of various colours. Cortes, when he drew near, diſmounted and advanced towards him in a reſpectful poſture. Montezuma, at the ſame time, alighted from his chair, and walked over the cotton cloths which covered the ſtreet. After mutual ſalutations were reciprocally paid and returned, Montezuma conducted Cortes to the quarters allotted for his reception, and politely took his leave.

In this new habitation, ſurrounded by a ſtone wall with towers at proper diſtances, the firſt care of Cortes was to take precautions for his ſecurity by planting the artillery ſo as to command the different avenues which led to it, by appointing a large diviſion of his troops, to be always on guard, and by poſting centinels at proper ſtations. In the evening Montezuma returned with the ſame pomp as in the firſt interview, and brought rich preſents to Cortes and to his officers, and alſo to the private men. In a long conference which enſued, Cortes learned what was the opinion of Montezuma with reſpect to the Spaniards, and how he ſuppoſed Cortes and his followers were the perſons whoſe appearance the Mexican traditions and prophecies taught them to expect, and that he was diſpoſed to receive them as relations of the ſame blood and parentage. Cortes, in reply, extolled the dignity and power of his ſovereign, and announced his intention in ſending him into that country, favouring as much as poſſible the idea which Montezuma had formed concerning the origin of the Spaniards. After ſome days ſpent in viewing the city, he revolved in his mind what conduct in his ſituation it was proper for him to purſue; and all circumſtances conſidered, he determined, as the moſt politic meaſures to ſeize Montezuma in his palace, and to carry him as a priſoner to the Spaniſh quarters. When this bold meaſure was propoſed to his officers, the timid ſtarted many difficulties and objections; but the more intelligent and reſolute approved of it; and it was agreed inſtantly to make the attempt. At his uſual hour of viſiting Montezuma, Cortes, accompanied by five principal officers, and as many truſty ſoldiers, went to the palace; and they were followed by 30 choſen men: the reſt of the troops were properly diſtributed and under arms ready to ſally forth on the firſt alarm. Cortes, admitted to an audience, addreſſed Montezuma in the language of complaint and reproach; and Montezuma attempted to vindicate himſelf from accuſation. The Spaniſh general thought it neceſſary, that Montezuma, in order to convince his followers that he entertained no hoſtile intentions, ſhould leave his own palace, and take up his reſidence in the Spaniſh quarters. After much heſitation and remonſtrance, and under the influence of apprehenſions concerning his own ſafety, the emperor complied. In the Spaniſh quarters, to which he was conveyed amidſt the murmurs of the people, he was treated with ceremonious reſpect. After ſome time Cortes entered his apartment, accompanied by a ſoldier with a pair of fetters; and addreſſing him with a ſtern countenance, told him that as the perſons who were about to ſuffer for attacking the Spaniards near

Villa Rica, had charged him as the cauſe of the outrage committed, it was neceſſary that he likewiſe ſhould make atonement for that guilt; and he commanded the ſoldier to clap the fetters on his legs. The monarch ſunk under the indignity, and his attendants bathed his feet with their tears. At length Cortes returned from the execution of the perſons that had been found guilty with a cheerful countenance, and ordered the fetters to be taken off. This ſeems to have been, on the part of Cortes, a wanton exerciſe of power; though it has been vindicated on the ground of policy: as it tended to impreſs the minds of the Mexicans with a perſuaſion, that ſhedding the blood of a Spaniard, of which the perſons now executed had been guilty, was the moſt heinous of all crimes; and nothing appeared better calculated to eſtabliſh this opinion, than to condemn the firſt Mexicans who had ventured to commit it to a cruel death, and to oblige their monarch himſelf to ſubmit to a mortifying indignity, as an expiation for being acceſſory to their guilt. During the ſix months of Cortes's abode at Mexico, Montezuma continued in the Spaniſh quarters with apparent ſatisfaction and tranquillity; and whilſt he was thus under the power and, as it were, in the cuſtody of the Spaniſh general, Cortes enjoyed peculiar advantage for examining the ſtate of the country, and acquainting himſelf with the diſpoſition of the inhabitants. He alſo by theſe means obtained ſuch a command of the lake as might enſure a retreat, if either from levity or diſguſt, the Mexicans ſhould take arms againſt him, and break down the bridges or cauſeways. Cortes urged Montezuma to acknowledge himſelf a vaſſal of the king of Spain, to hold his crown of him as ſuperior, and to ſubject his dominions to the payment of an annual tribute. Such was the influence of the Spaniſh general over the Mexican monarch, that with this requiſition, degrading as it was, he was ſo obſequious as to comply. This act of ſubmiſſion and homage was executed with all the formalities which the Spaniards were pleaſed to preſcribe: and as a profeſſion of fealty and homage, it was accompanied with a magnificent preſent to his new ſovereign; and after his example his ſubjects alſo made very liberal contributions. The whole amount of the treaſure which the Spaniards had received, by gift or extortion, from Montezuma and his ſubjects, is eſtimated at ſix hundred thouſand peſos, which was divided by Cortes in the following manner: a fifth was ſet apart as a tax due to the king; another fifth was allotted to Cortes, as commander in chief; the ſums advanced by Velaſquez, Cortes, and ſome of the officers, towards defraying the expence of fitting out the armament, were alſo deducted; and the remainder was divided among the army, in proportion to the different ranks. After ſo many defalcations the ſhare of a private man did not exceed 100 peſos. This occaſioned great murmuring among the ſoldiers, ſo that it required all the addreſs of Cortes, and no ſmall exertion of his liberality to appeaſe them. Montezuma, though he complied in many inſtances with the requiſitions and wiſhes of Cortes, was inflexible on the ſubject of religion. When the Spaniſh commander found all his attempts to ſhake the conſtancy of Montezuma ineffectual, he was ſo much enraged at his obſtinacy that in a tranſport of zeal he led out his ſoldiers to throw down the idols in the great temple by force. But the prieſts taking arms in defence of their altars, and the people crowding to ſupport them, Cortes was obliged to deſiſt and his prudence overruled his zeal. The Mexicans, ever ſince the confinement of their ſovereign, had been meditating how they might expel or deſtroy the Spaniards; and they thought themſelves under a kind of ſacred obligation to avenge their inſulted deities. Montezuma, having called Cortes into his preſence, obſerved to him that, as all the purpoſes of his embaſſy were fully accompliſhed, the gods had declared their will, and the people ſignified their deſire, that he and his followers ſhould inſtantly depart out of the empire. With this he required them to comply, or unavoidable deſtruction would fall ſuddenly on their heads. Cortes replied, that he had already begun to prepare for returning to his own country; but as he had deſtroyed the veſſels in which he arrived, ſome time was requiſite for building other ſhips. This appeared reaſonable. In this ſtate of anxiety and ſuſpence, a Mexican courier arrived with an account of ſome ſhips having appeared on the coaſt. This was an armament fitted out by Velaſquez at Vera Cruz, and inſtead of bringing the aid they expected, threatened them with utter deſtruction. Velaſquez had received information concerning Cortes by means of the veſſel that had been diſpatched for Spain, and which contrary to orders had touched at Cuba. He immediately exerted himſelf in completing an armament, conſiſting of 18 ſhips, having on board 80 horſemen, 800 foot ſoldiers, of whom 80 were muſketeers, and 120 croſſbowmen, together with a train of 12 pieces of cannon. The command of this armament was entruſted with Pamphilo de Narvaez, who had inſtructions to ſeize Cortes and his principal officers, to ſend them priſoners to Velaſquez, and then to complete the diſcovery and a conqueſt of the country in his name. Cortes was alarmed, and not without reaſon, by the news of the arrival of Narvaez; and more eſpecially when he heard, that ſeveral provinces, in his intereſt, began to revolt from him, and to regard Narvaez as a deliverer no leſs able than willing to ſave them. The meaſures which it would be prudent for him to adopt required the utmoſt deliberation. After revolving every ſcheme that preſented itſelf to his mind with deep attention, he adopted that, the execution of which was moſt hazardous; but which, if ſucceſsful, would prove moſt beneficial to his country; and with the deciſive intrepidity ſuited to deſperate ſituations, he determined to make one bold effort for victory under every diſadvantage, rather than ſacrifice his own conqueſts and the Spaniſh intereſt in Mexico. When his attempts for negociating with the followers of Narvaez had failed, he determined to advance towards an enemy whom he had in vain endeavoured to appeaſe. Accordingly, having left 150 men in the capital to guard the city, the wealth he had amaſſed, and the perſon of the impriſoned monarch, he advanced with a force not exceeding 250 men, towards Zempoalla, of which Narvaez had taken poſſeſſion. Having conciliated ſome of Narvaez's officers by liberal preſents, he attacked him in the night, and availing himſelf of ſeveral advantages that had occurred, he obtained a deciſive victory; ſo that before morning the officers of Narvaez capitulated, and the ſoldiers laid down their arms, and ſubmitted quietly to their conquerors. Soon after this victory Cortes received information from the capital, that the Mexicans had taken arms againſt the Spaniards, and therefore he haſtened back with all his forces as rapidly as poſſible; and in his march he was joined at Tlaſcala by 2000 choſen warriors. The Mexicans had made no preparation for reſiſting his entrance; but immediately on his arrival he was admitted into the city without moleſtation, and took quiet poſſeſſion of his ancient ſtation. Emboldened by his ſucceſs he treated Montezuma with neglect and his ſubjects with inſult; and thus provoked the Mexicans to renew their hoſtility. The number who took up arms was conſiderable, and their courage undaunted. One body of troops ſucceeded another amidſt bloodſhed and ſlaughter, ſo that the abilities and experience of Cortes, ſeconded by the valour of his ſoldiers, were hardly ſufficient to defend the fortifications that ſurrounded

rounded the poſt where the Spaniards were ſtationed. Cortes prepared for a ſally, with ſuch a conſiderable force as might either drive the enemy out of the city, or compel them to liſten to terms of accommodation. He attacks them, however, without ſucceſs; and though vaſt numbers of the Mexicans fell, the Spaniards were at length obliged to retire, 12 ſoldiers having been killed and 60 wounded. In another unſucceſsful ſally, the general himſelf was wounded in the hand. When the Mexicans approached to renew the aſſault, Montezuma was preſented to their view; and he addreſſed them with every argument that could mitigate their rage, or perſuade them to ceaſe from hoſtilities. As ſoon as he had ended his diſcourſe, the enraged Mexicans poured in flights of arrows and volleys of ſtones with ſuch violence on the ramparts, as to wound the unhappy monarch and ſtrike him to the ground. Cortes followed him to his apartment in order to conſole him under his misfortune; but perceiving how low he was ſunk, his haughty ſpirit revived, and he ſcorned to prolong his life after this laſt humiliation. Stripping the bandages from his wounds in a tranſport of rage, and refuſing to take any nouriſhment, he ſoon ended his wretched days; refuſing with diſdain all the ſolicitations of the Spaniards to embrace the Chriſtian faith. Upon the death of Montezuma, Cortes loſt all hopes of bringing the Mexicans to an accommodation, and prepared for a retreat. But in accompliſhing his deſign, he was engaged in new conflicts. At length they determined to retire ſecretly in the night; but they had not proceeded far, before the Mexicans diſcovered them and made diſpoſitions for a formidable attack. When morning dawned, it diſcovered to Cortes, who had arrived at Tacuba with thoſe of his followers that had ſurvived, his ſhattered battalion, reduced to leſs than half its number, in a dejected and wounded condition; and the ſight cauſed the tears to trickle from his eyes, which his ſoldiers obſerved with ſatisfaction, concluding that while attentive to the duties of a general he was not inſenſible to the feelings of a man. Having retired to an adjacent temple for the repoſe and refreſhment of his troops, exhauſted with fatigue, he there deliberated what courſe to purſue; and at length determined to march towards the Tlaſcalan territories. In their way thither they encountered many attacks; but upon their arrival, they were received with tenderneſs and cordiality. Having obtained ſeveral reinforcements, he muſtered 550 infantry, of which 80 were armed with muſkets or croſs-bows, forty horſemen, and a train of 9 field pieces. At the head of theſe, accompanied by 10,000 Tlaſcalans and other friendly Indians, Cortes began his march towards Mexico, on the 28th of December 1520, ſix months after his diſaſtrous retreat from that city. As he advanced thither, he found that the Mexicans were prepared to oppoſe his progreſs. He therefore took poſſeſſion of Tezeuco, the ſecond city of the empire, ſituated on the banks of the lake, about 20 miles from Mexico. Here he eſtabliſhed his head-quarters; and depoſing the chief who was at the head of the community, he placed another cazique in his room, who, together with his adherents, ſerved the Spaniards with inviolable fidelity. Here he employed himſelf with ſingular aſſiduity in preparing a naval armament of 13 brigantines, for aiding his future operations; and in the mean while, four ſhips arrived at Vera Cruz from Hiſpaniola, with 200 ſoldiers, eight horſes, two battering rams, and a conſiderable ſupply of ammunition and arms. Cortes therefore became impatient to commence the ſiege of the capital in form, and he determined to attack it from three different quarters; from Tezeuco on the eaſt ſide of the lake, from Tacuba on the weſt, and from Cuyocan towards the ſouth. After repeated and ſevere conflicts, in one of which Cortes himſelf was captured and wounded, though immediately reſcued from ſix Mexican officers, by two of his ſoldiers, and the loſs of ſeveral of his men, ſome of whom were ſacrificed with barbarous triumph to the god of war, he found himſelf, according to his own account, at the head of 150,000 Indians, by whoſe aſſiſtance he was enabled to vary his ſyſtem of attack; and while his brigantines kept poſſeſſion of the lake, to ſhut up the avenues to the city by land. In conſequence of theſe meaſures, not only the people in general, but ſome even of the higheſt rank felt the utmoſt diſtreſſes of want. The ſpirit of the emperor Guatimozin, however, ſtill remained unſubdued; and rejecting every overture of peace from Cortes, reſolved not to ſurvive the ruin of the city. The Spaniards continued their progreſs, and made a ſecure lodgment in its centre, three-fourths of it being now reduced and laid in ruins. At length Guatimozin was ordered to attempt an eſcape, but in his endeavours for this purpoſe, he was taken priſoner, and with dignified compoſure, ſurrendered himſelf into the hands of his conqueror, requeſting only that no inſult might be offered to the empreſs or his children. As ſoon as the fate of their ſovereign was known, the reſiſtance of the Mexicans ceaſed, and Cortes took poſſeſſion of that ſmall part of the capital which remained undeſtroyed. Thus terminated, Aug. 21, 1521, the ſiege of Mexico, after having continued 75 days; the moſt memorable event in the conqueſt of America. As Guatimozin, aware of his impending fate, had ordered a great part of the riches amaſſed by his anceſtors, to be thrown into the lake; and the Indian auxiliaries, during the progreſs of the ſiege, had carried off the moſt valuable part of the ſpoil, the remaining booty was ſo ſmall, when a diviſion took place, as to occaſion great diſcontent among the conquerors. In order to check this evil, Cortes perpetrated a deed which ſtains the glory of all his great actions. He ordered Guatimozin, and his chief favourite, to be tortured, in order to force from them a diſcovery of the royal treaſures, which they were ſuppoſed to have concealed. The emperor endured his ſufferings with the invincible fortitude of an American warrior; till at length Cortes, aſhamed of a ſcene ſo horrid, reſcued the royal victim from the hands of his tormentors, and prolonged a life reſerved for new indignities and ſufferings.

The fate of the capital decided that of the empire; and the provinces ſubmitted one after another to the conquerors. Upon this Cortes formed new ſchemes of diſcovery, which were afterwards completed by Ferdinand Magalhaen, or Magellan. See his article.

Whilſt Cortes was acquiring ſuch vaſt territories for his native country, and preparing the way for future conqueſts, he was regarded as an undutiful and rebellious ſubject; his conduct in aſſuming the government of New Spain, was declared to be an irregular uſurpation, in contempt of royal authority, and a commiſſion was iſſued for ſuſpending him, ſeizing his perſon, confiſcating his effects, making a ſtrict ſcrutiny into his proceedings, and tranſmitting the reſult to the council of the Indies, of which Fonſeca, biſhop of Burgos, was preſident. Cortes took ſecret meaſures for defeating the effect of this commiſſion; and in May 1522, diſpatched deputies to Spain, with a pompous account of the ſucceſs of his arms, further ſpecimens of the productions of the country, and rich preſents to the emperor, as earneſts of future contributions from his new conqueſts; requeſting, in recompence for his ſervices, the approbation of his proceedings, and that he might be entruſted with the government of thoſe territories, which his conduct, and the valour of his followers, had added to the crown of Caſtile. The public voice declared warmly in favour of his pretenſions, and he was appointed by the emperor Charles V., captain-general and governor of New Spain; in conſequence of which appointment, he endeavoured by new ſchemes and arrangements to render his conqueſt a ſecure and beneficial acquiſition to his country. The emperor at the ſame time appointed certain commiſſioners to receive and adminiſter the royal revenue there, with independent juriſdiction. Theſe commiſſioners ſent home unfavourable accounts of the character and conduct of Cortes, which made ſuch an impreſſion on the Spaniſh miniſters, and by their means on the mind of their maſter, that a new commiſſion was granted, with powers to inveſtigate the truth of theſe allegations, to ſeize the perſon of Cortes, if that meaſure ſhould be found expedient, and to ſend their priſoner to Spain. The execution of this commiſſion was prevented by the death of Ponce de Leon, with whom it was entruſted; and Cortes, though deeply wounded with this return for his ſervices, endeavoured to maintain his ſtation, and to recover the confidence of the court. The apprehenſions of Charles and his miniſters increaſed; and in 1528, a new commiſſion of inquiry was iſſued, with more extenſive powers. Cortes was extremely indignant; but inſtead of aſſerting his own rights againſt his ungrateful countrymen, and with a bold hand ſeizing that power which the courtiers meanly accuſed him of coveting, as ſome of his deſperate followers adviſed, he repaired directly to Caſtile, and committed himſelf and his cauſe to the juſtice and generoſity of his ſovereign. Here he was received in the moſt reſpectful manner, and the order of St. Jago, the title of marquis del Valle de Guaxaca, and the grant of a vaſt territory in New Spain, were ſucceſſively beſtowed upon him; and as his manners were correct and elegant, the emperor admitted him to the ſame familiar intercourſe with himſelf that was enjoyed by noblemen of the firſt rank. Cortes, however, though dignified with new titles, returned to Mexico in 1530, with diminiſhed authority. The military department, with powers to attempt new diſcoveries, was left in his hands; but the ſupreme direction of civil affairs was placed in a board called "the Audience of New Spain;" and at a ſubſequent period, a nobleman of high rank was ſent thither as viceroy, to take the government into his own hands.

The diviſion of power in New Spain, became the ſource of perpetual diſſenſion, which embittered the life of Cortes, and thwarted all his ſchemes. Nevertheleſs, he projected new diſcoveries, and formed various ſchemes for that purpoſe. Having entruſted the execution of ſome of his plans to others, who were unſucceſsful, he determined, in 1536, to undertake in perſon the conduct of an armament, with which, after enduring incredible hardſhips, and encountering various dangers, he diſcovered the large peninſula of California, and ſurveyed the greateſt part of the gulf which ſeparates it from New Spain. Diſſatisfied and diſguſted, on a variety of accounts, he once more ſought redreſs in his native country. Accordingly he returned thither in 1540; but his reception was very different from that which gratitude, and even decency, ought to have ſecured for him. As no farther ſervices could be expected from him in his declining years, he was treated ſometimes with neglect, ſometimes with inſolence. After ſeveral years his grievances received no redreſs, and his claims were ineffectually urged, although from time to time he renewed his application to miniſters and judges; and at length, broken down by age, and the vexation of diſappointment, he ended his days, December 2, 1547, in the 62d year of his age. "Envied by his contemporaries, and ill-requited by the court which he ſerved, he has been admired and celebrated by ſucceeding ages. Which has formed the moſt juſt eſtimate of his character, an impartial conſideration of his actions muſt determine." Robertſon's Hiſtory of America, vol. ii. See MEXICO.

CORTES, in *Geography*, a town of Spain, in Navarre; 7 leagues from Tudela.

CORTES, in *Political Economy*, a term purely Spaniſh, properly ſignifying the *courts*, *i. e.* the ſtates or aſſembly of the ſtates, in Spain. In this ſenſe the term has been of ancient uſe in that kingdom. In Arragon, though the form of government was monarchical, (ſee ARRAGON,) yet the genius and maxims of it were purely republican; and the real exerciſe of power was veſted in the cortes or parliament of the kingdom, whilſt the ſovereign himſelf retained the mere ſhadow of power. This ſupreme aſſembly was compoſed of four different arms or members, *viz.* the nobility of the firſt rank; the equeſtrian order, or nobility of the ſecond claſs; the repreſentatives of the cities and towns, whoſe right to a place in the cortes, if the hiſtorians of Arragon may be credited, was coëval with the conſtitution; and the eccleſiaſtical order, compoſed of the dignitaries of the church, together with the repreſentatives of the inferior clergy. No law could paſs in this aſſembly, without the aſſent of every ſingle member who had a right to vote. Without the permiſſion of the cortes, no tax could be impoſed; no war could be declared; no peace concluded; no money could be coined; nor any alteration be made in the current ſpecie. The power of reſcinding the proceedings of all inferior courts, the privilege of inſpecting every department of adminiſtration, and the right of redreſſing all grievances, belonged to the cortes: and thoſe who were aggrieved addreſſed the cortes, not in the humble tone of ſupplicants, but with the boldneſs of perſons who demanded the birth-right of freemen, and required the guardians of their liberty to decide on the points referred to their conſideration. This ſovereign court was held for ſeveral centuries every year; but, in conſequence of a regulation introduced about the beginning of the 14th century, it was convoked from that period only once in two years. After it was aſſembled, the king had no right to prorogue or diſſolve it, without its own conſent; and the ſeſſion continued 40 days. See JUSTIZA.

In the kingdom of Caſtile alſo, the legiſlative authority reſided in the cortes, which was compoſed of the nobility, the dignified eccleſiaſtics, and the repreſentatives of the cities. The aſſembly of the cortes in Caſtile was very ancient, and ſeems to have been coëval with the conſtitution. The members of the three different orders, who had a right of ſuffrage, met in one place, and deliberated as one collective body; the deciſions of which were regulated by the ſentiments of the majority. The right of impoſing taxes, of enacting laws, and of redreſſing grievances, belonged to this aſſembly; and in order to ſecure the aſſent of the king to ſuch ſtatutes and regulations as were deemed neceſſary or beneficial to the kingdom, it was uſual in the cortes to take no ſtep towards granting money until all buſineſs relative to the public welfare was concluded. The repreſentatives of cities ſeem to have obtained a ſeat at a very early period in the cortes of Caſtile, and ſoon acquired ſuch influence and credit as were very uncommon at a time when the ſplendour and pre-eminence of the nobility had eclipſed or annihilated all other orders of men. The number of members from cities bore ſuch a proportion to that of the whole collective body, as rendered them extremely reſpectable in the cortes; and the early admiſſion of the repreſentatives of cities into this aſſembly ſeems to have been one ſource of the liberty that pertained to the conſtitution of Caſtile, as well as to that of Arragon. In Catalonia, as well as in Caſtile, the cortes were compoſed of three eſtates. The commons were introduced into this aſſembly of Catalonia A. D. 1283; and into that of Arragon in 1137. In Navarre, the cortes reſembled that of Caſtile. Robertſon's Hiſt. ch. v. vol. i.

CORTESI, Padre Giacomo, in *Biography*, called likewiſe *Borgognone*, a moſt eſteemed painter of battles, was born at St. Hippolite in Franche Compte, in the year 1621. He derived the firſt principles of the art from his father, Gios Corteſi, a painter of little repute. At the age of fifteen, following the bent of his inclination for travelling, he went to Milan, where good fortune made him known to baron Vatteville Borgognone, an officer of rank in the ſervice of the king of Spain, who took him into his houſe, and treated him with the greateſt kindneſs, whence our artiſt was afterwards called *Il Borgognone*. The conſequence of this connection was, that Giacomo for ſome time embraced the profeſſion of arms, although he ſtill continued occaſionally to exerciſe himſelf in drawing and painting. His natural genius, however, at length prevailed; and ſtimulated by the great reputation which Guido and Albano then enjoyed at Bologna, he left Milan, and repaired to that city. The talents of our young artiſt were ſufficient to recommend him to the courteous Guido, who received him into his houſe, and inſtructed him for ſeveral months; but although he made rapid advances in the art, it was not until he had ſeen the celebrated battle of Conſtantine at Rome that the peculiar bent of his genius developed itſelf. From this time he principally devoted himſelf to the painting of battles, which he executed on a ſmall ſcale, with a variety, a boldneſs, and a truth of repreſentation, ſuch as no one who had not, like himſelf, been an eye-witneſs of ſuch ſcenes, could have effected. Upon the death of his wife, about the year 1655, he entered into the order of the Jeſuits; but his clerical avocations were not permitted to interfere with the exerciſe of his favourite art. He died at Rome in 1676.

There are a few etchings of battles engraved by the hand of this artiſt with prodigious ſpirit. Baldinucci. Huber.

Cortesi, Guglielmo, brother to the laſt mentioned artiſt, was born at St. Hippolite in 1628, and, like his brother, at an early period, repaired to Italy, to perfect himſelf in hiſtorical painting. He became the ſcholar of Pietro da Cortona, and acquired ſufficient reputation to be employed in ſeveral conſiderable altar-pieces at Rome. But although Cortona was his maſter, the ſtyle of Carlo Maratta was that to which he more eſpecially adhered; to which he ſometimes ſucceeded in uniting the force of Guercino, and ſomething of the deſign of the Caracci. The Crucifixion of St. Andrew in the church of that ſaint at Monte Cavallo, and the Battle of Joſhua in the palace of the pope, in its vicinity, are amongſt his moſt eſteemed works. He died at Rome in 1679. Lanzi. Iſt. Pittor. Huber.

CORTESIA, in *Botany*, Cav. Pl. 377. Claſs and order, *pentandria monogynia*.

Gen. Ch. *Cal.* Perianth one-leafed, ten-toothed, permanent. *Cor.* monopetalous, with five roundiſh ſegments. *Stam.* Filaments five. *Piſt.* Germ ſuperior, egg-ſhaped; ſtyle filiform; ſtigmas two, peltate. *Peric.* Berry egg-ſhaped, two-ſeeded. *Seeds* flattened on one ſide.

Sp. C. *cuneiformis*. A much-branched ſhrub. *Leaves* alternate, wedge-ſhaped, trifid. *Flowers* yellowiſh, ſolitary, often terminal. A native of the neighbourhood of Buenos Ayres.

CORTEX, or Cortical Substance, in *Anatomy*, is the reddiſh-grey ſubſtance, which, generally ſpeaking, is confined to the external ſurface of the brain. See Brain.

Cortex, in *Vegetable Anatomy*, the Bark of Plants, ſtrictly ſo called, is ſituated betwixt the cellular integument and the wood. Its general ſtructure and appearance have been amply explained in a former part of this work under the term Bark; an account of its phyſiology only remains to be given.

That the *liber* or inner layer of the bark ſecreted matter for the formation, not only of a new *liber* for the enſuing ſeaſon, but alſo of a layer of wood, is clearly proved, notwithſtanding *Mirbel*'s doubts, by the experiment of Du Hamel. The late Dr. Hope, Profeſſor of Botany at Edinburgh, performed an experiment, if poſſible ſtill more deciſive, upon a branch of willow 3 or 4 years old. "The bark was carefully cut through longitudinally on one ſide for the length of ſeveral inches, ſo that it might be ſlipped aſide from the wood in the form of a hollow cylinder, the two ends being undiſturbed. The edges of the bark were then united as carefully as poſſible, the wood covered from the air, and the whole bound up to ſecure it from external injury. After a few years, the branch was cut through tranſverſely. The cylinder of bark was found lined with layers of new wood, whoſe number added to thoſe in the wood from which it had been ſtripped, made up the number of rings in the branch above and below the experiment." The ſubſtance of this account was given to Dr. Smith by the preſent Profeſſor Hope. See *Introduction to Botany*, 35.

In deſcribing the Circulation of the Sap we have ſhewn that the nutritious fluids paſs along the ſap-veſſels of the young wood into the leaves, and are from thence returned into the *liber*, which is thus enabled to perform its important functions. Hence if a wound be made in the bark of a tree, and a circular portion removed, the upper edge only of that wound will ſwell, and the bark gradually extend itſelf, ſo as in time to cover the wood again, while the portion of bark below, as far as the next leaf or bud, ſhews no ſigns of life. If the wound be only partial, and not extending all round the branch, its ſides, ſupplied from above, will alſo gradually approach each other. If the dead ſurface of wood be carefully removed, and the living part ſecured, by a proper covering or plaiſter, from the injuries of the atmoſphere, the bark will ſpeedily cloſe up the wound entirely, as the late Mr. Forſyth and others have proved. It ſeems that the bark is deſtined to receive and to apply to uſe that vegetable fluid, or ſap, upon which eſſential changes have already been made by air, light, and heat, in its paſſage through the leaves, rather than to operate any great changes itſelf in ſuch fluid. Nevertheleſs, after the woody matter is depoſited from it in the form of a new *liber*, and new *alburnum*, or layer of new unhardened wood, the remainder unqueſtionably undergoes ſome further changes, even in the *cortex* itſelf. An examination of the more aromatic barks, which abound in eſſential oils or other ſecreted fluids of a peculiar nature, affords room to believe that ſuch fluids are ſcarcely perfected in the cortical layer of the preſent year, but are more than one or even two ſeaſons in coming to maturity. Hence the qualities of certain plants exiſt in the greateſt perfection in their bark, as the bitter and aſtringent principles of the *Cinchona*, and of various Willows, Oaks; the aromatic oil of the Cinnamon; the reſin of the Fir and Juniper, &c. Nor does this hold good with reſpect to trees only. Perennial herbaceous plants have frequently a very diſtinct bark to their roots, abundant in ſecreted fluids. Even annual or biennial roots, as the Carrot and Parſnep, are furniſhed occaſionally with a very thick bark, though of but one layer, nor indeed are the layers in the barks of perennial roots commonly defined with preciſion like thoſe of trees.

The texture, appearance, and qualities of the fibres of the bark, in different ſpecies or natural orders of vegetables, differ no leſs than its ſecreted fluids. Thus the Flax is pre-eminently diſtinguiſhed for its fineneſs, and the hemp for its ſtrength. The bark of the Mallow tribe in general affords uſeful thread of a more or leſs perfect kind. The *Daphne* and its allies, among which is the lace-bark of Jamaica, are remarkable for the pure ſilky whiteneſs of their cortical threads, which however are deficient in tenacity. S.

Cortex *Eleutheriæ*. See Thus *Judæorum*.

Cortex *Peruvianus*, called alſo *quinquina*, *kinkinna*, *quinaquina*, *pulvis patrum*, and popularly the *Jeſuit's bark*, is the bark of a tree, growing in the Weſt Indies, called by the Spaniards *palo de calenturas*, q. d. *fever-wood;* by reaſon of its extraordinary virtue in removing all kinds of intermitting fevers and agues. See Cinchona.

Cortex *Simarubæ*. See Quassia.

Cortex *Winteranus*, or *Winteri*, the bark of a tree brought from the ſtreights of Magellan, by captain Winter, in his voyage with ſir Francis Drake, in 1579. Cluſius calls the tree, *Magellanica aromatica arbor*. See Canella, and Wintera *Aromatica*.

Cortez, Gregory, in *Biography*, deſcended from an ancient family at Modena, was born towards the end of the 15th century. Early in life he diſtinguiſhed himſelf by his knowledge of the claſſics, and the canon and civil law. He was patronized by John de Medici, afterwards pope Leo X., but diſliking the juridical employment, he determined to give the whole bent of his mind to theology, and accordingly took the habit of the Benedictine order, in which he roſe ſucceſſively to the moſt honourable offices, and in 1542 was made a cardinal. On this occaſion he received very flattering congratulations from perſons of the higheſt rank in the college, which proved to himſelf and the world in how high eſtimation he was held by his contemporaries. His conduct through life merited the eulogies which his virtues and talents had called forth in this inſtance. He died at Rome in the year 1548. He was an excellent Latin writer, and was author of many works, of which the chief are "De Theologica Inſtitutione Liber;" "De Poteſtate Eccleſiaſtica Tractatus Liber," and "Epiſtolarum Familiarium Liber." His laſt work, which was printed at Venice 25 years after the author's death, contains his correſpondence with the learned men of his own age. Moreri.

CORTICATA, in *Ancient Geography*, an iſle of the ocean, on the coaſt of Spain, according to Pliny. F. Hardouin thinks that it is the modern iſle of Salicora. On the chart of M. d'Anville it is marked near the coaſt, and to the W. of *Magnus Portus*.—Alſo, a town of Spain, in Bætica, placed by Ptolemy in the country of the Turdetani.

CORTICELLI, Salvatore, in *Biography*, a Bologneſe, who in the early part of life was profeſſor of the belles lettres in the college of St. Paul, Bologna. He became a monk, and was in proceſs of time provincial of his order. He was held in high eſtimation by pope Benedict XIV.: and as an author he is known and celebrated for an "Italian Grammar," written upon the moſt methodical principles; and for a work entitled "L' Eloquenza Italiana," intended to illuſtrate the higher departments of the belles lettres. Corticelli died about the year 1770.

CORTICOS, in *Geography*, a town of Portugal, in the province of Traſ-los-montes; 3 leagues E. of Mirandella.

CORTLAND, a townſhip of America, in the N. part of the county of W. Cheſter, on the E. bank of Hudſon river, in the ſtate of New York, containing 1932 inhabitants, of whom 66 are ſlaves. Of its inhabitants in 1796, 305 were electors.

CORTONA, Pietro da, in *Biography*. See Berrettini.

Cortona, in *Ancient Geography*, lay S. of Arrentium, and at a ſmall diſtance N.W. of the lake Traſimenus. It is ſuppoſed to have been built on the ruins of an ancient town called *Corythus*. It had kings before the Romans. It is known in the march of Hannibal, who paſſed between defiles near this town.—Alſo, a town of Spain. Pliny.

Cortona, in *Geography*, a town of Italy, in the duchy of Tuſcany, the ſee of a biſhop, ſuffragan of Florence, with a celebrated academy. It contains 7 churches, adorned with beautiful paintings, and 12 convents of both ſexes. The walls were conſtructed of large blocks of ſtone, without cement, many of which are ſtill in good preſervation; 30 miles S.E. of Sienna. N. lat. 43° 14'. E. long. 12° 4'.

CORTONESE, Pietro Paolo, in *Biography*. See Gobbo.

CORTORIACUM, in *Ancient Geography*, *Courtrai*, a town of Gaul, in Belgica Secunda, N. of Turniacum.

CORTUOSA, a town of Italy, in Etruria; belonging, according to Livy, to the territory of the Tarquins.

CORTUSA, in *Botany*, (named by Matthiolus, in honour of J. A. Cortuſus, profeſſor of Botany at Padua.) Linn. Gen. 198. Schreb. 259. Willd. 294. Lam. Ill. 278. Gært. 283. Juſſ. 96. Vent. 2. 290. Claſs and order, *pentandria monogynia*. Nat. Ord. *Preciæ*, Linn. *Lyſimachiæ*, Juſſ.

Gen. Ch. *Cal.* Perianth five-cleft, ſmall, ſpreading, permanent; ſegments acute. *Cor.* monopetalous, funnel-ſhaped; tube ſhort; border five-parted, ample; throat with an elevated ring, pervious. *Stam.* Filaments five, very ſhort, attached to the tube; anthers oblong, erect. *Piſt.* Germ. ſuperior, egg-ſhaped; ſtyle filiform, longer than the corolla; ſtigma ſimple. *Peric.* Capſule ovate-oblong, furrowed on each ſide, one-celled, half five-valved. *Seeds* numerous, roundiſh, ſomewhat angular, dotted, fixed to a cylindrical free central receptacle.

Eſſ. Ch. Corolla funnel-ſhaped, throat pervious. Capſule two-furrowed, one-celled.

Sp. 1. C. *Matthioli*. Linn. Sp. 1. Mart. 1. Lam. 1. Ill. 99. fig. 1. Willd. 1. Gært. tab. 50. fig. 7. Allion. flor. ped. 340. tab. 5. fig. 3. Bot. Mag. 987. (ſanicula montana; Bauh. Pin. 243. Auricula urſi. laciniata; Tourn. Inſ. 121.) "Calyxes ſhorter than the corolla." *Root* perennial. *Leaves* all from the root, heart-ſhaped, rounded, ſlightly cut into angular toothed lobes, green and rather ſhining above, pale underneath, on long villous petioles. *Scapus* from five to ſeven inches long, erect, ſimple, villous. *Flowers* reddiſh, violet or purple, ſometimes white, ſweet-ſcented; pedicels from ſix to ten, forming an umbel with an involucre of three oval wedge-ſhaped, toothed leaves. A native of Auſtria, Italy, and Siberia. It is a hardy plant, requiring a ſhady moiſt ſituation. 2. C. *Gmelini*. Linn. Sp. Pl. 2. Mart. 2. Lam. 2. Willd. 2. Gmel. ſib. 4. 79. tab. 43. fig. 1. "Calyxes longer than the corolla." *Root* perennial. *Leaves* ſmall, between heart and kidney-ſhaped, obtuſe, crenulate, a little villous, on long petioles. *Scapus* about four inches long. *Flowers* ſmall, white; umbel of three or four rays; leaves of the involucre two or three, narrow, acute. *Capſule* nearly globular. A native of Siberia. La Marck obſerves that it is not well diſtinguiſhed from Androſace; and Gærtner aſſerts that it truly belongs to that genus, and has nothing in common with Cortuſa but the long petioles.

Cortusa *americana, flore ſqualide purpureo;* Herm. See Heuchera.

Cortusa *americana, petalis integris;* Herm. See Farella *cordifalia*.

Cortusa *americana, petalis fimbriatis;* Herm. See Mitella *diphylla*.

Cortusa *arundinacea*; Plum; See Thalia *geniculata*.

Cortusa *foliis ovatis ſeſſilibus;* Hort. Cliff-Roy. See Verbascum *myconi*.

CORTYTA, in *Ancient Geography*, a country of the Peloponneſus, in Laconia, according to Thucydides.

CORU, *arbuto vel malo aureæ ſimilis. I. B. Luſitanis herba Malabarica*, in *Botany*, is a dwarf-tree like the quince-tree, with leaves like it, and a yellow flower, having little or no ſmell; but Garcias makes it have leaves like thoſe of the peach-tree, and a white flower ſmelling like the *periclymenum*. The bark of the root is of a watery green, light and thin, and if broken or wounded diſtils a copious milky juice; more ropy and viſcid than what flows from the macer; inſipid, if not a little bitteriſh, cold and drying, but more drying than cold.

The inhabitants of Malabar, both Pagans and Chriſtians, make much uſe of the liquor of the green bark, though it be very ungrateful to the taſte, on account of its ſurpriſing effects in all kinds of fluxes, as in the lientery, diarrhœa, and dyſentery, from whatever cauſe they proceed. The doſe is ſeven ounces in the morning, and as many in the evening, if neceſſity require it; but becauſe the juice is bitter and unſavoury, they waſh their mouths with whey after taking it. James.

CORVADO, in *Commerce*, a cloth meaſure in Perſia, about an Engliſh yard.

CORVE'ES, Fr. ſervices which vaſſals are bound to perform when called on by government or the ſuperiors, of whom they hold their lands. The Canadians uſed to be obliged to perform ſeveral ſorts of corvées for government, ſuch as the carrying of loaded batteaux up the river St. Laurence, &c.

The word *Corvée* ſeems to be derived from *cura viæ*, i. e. the care of the roads. In France it ſignified the call made on individuals to furniſh labour and materials in kind for the conſtruction and repair of roads. The ſame exiſts to this day in England under the name of "Statute-duty." With us it is under proper reſtrictions, but in France, where they had no turnpikes, all the roads, which are very good, were made and repaired by the corvée alone; whence it became an intolerable burden to the labourers. Under the adminiſtration of M. Turgot in 1774, their corvée for the highways was aboliſhed, thus ſaving the nation 30 millions of livres annually. At preſent the roads are kept up by means of turnpike gates, the tolls of which are let every three years to the higheſt bidders approved by government. He alſo ſet aſide another kind of corvée, which regulated the carriage of military ſtores and baggage. Detachments performing ſervices without arms are alſo called *corvées*.

CORVET, or CURVET, from the Italian *corvetto* or *corbetto*, a *crow*, in the *Manege*, an air, reſembling the hops of a crow, in which the horſe's legs are raiſed higher than in the demi-volt; being a kind of leap up and a little forwards, wherein the horſe raiſes both his fore-legs at once, equally advanced (when he is going ſtraight forward, and not in a circle); and as his fore-legs are falling, he immediately raiſes his hind-legs, equally advanced; and not one before the other: ſo that all his four legs are in the air at once; and as he ſets them down, he marks but twice with them.

Curvets are derived from and drawn out of the *Peſades*. They are lower before: the horſe muſt advance, his haunches muſt follow cloſer, and beat or mark a quicker time: the haunches muſt be bent, his hocks be firm, and his two hinder feet advance equally at every time; and their action muſt be ſhort and quick, juſt, and in exact meaſure and proportion. This action, when ſuited to the ſtrength and diſpoſition of the horſe, is not only beautiful in itſelf, but even neceſſary to fix and place his head; becauſe this *air* is, or ought to be, founded upon the true appuy of his mouth. It likewiſe lightens the fore-part; for as it cannot be performed unleſs the horſe collects his ſtrength upon his haunches, it muſt conſequently take the weight from the ſhoulders.

Horſes that are very dull, or very fiery, are improper for curvets; this being the moſt difficult *air* they can make, and requiring a great deal of judgment in the rider, as well as patience in the horſe, to perform it.

To ſucceed in this *air*, it is neceſſary that the horſe ſhould be perfectly obedient to the hand and heel; ſupple, and able to work upon one line or path, with freedom and eaſe; and likewiſe very well ſeated upon his haunches in his terre-a-terre. Curvets never ſucceed with horſes which have bad feet, and which have any weakneſs or complaint in their hocks, whatever other powers and qualifications they may poſſeſs. Before a horſe is put to make curvets, he ought to work terre-a-terre; and if he cannot do this, he ought to be able to change hands upon *one* and *two* lines, to go off readily, and to make a good ſtop. After this, he ſhould be able to make peſades eaſily, or ſo high before as to be felt and ſupported in the hand; and always make them upon a ſtraight line. After this, let him perform two or three curvets; let him then go two or three ſteps, and then make two or three curvets, and ſo alternately. If you find that your horſe is well in the hand, and that he advances regularly, is patient, and does not break his line, but keep even upon it, he will dreſs very eaſily, and ſoon; if he preſſes forward too much, make him curvet in the ſame place, and make him often go backward. After he has thus made two or three, demand three more of him, afterwards make him go backward, and ſo ſucceſſively. As few horſes, in making curvets, plant themſelves well upon their haunches and hocks, and beat and mark equally and ſmartly the meaſure of the air, and keep their heads true, and croupe ſteady; the firſt leſſon ſhould be ſlow and gentle, the horſe being made to riſe very high before, becauſe the longer time he is in the air, the more eaſy it will be for him to adjuſt himſelf upon his haunches, and to aſſure his head, and bend or gather up his fore legs; on the contrary, if he does not riſe high before, he only beats and throws about the duſt, and ſhuffles his legs, and can never aſſemble the different parts of his body, and be united, as he ought to be, in this manege.

This air is performed, in equal time and meaſure, by keeping the horſe in, and with a good and juſt appuy; the rider keeping himſelf ſtraight, and well ſtretched down in the ſaddle, and lifting his hand about three fingers breadth above the pommel of the ſaddle, with his body a little forward, and putting no ſtreſs on his legs.

It is not neceſſary that a horſe ſhould be abſolutely perfect in curvets ſtraight forward, before you put him to make them upon *voltes;* but as ſoon as he is grounded a little in curvets ſtraight forward, it is right to begin to teach him the *time*, and the proportions of the *volte*. There are three actions, and three motions, ſtill to be conſidered in making curvets. Theſe are to raiſe him, or lift him up as it were by the action of the hand; to ſupport him while he is in the air, or hinder him from bringing his fore-part too ſoon to the ground; and to make him go forward, while he is off the ground. To make a horſe go in curvets ſide-ways, aid only with the hand, keeping his head to the wall. To the right, aid him chiefly with the outward rein, by turning your hand to the right; for then the left rein, or outward-rein, will be ſhortened, and operate upon the ſhoulders, ſo as to work them. Let him make theſe curvets ſide-ways; paſſage him afterwards always ſide-ways; then let him make the ſame number of curvets ſide-ways and obliquely again, and begin by little and little to diminiſh his paſſage, and augment the curvets, till he is able to furniſh, without intervals, an entire volte upon two lines. Curvets made backward are more fatiguing, and more apt to make a horſe rebel, than curvets ſtraight forward upon the voltes, demi-voltes, or ſide-ways. To teach him, make him go backward; afterwards put him to make three or four curvets in the ſame place, without advancing. Then make him go backward again; let him make the ſame number again, and ſo ſucceſſively, till he makes them readily and without reſiſtance. To go backwards in curvets, aid with the outward-rein; you will thus confine the fore-part, and widen the hinder legs, which ought to be at liberty, becauſe it is with them that he leads. You muſt keep your hand low, that the horſe may not go too high. Let your body be a little forward, to give the greater liberty to the hinder legs, which are thoſe that lead, and do not aid with your legs, unleſs he drags his haunches. If the horſe does not unite of his own accord, you muſt catch the time with your bridle-hand, as the horſe is coming to the ground; in that inſtant put your hand towards your body, and ſo pull him back. In making curvets upon the voltes, let only your outward hip and outward haunch be a little advanced, and remember to looſen always and relax the inſide of your hams, or your legs from the knees. When you would change to the left, let your hand accompany and correſpond with your right leg, which is to operate; when you would change to the right, let it anſwer to your left leg:—having given this aid, replace yourſelf, ſtretch yourſelf down again in your ſaddle, take away your legs, one or the other, forbear to aid, and let the balance of the body be no more than juſt in the inſide. Having acquired the art of working a horſe in curvets ſtraight forwards, backwards, ſide-ways, to the right and left, you will eaſily teach your horſe to make the figure of a *croſs*, or even dance the *ſaraband* in this air. See Berenger's Art of Horſemanſhip, vol. ii. p. 117, &c.

Some derive the term from the Spaniſh *corva*, ſignifying the *hock* at the hinder leg, becauſe the horſe bends his hocks, and throws his weight upon them, in executing this manege. This air was called by the older Italian maſters *urſata*, or the gambols of a bear, from *urſa*, a bear; as the horſe, in making curvets, was thought to reſemble the motions of a bear, when he dances upon his hinder feet.

CORVEY, or Corwey, in *Geography*, a town and celebrated abbey of Germany, and ſmall principality in the circle of Weſtphalia, about 12 miles long and 10 wide, ſituated on the weſtern bank of the Weſer. The abbey was founded in the year 822; its annual revenues are about 30,000 or 40,000 florins; 24 miles E. of Paderborn. N. lat. 51° 39′. E. long. 8° 54′. By the treaty of indemnities in 1803, the biſhopric of Corwey, and alſo that of Fulda, together with the imperial town of Dortmund, and ſeveral abbies, were aſſigned to the prince of Orange, as the indemnity for the office of ſtadtholder, and his domains in Holland.

CORVINI, in *Ichthyology*. See Guatucusa.

CORVINARII. Theſe anciently were ſoldiers who fought on large chariots armed with ſcythes on their ſides.

CORVINI, Matthew, in *Biography*, king of Hungary and Bohemia, lived in the 15th century, and died in the year 1490. He was both a lover and guardian of literature. He purchaſed innumerable volumes of Greek and Hebrew writers at Conſtantinople, and other Grecian cities, when they were ſacked by the Turks; and as the operations of typography were then imperfect, he employed at Florence many learned librarians to multiply copies of claſſics, both Greek and Latin, which he could not procure in Greece. Theſe, to the number of 50,000, he placed in a tower, which he had erected in the metropolis of Buda; and in this library he eſtabliſhed 30 amanuenſes, ſkilled in painting, illuminating, and writing: who, under the conduct of Felix Raguſinas, a Dalmatian, conſummately learned in the Greek, Chaldaic, and Arabic languages, and an elegant deſigner and painter of ornaments on vellum, attended inceſſantly to the buſineſs of tranſcription and decoration. The librarian was Bartholomew Fontius, a learned Florentine, the writer of many philoſophical works, and a profeſſor of Greek and oratory at Florence. When Buda was taken by the Turks, in the year 1526, cardinal Bozmanni offered for the redemption of this ineſtimable collection 200,000 pieces of the Imperial money, but without effect; for the barbarous beſiegers defaced or deſtroyed moſt of the books, in the violence of ſeizing the ſplendid covers, and the ſilver boſſes and claſps with which they were enriched. Wharton's Hiſt. of Engliſh Poetry, vol. ii. p. 417.

CORVINDUM Nella. See Nella *Corvindum*.

CORVINUS, John Augustus, in *Biography*, an engraver, born at Leipſic in 1682. He went to reſide at Augſburg, where he engraved plates for ſeveral conſiderable works publiſhed in that city; but his ſtyle, though neat, is ſtiff and without taſte. He died at Augſburg in 1738.

Amongſt his engravings are ſeveral of the plates for a work called, "Repreſentatio Belli ob Succeſſionem in Regno Hiſpanico;" moſt of thoſe for "the Bible of Schenchtzer;" and a collection of views of churches in Vienna. Strutt. Heinecken.

Corvinus *Lapis*, in *Natural Hiſtory*, a name given by ſome to the *belemnites*; but by others to a very different body of a whitiſh colour, and oval figure, convex on one ſide, and concave on the other, and in the middle of the concave ſide there ariſes a tubercle: this is ſaid to be taken out of the head of a fiſh; and it is very poſſible that the authors may mean by this no other than our crab's eyes.

CORVIPETA Avis, in *Ornithology*. See Guit-guit.

CORULA, in *Ancient Geography*, an ancient town of India, on this ſide of the Ganges. Ptolemy.

CORUNCALA, a town of India, on this ſide of the Ganges. Ptolemy.

CORUNDUM. See Adamantine *Spar*.

CORUNNA, in *Geography*, a ſea-port town of Spain, in the province of Galicia; of which it is deemed the capital, being the ſeat of a royal audience, of a governor-general, and the intendant of the province. It is divided into the Upper and Lower Town; the former ſituated on the ſide of a hill, ſurrounded with walls, and defended by a caſtle; the latter, called alſo "Pexaria," is ſeated at the bottom of a hill, on a tongue of land, waſhed on three ſides by the waters of the Atlantic. The town is of a circular form, fortified in the ancient manner, and contains one collegiate and four pariſh churches, and four convents. The harbour, called by our mariners the "Groyn," is large and ſafe, and defended by two caſtles; 60 miles N. of Orenſe. N. lat. 43° 23′. W. long. 8° 17′.

CORVO, one of the African iſlands, uſually included under the general appellation of the Azores, though but improperly, as this ſmall iſland, as well as Flores, lying about a league to the N. of it, is diſtant 70 leagues W. of Tercera. This iſland is about 30 leagues in circuit, has a ſmall port, and contains about 500 inhabitants. It is ſaid to have derived its name from the vaſt number of crows obſerved here by its firſt diſcoverers, every tree and rock being covered with their neſts. Its productions are the ſame with thoſe of Flores. The Portugueſe are ſaid to keep poſſeſſion of theſe iſlands, not on account of their intrinſic importance, but in order to prevent other nations from eſtabliſhing themſelves here, and thus endangering the ſecurity of the Azores. N. lat. 39° 42′. W. long. 31° 6′.

CORVORANT, in *Ornithology*, *Corvus Aquaticus.* See PELECANUS *Carbo.*

CORVORANT, *red-faced*, of the Arctic Zoology. See PELECANUS *Urile.*

CORVORUM ANTRUM, in *Ancient Geography*, a mountain of Aſia, in Cilicia.

CORUS, or CORYS, a large river of Arabia, which diſcharged itſelf into the Red Sea. Herod. l. iii. 9.

CORUS. See KUR.

CORUS, OMER, HOMER, or CHOMER, in the *Jewiſh Antiquities*, a meaſure containing ten baths, or ſeventy-five gallons, and five pints, as a meaſure of things liquid, and thirty-two pecks and one pint, as a meaſure for things dry. The *corus*, or *omer*, was moſt commonly a meaſure for things dry, and the greateſt that was uſed among the Jews. It contained, according to the rabbins, ten ephas, or thirty ſata or ſeahs. *Corus* is the moſt uſual term in the hiſtorical writers, and *omer* or *chomer* among the prophets.

CORUS is alſo uſed in ſome of our old writers for eight buſhels, or a quarter; *decem* coros *tritici*, *ſive decem quarteria.*

CORUSCATION, (from the Latin *coruſcare*, to ſparkle, to dazzle,) denotes a tranſient or interrupted gleam of light iſſuing from any particular object; a ſparkling or glittering. Partial flaſhes of lightning, ſuch as appear in any particular part of the ſky, without illuminating the whole viſible hemiſphere, the flaſhing of the *aurora borealis*, or northern lights, and the ſudden lights of meteors, have been moſtly denominated coruſcations. The ſame appellation has likewiſe been applied to the flaſhings ariſing from certain chemical compounds, from phoſphoreſcent ſubſtances, from artificial electricity, from bright metallic armour, when expoſed to the light of the ſun or a fire; and, in ſhort, to every thing which may affect our ſight with a ſudden bright light.

Of the nature of the coruſcations which ariſe from lightning, from meteors, and from the *aurora borealis*, a particular account will be found under thoſe articles. The coruſcations which are produced from chemical preparations, from decompoſitions, and from artificial electricity, are deſcribed under the articles INFLAMMATIONS, PHOSPHORIC SUBSTANCES, and ELECTRIC *light.* We ſhall, however, in this place briefly deſcribe the preparation and the effects of a few by way of ſpecimens, and for the immediate ſatisfaction of the reader. As for the glittering of bright armour, ſwords, and the like, it is nothing more than a reflection of light which catches the eye at intervals; and it needs no farther illuſtration.

The eaſieſt experiment of the kind may be performed with any highly inflammable powder; but the moſt convenient are the powder or ſeeds of lycopodium, and the powder of roſin. A ſmall quantity (about a dram) of either of thoſe powders, held in a ſpoon, or in an open piece of paper, is thrown againſt the flame of a candle, or of a burning piece of paper, and a ſudden flaſh will enſue; for the powder being very light, will, on being thrown, diſperſe itſelf through the air; and, being highly inflammable, the fire will be inſtantly communicated from one particle to the next, and the whole will be conſumed. In this manner the imitations of lightning, and of other extraordinary fires, are performed at the theatres. Though the powder of lycopodium, and powdered roſin are equally fit for this purpoſe; yet the former is preferable to the latter, on account of its being a dry powder or a ſubſtance of no adheſive quality; whereas powdered roſin ſticks to the hands and to any thing on which it may fall; nor is it eaſily bruſhed off.

A very entertaining ſort of coruſcations is obtained by the uſe of phoſphorized lime. When a ſmall quantity (about 20 or 30 grains) of this preparation is thrown into a glaſs of water, bubbles of gas are ſucceſſively extricated from it, which, riſing to the ſurface of the water, are inflamed on coming in contact with the air of the atmoſphere, producing a flaſh of bright light. And as a ſucceſſion of ſuch bubbles is produced during a conſiderable time, a repetition of ſuch flaſhes will ſometimes continue for a quarter of an hour and upwards. In this experiment the gas, which is extricated from the preparation, is a phoſphorized hydrogen; and it is a property of this kind of gas to take fire the moment it comes in contact with the common, or reſpirable, air. As this gas has a very diſagreeable ſmell, in performing the above deſcribed experiment, it will be proper to place the glaſs either under a chimney, or on the outſide of a window, cloſe to the ſaſh.

An electrical experiment commonly known by the name of the *aurora borealis*, is peculiarly fit for ſhewing coruſcations. The apparatus conſiſts of a glaſs phial, in great meaſure exhauſted of air, and furniſhed with a braſs knob. By applying the hands to the outſide, and preſenting the braſs knob to the prime conductor of an electrical machine, this phial is charged; and in that ſtate it is either ſuſpended by a ſtring, or ſimply laid upon a table, in a darkened room, where flaſhes of light will be ſeen at intervals within the glaſs, and theſe will continue to appear for a very conſiderable time. It is from the ſimilarity of theſe flaſhes to the northern lights, that this phial has been called the *aurora borealis*. The effect is owing to the partial diſcharges of electricity from the ſurface of the glaſs.

A ſimilar effect may be produced by rubbing a piece of thick brown paper in a dark room; for the paper, thus excited, will dart flaſhes of electric light to the fingers, to a key, or to any other conductor of electricity, that may be preſented to it. But, in order to ſucceed, the paper muſt be thoroughly dry and warm, on which account the experiment can hardly ever be performed at a diſtance from the fire. However, if the fire in the chimney is not very bright, and the operator turns his back to it, the flaſhes on the paper will be ſeen ſufficiently clear.

CORUSCATULA, in *Natural Hiſtory*, a name given by Mr. Lhuyd to a ſpecies of foſſile plant of the fern kind, which that gentleman happened to find covered with a ſhining or gloſſy coat.

CORUSIA, in *Ancient Geography*, a town of Aſiatic Sarmatia, ſituated, according to Ptolemy, near the river Vardanus.

CORVUS, in *Antiquity*, a machine invented by an engineer in the Roman fleet at the time of their wars in Sicily, when they firſt engaged the Carthaginian fleet. For a deſcription of this machine, ſee Polybius, lib. i. p. 22. ed. Caſaub. See the article CORBEAU. By means of this new engine the Romans got a victory over the Carthaginians in their firſt ſea-fight with them, though the enemy were long before well ſkilled in naval affairs, and the Romans raw and ignorant.

The Carthaginians, conſidering the Roman machines, or corvi, as idle inventions of perſons not acquainted with the ſea, rowed up with confidence to the Roman gallies, and began the battle. The Romans, however, grappling with them by means of their corvi, and boarding their ſhips with great eaſe, fought hand to hand with them as upon firm ground. Being more expert at this kind of fight than the Carthaginians, and better armed, they ſoon gained the advantage over them and took 30 ſhips, with all their crews. Among theſe was the admiral's own galley, a ſeptiremis, which had been formerly taken by the Carthaginians from king Pyrrhus. Hannibal himſelf was on board of it; but when he ſaw the Romans entering his galley he leaped into a ſmall boat, and eſcaped. At length the reſt of the Carthaginian fleet, conſiſting of 120 gallies, came up, and fell upon the Romans. As they had greatly the advantage in the lightneſs of their veſſels, they nimbly rowed round the Romans gallies, in order to avoid the corvi. But the Romans having learned the art of working their ſhips, ſo as to preſent their machines to the enemy, which way ſoever they approached them, took 50 more of the Carthaginian ſhips, and obliged the reſt to retire into the neighbouring ports of Sicily. In two engagements the Romans took 7000 priſoners, killed 7000 men, ſunk 13 ſhips, and took 80. After this victory, Duilius, the Roman conſul, going aſhore, put himſelf at the head of the land-forces, relieved Segeſta, which was beſieged by Hamilcar, and made himſelf maſter of Macella, though defended by a numerous garriſon. Polybius, *ubi ſupra*.

Corvus, *Raven*, in *Aſtronomy*, a conſtellation of the ſouthern hemiſphere; whoſe ſtars in Ptolemy's Catalogue are 7; in Tycho's as many; in the Britannic Catalogue 9. See Constellation. For the luſtre of the ſtars in corvus, ſee Dr. Herſchel's ſecond catalogue in Phil. Tranſ. for 1796, pt. ii. vol. lxxxvi. p 468, &c.

Corvus, in *Ichthyology*, a name given by Paulus Jovius to the *faber*, or doree. See Zeus *faber*.

Corvus is alſo the name given by Pliny and Salvian to the *tub-fiſh*, or Trigla *Hirundo*; which ſee.

Corvus *piſcis*, the *crow-fiſh*, a river fiſh of the *chub kind*, common in Italy, and in ſome parts of Germany, and called by Geſner, *capito fluviatilis rapax*, and by the common people *rappe*. This is the Cyprinus *Aſpius* of Gmelin; which ſee. It ſeldom grows to more than ſix or ſeven (Gmelin ſays 12) pounds weight; it is an extremely rapacious fiſh, not leſs ſo than the pike, and very frequently chaſes its prey ſo hard as to drive them out upon the bank, and, in that caſe, he uſually follows them alſo, and both are frequently taken, ſtranded together. It is caught at all ſeaſons of the year, but never in any great abundance; it is eſteemed a very delicate fiſh.

Corvus, in *Ornithology*, a numerous and intereſting genus of the *Picæ* order. Theſe are the crows of Engliſh authors.

Birds of this kind have the bill convex and acute at the edges; the noſtrils covered with ſetaceous recumbent feathers; tongue cartilaginous and bifid; feet formed for walking.

Moſt of the ſpecies in this genus are found widely diſperſed over every part of the globe. They build in trees and lay about ſix eggs. Crows are of a ſocial nature, very clamourous, and promiſcuous feeds, ſubſiſting both on animal and vegetable food. Many birds of this tribe inhabit Britain.

Species.

Corax. Black; back blueiſh-black; tail roundiſh. Linn. Faun. Groenl. *Corvus*, Geſner, &c. *Corvus maximus*, Scop. *Corbeau*, Buff. *Il corvo reale*, Cetti. *Rabe* Friſch. *Raven*, Alb. &c.

From its ſuperior magnitude the raven is conſidered as the firſt ſpecies of the corvus genus; this weighing about three pounds, and in length meaſuring two feet, its breadth four. The general colour of its plumage is black richly gloſſed above with blue, and the under parts more obſcure. The raven inhabits Europe, Siberia, and North America, feeding on carrion, ſmall birds, eggs, fiſh, berries, &c. It is eſteemed a crafty bird, and of a thieviſh noiſy diſpoſition; it may be in a great meaſure domeſticated and taught to articulate. In this country it builds in high trees, but is obſerved to form its neſt in cavities of the rocks in Greenland and Iceland. It is the only kind of crow found in Greenland, where the fleſh is eaten by the natives and the ſkin employed as a covering next their bodies. The principal varieties of this bird are the *Cacalotl* of Fernand; found in New Spain, and is of the pied kind, being varied with white; the white raven of Norway, *Corvus albus* of Schwenck; and *Corvus borealis albus* of Briſſon. Neither of theſe can be conſidered as a permanent but as accidental varieties; ravens and other birds both of the pied ſort, and perfectly white having been occaſionally reared from the ſame brood with thoſe of the ordinary kinds.

Hottentottus. Greeniſh-black; tail even; whiſkers very large. Linn. *Monedula capitis bonæ ſpei*, Briſſ. *Choucas mouſtache*, Buff. Hottentot crow.

Size of a black bird; length ſeven inches and a quarter; the bill an inch and a half long, of a black colour and bent a little; the feathers about the noſtrils velvety, the corners of the mouth beſet with ſhort ſtiff briſtles, and the noſtrils furniſhed with whiſkers three inches long. The feathers on the head, throat, and neck are of a ſhining black green; thoſe on the upper part of the neck narrow and longer than the reſt, flowing over the back; the other parts of the plumage greeniſh-black changeable to blue; legs and claws black. This inhabits the Cape of Good Hope.

Clericus. Black; chin white, baſe of the bill cinereous. Sparman Muſ.

Inhabits Sweden according to the above-mentioned writer, and is extremely rare; the colour of the body is ſooty black above; the wings and tail inclining to dark olive. This is perhaps only a variety of the carrion crow.

Corone. Entirely black, with a violet blue gloſs; tail rounded, feathers pointed at the ends. Linn. *Cornix*, Ray, &c. *Corneille*, Buff. Carrion crow.

A ſpecies found in Europe, Siberia, North America, New Guinea, New Holland, and ſome other parts of the world. The length of this bird is eighteen inches, its form and manners much reſembling thoſe of the raven. Like that bird it builds its neſt on high trees, and lays about ſix eggs; it alſo delights in carrion and animal food like the raven, and makes great havoc among young game of all kinds. This bird, though ſo common in England, is ſaid to be very ſparingly met with throughout the northern parts of Europe.

A variety of this crow is deſcribed by Brunnich, which has the cheeks, fore part of the neck, middle of the belly, rump, and quills white, and the reſt of the plumage black. This is found in the Ferroe iſles. Schwenckfield mentions another kind which was wholly white, except the legs and bill; the colour was not pure white, and the irides were red.

Novæ Hollandiæ. Black, quill feathers browniſh black; feathers on the chin looſe. *Corvus auſtralis*, Gmel. South ſea raven.

A native of the Friendly iſlands and New Holland. The length is nineteen inches; the bill ſtrong at the baſe, and much compreſſed at the ſides; the plumage duſky black;

the feathers beneath the chin of a remarkably looſe texture; tail eight inches long, and the legs and claws black.

ALBICOLLIS. Blackiſh; wing-coverts brown; a broad ſemilunar white patch on the neck; bill carinated. Lath. &c. White necked South ſea raven.

This bird was firſt deſcribed by Dr. Latham, in the ſupplement to his Synopſis, from a ſpecimen in the Britiſh Muſeum. The bill in this is ridged and arched on the top of the upper mandible, like that of the ani, but is not ſharp at the edge. The general colour of the plumage is black, but the whole of the hind part of the neck in this ſpecimen is white, and advances in a ſomewhat creſcent form on the fore part; the bill is thicker, the legs more ſcaly and rough, and the claws larger than in the former bird; but whether it ought not rather to be regarded as the adult ſtate of that bird, than as a diſtinct ſpecies, ſeems uncertain. It is ſuppoſed to have been brought from Africa.

FRUGILEGUS. Black; front ſub-cinereous; tail roundiſh. Linn. Fn. Suec. *Cornix frugilega*, Aldr. Briſſ. &c. *Freux* or *frayonne*, Buff. Rook.

The rook inhabits moſt parts of Europe, and extends as far as weſtern Siberia. It is rather larger than the crow, but ſo nearly reſembles that bird in other particulars as to be ſcarcely diſtinguiſhed from it, except in having the ſkin about the noſtrils and baſe of the bill bare, while in the crow thoſe parts are well clothed with feathers and briſtly hairs. This is not a natural character, but ariſes from the habits of the bird, who is continually thruſting the bill into the earth in queſt of worms, and the larvæ of inſects, for it does not ſubſiſt on carrion like the other. The rook feeds on grain, and ſometimes treſpaſſes on cultivated grounds, to the injury of the huſbandman; but his good ſervices conſiderably overbalance theſe little depredations, in the extirpation of the maggots of the chafer bettle (cetonia melolonthæ), which, feeding at the roots of the corn, would oftentimes deſtroy whole crops, were they not deſtroyed by theſe uſeful birds.

This is a gregarious bird, and is ſometimes ſeen in immenſe flocks, ſo numerous indeed as to almoſt darken the air in their flights, which they regularly perform morning and evening, except in the breeding time, when the daily attendance of both male and female is requiſite to the purpoſes of incubation, or feeding their young. They build in the higheſt trees, beginning to form their neſts in March, and forſaking their breeding places when the young are reared. The young rooks are eſteemed good eating.

CORNIX. Dark-aſh; head, throat, wings, and tail black, Linn. *Cornix cinerea*, Briſſ. *Cornix cinerea frugilega*, Geſn. *Corneille mantelée*, Buff. Royſton crow. Albin, &c. Hooded crow.

Inhabits Europe, part of Aſia, and America likewiſe, if the crow mentioned by Kalm as being found in Pennſylvania is of this ſpecies. This bird is about the ſize of the rook, or rather larger; and twenty two inches in length. The plumage as above deſcribed; with the bill and legs black, and the irides hazel. Its manners coincide in ſome degree with thoſe of the rook, and the crow; like the latter feeding at times on carrion, young birds, and other defenceleſs animals; or at other times, like the rook, being content with inſects, ſeeds, and berries. They are alſo gregarious, and build in trees. It is found in the ſouthern parts of Britain only in the winter, but remains in Scotland throughout the year, and is the only kind of crow that inhabits the Scottiſh highlands.

DAURICUS. Black; crown blueiſh black; neck, throat, and belly white, Pallas. C. *dauricus*, Lath. *Corneille du Senegal*, Buff. Chineſe black raven, with white neck. Oſbeck. White-breaſted crow. Lath. Syn.

This bird is the ſize of a ſmall crow, and rather exceeding the length of twelve inches. The bill is black; the head and throat black, gloſſed with blue, as is alſo the reſt of the plumage, except the neck and breaſt, which are white. It inhabits Africa and Aſia. Pallas ſays it comes early in the ſpring in great flights from China, and the ſouthern Monguls country, into the parts about the lake Baikal, but they are moſt frequent about the towns and villages on the river Lena. This writer mentions a variety of theſe, the plumage of which is black, with the nape of the neck and throat brown.

CALEDONICUS. Cinereous; bill, eye-brows, tail, and legs, black. Gmel. New Caledonian crow. Lath.

The deſcription of this bird is taken from a drawing in the collection of ſir Joſeph Banks. The length is above fifteen inches; bill ſtout, and of a black colour; irides pale yellow; eye-lids black. General colour of the plumage cinereous, except the tail, which is five inches in length, and of a black colour; legs black. Inhabits New Caledonia.

JAMAICENSIS. Entirely black. Gmel. *Cornix Jamaicenſis*, Briſſ. *Corneille de la Jamaique*, Buff. Chattering crow, or cacao walk. Ray.

Size of a crow, with the bill and legs like the plumage, black. This bird is common in Jamaica, where it frequents the mountainous parts of the iſland. It makes a chattering noiſe, different from any of the European crows, and is eſteemed by ſome good eating. Its food conſiſts of berries and inſects.

MONEDULA. Black-brown; hind-head hoary; front, wings, and tail, black. Linn. *Graculus* or *monedula*, Geſn. *Monedula*, or *lupus*, Aldr. *Cornix garrula*, Klein. *Dohle*, Gunth. *Taccola*, Cetti. *Mulacchio nera*, Zinan. *Le choucas*, Buff. Jackdaw.

This bird, though abundant in Britain, is far from common throughout Europe; with us they remain the whole year; but are migratory in moſt other parts. They ſeldom build their neſts in trees like the rook, more commonly in rocks, old towers, and ruined edifices; and lay from five to ſix eggs, which are paler, ſmaller, and have fewer ſpots than thoſe of the crows.

There are many varieties of this bird, ſome of which it may be proper to notice. The Helvetian daw of Charlton, *le choucas à collier* of Briſſon, differs in having a collar of white round the neck; this is the collared jackdaw of Latham, and is found in Switzerland. The white jackdaw is entirely of a white colour, with the bill yellowiſh; *monedula candida* of Schwenck., and *le choucas blanc* of Briſſon. The black jackdaw of Engliſh writers is *le choucas noir* of Buffon and Schwarze *dohle* of Friſch. This kind differs from the common jackdaw in wanting the greyiſh tinge about the head, in being of a ſmaller ſize, and having many white ſpots about the eyes. Dr. Latham mentions one formerly in the Leverian Muſeum, which was "like the common ones in all things, except the mandibles, both of which croſſed each other, as in the croſs-bill." This is at preſent in the London Muſeum.

GLANDARIUS. Wing-coverts blue, with tranſverſe black and white lines; body ferruginous, inclining to vinaceous, Buff. *Corvus glandarius*, Linn. *Garrulus*, Briſſ. *Pica glandaria*, Geſn. *Ghiandaja*, Olina. *Jeay*, Buff. Jay.

The jay is a beautiful ſpecies, and meaſures about thirteen inches in length; it is common in our woods, and is well known to be a reſtleſs noiſy bird. They build in woods, making the neſt of ſticks, fibres of plant roots, and tender twigs; and lay five or ſix eggs, of the ſize of a pigeon's, the colour

colour of which is cinereous-olive, marked with pale brown. The young remain with the old ones till the next pairing-time, in ſpring, when each makes choice of a mate. In general they feed on acorns, nuts, ſeeds, and fruits of all kinds, and oftentimes deſtroy young chickens, or their eggs, ſmall birds, &c. The ſpecies is only partially diſperſed throughout Europe.

Briſſon deſcribes a variety of this bird, *le geay blanc*, and Dr. Latham mentions another of the ſame kind, his white jay. "This (ſays the laſt mentioned writer) is wholly white, the bill and eyes not excepted; and the iris red. I have ſuch an one in my collection, which was found in the neſt with four others of the common colour." The bird as deſcribed is in the London Muſeum at this time.

Argyrophthalmus. Black; breaſt blue; eyes ſilvery; tail white at the tip; bill and legs black. Jacquin. Surinam daw. Brown. Surinam crow. Lath.

This is the ſize of the common crow, and inhabits the woods of South America. The ſpecimen deſcribed by Dr. Latham, in the collection of Mr. Tunſtal, had loſt its tail. The two Gmelinian ſpecies of corvus, argyrophthalmus and ſurinamenſis, are to be conſidered as the ſame.

Cristatus. Blue; collar black; wing-coverts with tranſverſe black lines, Gmel. &c. *Corvus criſtatus*, Linn. *Garrulus canadenſis cæruleus*, Briſſ. *Pica glandaria criſtata*, Klein. *Le geay bleu de Canada*, Buff. *Haubenhaher*, Borowſk. Blue or creſted jay.

This bird is much ſmaller than our jay; the length eleven inches. The bill is black, and an inch in length. The head is creſted and blue; at the baſe of the bill black. A ſtreak of black paſſes on each ſide through the eyes, below the creſt, and behind it, and thence tending forward, unite, and form a creſcent on the breaſt. The ſides of the head and throat are blueiſh-white, and a ſpot of the ſame appears over each eye. The hind part of the neck and back are blue, as are alſo the wings and tail; the feathers of the latter, except the two middle ones, white at the tip, and the whole, together with the wings, elegantly barred with black. The breaſt is bloſſom-colour; legs duſky-brown; with the tail nearly as long as the reſt of the bird. The blue jay inhabits North America, eſpecially in New York and New England, where it is very common. It builds in ſwamps, and has a ſoft delicate note. It feeds on nuts, which, like the nutcracker, it breaks by placing between the feet, and pecking with the bill. Maize is a favourite food, and being a gregarious ſpecies, the blue jays often unite into flocks of twenty or thirty thouſand, which, alighting upon a plantation of a few acres, oftentimes lay waſte the whole; and it is hence conſidered the moſt deſtructive bird of America.

Stelleri. Body above black; beneath and wings blue; tail cuneated and blue; head creſted. Gmel. Steller's crow. Lath.

The length of this bird is fifteen inches. The bill is an inch and a half long, and of a black colour; with five or ſix black briſtles juſt at the gape. The head is creſted; the creſt above two inches in length, and compoſed of narrow brown feathers; the general colour of the reſt of the plumage purpliſh-black, inclining to green on the rump. Half of the wing-coverts is of a browniſh-black, the others of a deep blue. The ſecond quills are alſo blue, croſſed with eight or nine bars of black, in the ſame manner as the blue jay; the greater quills are black, with the outer edges blue-green; the fore part of the neck and breaſt duſky; belly and vent pale blue; legs black. The ſpecimen deſcribed came from Nootka Sound, where it was met with by our late circumnavigator, captain Cook, and is in the collection of ſir Joſeph Banks, bart. The bird was noticed before by Steller, and hence obtained the name ſtelleri.

Cayanus. Somewhat violaceous, beneath white; throat and front black; tail white at the tip, Gmel. *Garrulus cayenenſis*, Briſſ. *Geay de Cayenne*, Buff. *Blanche coëſſe*, Buff. Cayenne Jay.

About the ſize of our common jay. The bill an inch and a quarter long, and of a grey colour; the feathers which ſurround it, together with the forehead, cheeks, throat, and lower part of the neck, black. On each ſide of the head are three white ſpots; the firſt above the eye, the next beneath it, and the third at the baſe of the lower mandible. The back and wings are violet, tinged with aſh-colour. The tail violet, with the edges brown, and white tips, except the two middle ones, which are violet brown; legs and claws grey. Inhabits Cayenne.

Auritus. Somewhat creſted, and cinereous-brown; frontlet of the head and chin black; ſpot in front and at the ears white; quill-feathers black, edged with grey. Lath. *Petit geay de la Chine*, Sonnerat. White-eared jay.

Deſcribed from Sonnerat as a native of China, where it is ſaid to be common about Canton, and ſeen in flocks in Dean's iſland, Wampoo river, picking up food on the mud of the ſhore. It is the ſize of the blue jay; the bill black, with the ridge of the upper mandible ſharp; the top of the head creſted, and of a blueiſh-aſh colour; tail four inches long, of a ſomewhat rounded form, and curving a little downwards; legs pale brown, with the hind claw large, and much incurvated.

Purpurascens. Reddiſh, beneath pale yellow; head purpliſh; quill and tail-feathers black. Lath. Purple-headed crow.

The preſent ſpecies is deſcribed by Dr. Latham, on the authority of a drawing in the collection of the late Dr. Fothergill. The bill is lead-coloured; the noſtrils covered with reflected feathers; tail rather long, and legs fleſh-colour. Suppoſed to be a native of China.

Macensis. Greyiſh-aſh; back, wing-coverts, and vent red; forehead, quill-feathers, and tail black; ſecondary quill-feathers bimaculated with white. *Corvus ſinenſis*, Lath. *Corvus macenſis*, Gmel. *Pie de Macao*, Sonnerat. Macao crow, or Chineſe jay.

Inhabits China, eſpecially the iſland of Macao. Its ſize is one-third leſs than the common magpie. The bill and forehead black; irides yellowiſh; top of the head cinereous grey, neck and breaſt dirty grey; belly and thighs the ſame, but paler; rump cinereous grey; ſecond quills greeniſh-black; legs black.

Rufus. Reddiſh, beneath reddiſh-white; head and neck fuſcous; wing-coverts and ſecond quills grey; lateral tail-feathers grey, the extreme half brown, with the tips white. *Corvus rufus*, Lath. *Pie rouſſe de la Chine*, Sonnerat. Rufous crow.

This is the ſize of a black-bird, and has a black bill, the irides rufous yellow; breaſt and belly rufous white; back and rump yellowiſh, inclining to rufous; leſſer wing-coverts dirty rufous; tail cuneated and the two middle feathers brown at the ends; legs black. A native of China.

Caryocatactes. Brown dotted with white; wings and tail black; tail-feathers white at the tips, with the middle ones broken at the ends. Linn. *Corvus cinereus, cauda aliſque nigris.* Fn. Suec. *Caryocatactes*, Geſn. Ray &c. *Merula ſaxatilis*, Aldr. *Nucifraga*, Briſ. *Tannen-Heher*, Friſch. *Waldſtarl*, *Steinheher*, Kram. *Nuſkraehs*, Schranck. *Caſſe noix*, Buff. Nutcracker.

Found in various parts of Europe, but are moſt common, in Germany. Its ſize is that of a magpie, the bill nearly ſtraight, about two inches in length, and of a black colour; irides hazel; legs black. In its manners of life it reſembles the jay, but is ſaid to frequently pierce the trees like the woodpecker; the principal food of this bird is acorns, nuts, and the ſeeds of pines, or berries and inſects.

Balicassius. Black-green; tail furcated. Gmel. *Corvus ſplendide nigro-viridans*, Briſſ. *Choucas des Philippines*, Buff. Philippine crow.

This is the ſize of a black-bird; the plumage black, gloſſed with green; tail nearly four inches long, and much forked; the legs and claws black. The ſpecies inhabits the Philippine iſles where it is called Bali Caſſio, and is reputed a good ſongſter.

Novæ Guineæ. Front, frontlet, and tail black; head, neck, back, and upper part of the breaſt duſky-aſh; lower part, belly, vent, and rump white, tranſverſely ſtreaked with black. Gmel. *Choucas de la nouvelle Guinée*, Buff. New Guinea crow.

Inhabits New Guinea. Its ſize is that of a jackdaw, the bill ſtrong and blackiſh, the forehead and round the bill black paſſing in a ſtreak through the eyes, and a little behind them. The head, neck, back, and upper parts of the breaſt dark aſh-colour; wings duſky, edged with white; tail black; legs ſhort and duſky. A variety of this bird is deſcribed in Dr. Latham's Ind. Orn. which is of a cinereous colour, with the head and neck blueiſh; frontlet and band through the eyes black; breaſt and belly pale ruſty; and the legs fuſcous red and wrinkled.

Papuensis. Cinereous, abdomen white; wings blackiſh-brown. Gmel. *Choucas de la nouvelle Guinée*, Buff. Papuan crow. Lath.

The length of this bird is eleven inches, the bill yellowiſh, back of the upper mandible angular; legs ſmall and cinereous, claws ſhort. This kind inhabits New Guinea.

Nudus. Black; feathers on the cap downy; neck generally bare. Gmel. *Colnud de Cayenne*, Buff. Bare-necked crow. Lath.

A native of Cayenne. This is about the ſize of the *Monedula*; the bill is broad at the baſe, and of a dirty aſh-colour; legs yellowiſh; tail even.

Calvus. Ferruginous brown; front and crown bald. Gmel. *Choucas chauve*, Buff. Bald crow.

The great ſingularity of this bird conſiſts in the fore part of the head as far as the crown, and beyond the eyes, being bare of feathers, and the chin ſparingly covered: the bill is black and the legs duſky. A native of Cayenne.

Pacificus. Cinereous, inclining beneath to bay colour; hind head, neck, wings, and tail black, the two laſt tipped with white. Gmel. Pacific crow.

Length ten inches and a half, the bill ſtraight, ſomewhat bent at the end, and notched near the tip: legs and claws black. Inhabits the South Sea iſlands.

Tropicus. Black; vent dotted with dirty white; tail rounded. Gmel. Tropic crow.

The length of this bird is twelve inches and a half; the bill an inch and a quarter long, at the baſe rather broad, and the tips of both mandibles notched; the plumage of a gloſſy, black above, beneath more obſcure; wings and tail black gloſſed with green, the latter rounded; vent and feathers at the ſide tipped with whitiſh; legs and claws black. Deſcribed from a bird in the poſſeſſion of ſir Joſeph Banks, brought from O-why-hee, one of the Sandwich iſlands.

Erythrorhynchos. Body above fuſcous, beneath whitiſh; tail cuneated; quill-feathers at the baſe pale violet, in the middle black with the tips white. Gmel. Red-billed jay.

Rather larger than the common jay. The bill is red (whence its name); the fore part of the head, neck, and breaſt velvet black; hind part of the head and neck light grey, irregularly variegated with black on the fore part of the head. The body is tinged throughout with violet, which is moſt conſpicuous on the wings. All the feathers conſiſt of three colours, being of a light violet at the baſe, black in the middle, and white at the end; the legs are red, with the claws long, whitiſh, and hooked, and the point black.

Sinensis. Above tawny-red, crown brown; eye-brows white; tail brown and cuneated, with a black band towards the tip; and dirty white roundiſh ſpots near the end. Gmel. Chineſe jay.

The deſcription of this beautiful bird is taken from a drawing of Chineſe birds in the collection of the late Dr. Fothergill.

Sibericus. Above cinereous; beneath ruſty-orange; quill and two middle tail-feathers cinereous, the reſt orange. Gmel. *Geay de Siberie*, Buff. Siberian jay.

Inhabits Siberia, and meaſures in length about ten inches. The bill is duſky; front, cheeks, chin, and throat pale; crown ſomewhat creſted, and browniſh-black; rump ruſty-orange; legs cinereous. The manners of this bird are unknown.

Peruvianus. Above pale green; beneath pale yellow; crown white; a black narrow band down the chin and throat; the three exterior tail-feathers on each ſide yellow. Gmel. *Geay du Perou*, Buff. Peruvian jay.

Buffon deſcribes this bird, but on what authority does not appear; it is ſaid to be a beautiful ſpecies, and a native of Peru.

Flavus. Above greeniſh-brown, beneath yellow: chin and eye-brows white; wings and tail reddiſh-brown. Gmel. *Garlu ou Geay à ventre jaune de Cayenne*, Buff. Yellow-bellied jay.

The length of this ſpecies is nine inches. The bill like that of the common jay, ſtout, and of a duſky colour; along the middle of the crown is a longitudinal golden ſtreak; the legs are ſlender, ſtraight, and of a horn colour.

Senegalensis. Violet-black, tail cuneated; limbs black. Gmel. *Pica ſenegalenſis*, Briſſ. *Pie du Senegal*, Buff. African crow.

Inhabits Africa, about Senegal. The length is fourteen inches. Body beneath dirty black; bill black; quill and tail-feathers brown, edged with violet black. The Gmelinian corvus afer is imagined to be a variety of this ſpecies.

Cyaneus. Cinereous; crown deep ſhining black; wings and tail blue; tail-feathers very long, the middle ones tipped with white. Pallas. Blue crow.

About nine inches in length, and inhabits Dauria. The ſpecies is gregarious, timid, cunning, and noiſy, and builds among ſhrubs and willows.

Pica. Black and white variegated; tail cuneated. Linn. *Pica*, Nozeman. *Pica varia*, Geſn. Magpie.

There are ſeveral varieties of this ſpecies, one of which has the body longitudinally ſtreaked with black and white, and another the plumage white altogether. The magpie is a native of Europe, North America, and Aſia.

The magpie appears to be every where common in Britain; it is found as far to the ſouth as Italy, and to the north to Sweden and Denmark. Forſter met with it at Madeira, and it is alſo ſeen in America but not commonly. At

Hudſon's bay it is called Oue-ta-kee-aſke. In manners this bird approaches the crow, feeding indiſcriminately on animal and vegetable food; and is very deſtructive to gardens and orchards. It is a crafty, reſtleſs, clamorous bird, and if domeſticated when young may be taught to imitate the human voice; but its articulation is more defective than that of the parrot. The magpie builds its neſt with art, forming a thorny covering at top, and leaving a hole on the ſide for admittance; the eggs, about ſix or ſeven in number, are of a greeniſh colour thickly ſpotted with black.

CARIBBÆUS. Above ferruginous, beneath white; head, neck, and tail cuneiform, and ſtriated with blue and white; collar and ſpot on the hind head white. Gmel. *Galgulus antillarum*, Briſſ. *Pie des antilles*, Buff.

This is the ſame ſize as the common magpie. The bill and legs are red; ſpot on the hind head in the male tranſverſely lineated with black; rump and under tail-coverts yellow, the quill-feathers blueiſh-green; leſſer wing-coverts cheſnut, green in the middle, the greater wing-coverts blue with the ſhafts and edges whitiſh. In the female the greater wing-coverts are green. Deſcribed from Du Tertre's Hiſtory of the Antilles.

AFRICANUS. Above brown, beneath ſordid greyiſh; head ſomewhat creſted, and with the neck purple; tail cuneated and white at the tip. Gmel. African crow.

The length of this bird is twenty-two inches, the bill and legs red; feathers of the hind head tipped with grey; quill-feathers blueiſh at the outer margin. An African ſpecies.

ZANOE. Blackiſh; head and neck ſomewhat fulvous; tail long. Gmel. *Pica mexicana minor*, Briſſ. *Tzanahoei, ſeu Pica Mexicana Hernand.* Ray. *Zanoe*, Buff. Leſſer Mexican crow.

Inhabits Mexico, where it is ſaid to have all the manners of the magpie, as well as cunning, and learning to talk like that bird; its natural cry is not unlike that of a ſtarling.

BRACHYURUS. Green beneath; and lines on the head tawnyiſh; wings with a white ſpot. Gmel. *Merula viridis moluccenſis*, Briſſ. *Pica indica vulgaris*, Ray. *Breve de Bengale, & merle de Bengale*, Buff. Short-tailed crow.

This is the ſize of a blackbird; the bill grey-brown, with the corners of the mouth orange; irides whitiſh; head and throat black; over each eye a fulvous ſtripe, from the noſtrils to the hind head; back part of the neck, back, and ſcapulars fine green; throat, neck, breaſt, belly, ſides, and thighs fulvous; leſſer wing-coverts ſhining blue-green; quills black, on the firſt ſix a white ſpot about the middle; tail about an inch in length, black, with the tip green; legs orange; claws dirty red. Inhabits the Molucca iſles.

There are ſeveral varieties of this ſpecies, the principal of which are the following:

β. *Corvus Philippenſis*, Gmel. *Breve des Philippines.* The colour of this is green, with the head and neck black; rump and wing-coverts blueiſh-green; tail black; under-coverts roſy.

γ. *Corvus Bengalenſis*, Gmel. *Breve*, Buff. Madras jay of Ray, and Bengal quail of Albin. This inhabits Ceylon; the colour is green, beneath yellowiſh; head and neck black, ſtreaked with orange and white; quill and tail-feathers black. Klein calls this *coturnix capenſis*.

δ. *Corvus Madagaſcarienſis*, green, beneath yellowiſh; head blackiſh-brown; nape yellowiſh; black lunule on the neck, behind, and two bands of the ſame colour beneath the eyes.

ε. *Breve de Malacca*, Sonnerat. This has the head and neck black; eye-lids green, edged with blue; chin white; throat and back greeniſh; abdomen rufous; vent red. A native of Malacca.

ζ. *Breve de la côte de Malabar*, Sonnerat. The head and neck of this bird are black, with the crown and longitudinal band rufous; throat white; breaſt reddiſh; abdomen, thighs, and vent red. Found on the coaſt of Malabar.

η. *Chineſe ſhort-tailed crow.* Green; crown fuſcous; neck and collar white; nape and ſtripe through and round the eyes black; abdomen white; abdominal ſpot and vent ſcarlet. This elegant variety is deſcribed on the authority of a drawing in the collection of the late Dr. Fothergill. It is a native of China.

The ſhort-tailed crows are in general ſmall birds not exceeding the length of ſix or ſeven inches.

CANADENSIS. Fuſcous; front yellowiſh, beneath, and tail-feathers at the tip white. Gmel. *Garrulus canadenſis fuſcus*, Briſſ. *Geay brun de Canada*, Buff. Cinereous crow.

This bird inhabits Canada, and is frequent near Hudſon's bay, where it is known by the name of Whiſkijohn, and Whiſkijack; they breed early in ſpring, and build in pine-trees. The young brood ſeldom conſiſts of more than two or rarely three. Their food moſs, worms, and fleſh. It is rather ſmaller than the common jay.

PYRRHOCORAX. Blackiſh; bill pale-yellow; legs black. Gmel. *Choucas des Alpes*, Buff. Alpine crow.

Inhabits the Alps, and meaſures about 15 inches in length.

GRACULUS. Violet-blackiſh; bill and legs red. Gmel. *Coracias*, Aldr. Corniſh chough.

Length 16 inches. This ſpecies inhabits the Alps, and other parts of Europe, and is alſo found in Egypt and Perſia. They build chiefly in rocks, and feed on berries and inſects.

AUSTRALIS. Above black; beneath cinereous, with the bill red; wing-coverts ſpotted with white; tail rounded. Gmel. Cayenne red-billed crow.

This is about the ſize of the Miſſel-thruſh, &c. eleven inches in length. The bill is an inch and a half long, and curved, the colour red, and reſembling fine ſealing-wax; the legs are duſky; claws black. The native place of this bird is uncertain; it is ſuppoſed to be Cayenne.

EREMITA. Greeniſh; head yellowiſh; hind-head ſomewhat creſted; bill and legs red. Gmel. *Upupa eremita*, Linn. *Corvus ſylvaticus*, Geſn. Wood crow of Geſner. Will. Hermit crow. Lath.

Inhabits the Helvetian mountains, and is about the ſize of a common hen. They build in rocks and ruined buildings. In Switzerland it is known by the name of waldrapp, and ſteinrapp. Linnæus places this bird in the genus upupa, Briſſon in that of coracias, and Barrere calls it a ſpecies of curlew. Gmelin and Latham refer it to the genus corvus.

CORVUS *aquaticus*, *Pelecanus carbo* of Linnæus, the name given by authors to the bird commonly known by the name of the *cormorant*, or *corvorant*, on account of its voraciouſneſs, which is owing to a great quantity of ſmall worms filling its inteſtines, and cauſing a very ſudden digeſtion. This bird has a rank ſmell, diſagreeable form, and hoarſe, croaking voice. It is of the ſize of a gooſe, and is of a very deep duſky brown on the back, with ſome admixture of a greeniſh gloſs, and white on the belly and breaſt. It builds not only among rocks, but often alſo on trees. Theſe birds have been trained to fiſh, and are uſed by the Chineſe for this purpoſe.

Dr. Porterfield, (Treatiſe on the Eye, vol. ii. p. 265.) obſerves that the cryſtalline humour in this bird, and in other animals that dive in purſuit of their prey under water, and that ſhould ſee both when in water and upon land, is of a middle figure betwixt that of a lens and a globe; but this figure, it is evident, muſt refract the rays too much when upon land, and too little when in water. However, as they poſſeſs the power of changing the conformation of the eye, they are enabled to ſee diſtinctly enough both on land and in the water. Thus the cormorant is able to purſue its prey under water with ſuch nimbleneſs and activity, and for a long time, till at laſt it catches it with ſurpriſing dexterity; hence, after putting an iron ring at the bottom of its neck, ſo that the fiſh, being received into the oeſophagus, which is very large, may not deſcend into the ventricle; it is frequently employed in fiſhing, and is ſaid to afford a very agreeable diverſion. After it has ſeized the fiſh, it is ſaid always to throw it up into the air, and to catch it again by the head, as it falls down, that it may ſwallow it entire, or without loſs of time; but, becauſe of the ring about its neck, the fiſh gets no further than its gullet, which, being large and yielding, ſtretches into a large pouch or bag, in which the fiſh remain, till the bird is forced to come to land and to throw them up entire. The Greenlanders eat its fleſh, clothe themſelves with its ſkin, and uſe the bag under its throat for a purſe. See Pelecanus *carbo*.

Corvus *aquaticus*, the *water-raven*, is alſo a name given by ſome authors to the *acacalotl*, the Mexican Ibis of Latham, and the Tantalus *Mexicanus* of Gmelin, which ſee. It is a very beautiful Mexican water bird, of a ſhining, greeniſh, purpliſh hue. It feeds on fiſh, and is eaten, but is of a coarſe and fiſhy taſte.

Corvus *aquaticus minor*, a name by which Mr. Ray has very properly called a bird common on our northern coaſts, called there the *ſhagge*, and in ſome places the *crane*, the Pelecanus *Graculus*; which ſee.

Corvus *bengalenſis*, the Bengal roller of Latham, and the Coracias *bengalenſis* of Gmelin. See Coracias.

Corvus *cornutus*, a name by which ſome have called the Indian raven, with the horned beak, more uſually called the Rhinoceros *bird*, which ſee. This is a ſpecies of *Buceros*.

Corvus *ægyptius* of Haſſelquiſt, an Egyptian bird of the ſize of the lark; the Egyptian Grakle of Latham, and the Gracula *Atthis* of Gmelin, which ſee.

Corvus *fluviatilis*, the *river-raven*, a name given by ſome writers to a very remarkable bird of the Philippine iſlands, reſembling the common raven, but being of the amphibious kind. It is called in the language of the place *caſſili*, or *Colocolo*.

Corvus *Indicus*, the name of a bird of the raven kind, very common in the Molucca iſlands, very large, and armed with a very ſtrong beak and claws; it does not feed on carrion, as our raven, but eats the nutmegs, and does vaſt damage in deſtroying that fruit. Its fleſh is very delicate, and has plainly the aromatic flavour of its food; this is the Indian Hornbill of Latham, the Hydrocorax of Briſſon, and the Buceros *hydrocorax* of Gmelin.

Corvus *Paradiſi*, the Paradiſe fly-catcher of Latham, the pied-bird of Paradiſe of Edwards, the Muſcicapa Paradiſi of the Syſtem. Nat. and the Todus *Paradiſi* of Gmelin.

Corvus *Ruſſicus* of S. G. Gmelin, Corvus infauſtus of Fn. Suec., Merula ſaxatilis of Geſner, Ray and Briſſon, the greater Redſtart of Albinus and Willughby, and Rock ſhrike of Latham, is the Lanius *infauſtus* of Gmelin; which ſee.

Corvus *ſylvaticus*, the *wood-raven*, the name of a bird deſcribed by Geſner, and ſuppoſed by Mr. Willughby to be no other than the *coracias* or *pyrrhocorax*, the Corvus *graculus* of Gmelin; but, if rightly deſcribed, it differs eſſentially from that bird in ſize, and in having a creſt on its head. Geſner ſays, it is of the ſize of the common hen; it appears at a diſtance of a deep black, but, when viewed nearer, and in the ſunſhine, it appears of a fine gloſſy green; its tail is ſhort; its toes very long, and not webbed; and it has a creſt on its head. It feeds on frogs, fiſh, and other ſmall animals, and builds in the ruins of old buildings, and lays two or three eggs. They fly very high; the young ones are accounted a very well taſted food. This is the Corvus *Eremita* of Gmelin.

CORWEN, in *Geography*, a neat town on the banks of the Dee, over which is a handſome bridge, at the extremity of Merionethſhire, and cloſe to the borders of Denbighſhire; built on a rock at the foot of Berwyn hills. This was the territory of that renowned hero Owen Glendower, the formidable opponent of Henry IV. in the 14th century, whoſe gigantic features ſtill decorate the ſign-poſt of the principal inn, and whoſe whole diſtrict yet bears the name of Glendwrdwy, or the valley of the Dee. Near this town is the paſs of Glyndyffis, over which the great Iriſh road is conducted with ſingular contrivance, ſo as to eſcape the danger and yet to follow the winding of the torrent that precipitates from the hills with great force. The lands about Corwen are very fertile, and finely variegated with four deep and narrow vallies on each ſide, verging towards it, as the central point of a ſtar, while the naked and intervening hills gradually expand themſelves before the eye till they are terminated by the horizon. Corwen is remarkable for having been the place where the Welſh forces under Owen Gwynedd ſtopped the invaſion of Henry II. in 1161. At preſent it is a place of faſhionable reſort for anglers, who fiſh for trout, grayling, ſalmon, &c. the whole pariſh of Corwen contains, by the returns to the population act, 41 Geo. III., 251 houſes, and 1369 inhabitants.

CORY, in *Ancient Geography*, the name given by Ptolemy to an iſland of the Eaſt Indian ocean, in the Argaric gulf, N. of the iſle of Taprobana.—Alſo, a promontory of the peninſula on this ſide of the Ganges, called alſo *Colis*, and oppoſite to the northern point of Taprobane. Ptolemy. The iſland is now called Ramankoil, or the temple of Rama. The ridge of rocks extending from this iſland to Manar, on the iſland of Ceylon, denominated Adam's bridge, ſhould be entitled, as ſir William Jones maintains, Ramah's bridge; the preſent name of this promontory and iſland ſtrengthen his remark, it being uſual in the Oriental dialects to confound the D and R.

CORYBANTES, in *Antiquity*, prieſts of Cybele, who danced and capered to the ſound of flutes and drums. See Crotalum. (Horace, lib. i. ode 16. ver. 8.) They inhabited mount Ida in the iſland of Crete, where they are ſaid to have nouriſhed the infant Jupiter, drowning his cries by the tinkling of their cymbals, ſo that his father Saturn, who had determined to devour all his male offspring, might not hear them. The account of them occurs under different names of Curetes, Galli, and Idæi Dactyli, as well as Corybantes.

Catullus, in his poem called Atys, gives a beautiful deſcription of them; repreſenting them as madmen. Accordingly Maximus Tyrius ſays, that thoſe poſſeſſed with the ſpirit of Corybantes, as ſoon as they heard the ſound of a flute, were ſeized with an enthuſiaſm, and loſt the uſe of their reaſon. And hence the Greeks uſe the word κορυϐαντειν, *to corybantize*, to ſignify a perſon's being tranſported, or poſſeſſed with a devil. See Enthusiasm.

Some ſay that the Corybantes were all eunuchs; and that it is on this account Catullus, in his Atys, always uſes feminine epithets and relatives in ſpeaking of them.

Diodorus Siculus remarks, that Corybas, ſon of Jaſon and Cybele, paſſing into Phrygia with his uncle Dardanus, there inſtituted the worſhip of the mother of the gods, and gave his own name to the prieſts. Strabo relates it as the opinion of ſome, that the Corybantes were children of Jupiter and Calliope, and the ſame with the *Cabiri*. Others ſay, the word had its origin from this, that the Corybantes always walked dancing (if the expreſſion may be allowed) or toſſing the head, κορυπτοντες βαινοειν.

CORYBANTICA, a feſtival held in Crete, in memory of the Corybantes, who educated Jupiter when he was concealed in that iſland, from his father Saturn, who would have devoured him.

CORYBANTIUM OPPIDUM, in *Ancient Geography*, a name given to the town of Samos, in the iſle of Samothrace.

CORYBISSA, a place of Aſia, in Scepſia, a country of the leſſer Myſia, on the river Eurycis, according to Strabo.

CORYCE, a promontory of the iſle of Crete.—Alſo, a port of Ethiopia.—Alſo, a town of Pamphylia, ſituated in the vicinity of Attalæa.—Alſo, a mountain of Ionia, on the ſea coaſt, oppoſite to the iſle of Chios. On this mountain was a cave, famous on account of the Birth of Herophila, the Erythrœan ſibyl.

CORYCEUM, in *Antiquity*, that part of the gymnaſium where people undreſſed. It was otherwiſe called APODYTERION.

CORYCIDES, in *Mythology*, nymphs, the ſuppoſed daughters of a nymph beloved by Apollo, ſo called from the grotto of *Corycium*.

CORYCIUM, in *Botany*, (from κωρυκος, *a helmet*, alluding to the ſtructure and poſition of the flower.) Willd. 594. Swartz. Act. Holm. 1800. p. 220. Tracts on Botany, 146. Claſs and order, *gynandria monandria*. Nat. Ord. *Orchidæ*, Linn. Juſſ.

Gen. Ch. *Cal.* none. *Cor.* (Calyx, Juſſ. Swartz.) Petals four, erect; two exterior; one of them ſuperior, narrower; the other inferior, inverſely egg-ſhaped; the two others lateral, interior larger, retuſe, ventricoſe-concave at the baſe, connected with the upper exterior petal, and forming a kind of helmet; lip of the nectar with an attenuated baſe, inſerted at the tip of the ſtyle above the anther, folded back, ſpreading. *Stam.* Anther adnate to the middle of the ſtyle under the lip of the nectary, didymous, two-celled; cells rather remote, covered behind by the wings of the ſtyle; pollen-maſſes pedicelled. *Piſt.* Germ inferior, oblong, twiſted, ſtyle erect, very ſhort, narrower at the baſe, obtuſe and ringed at the tip; wings lateral, deflexed; ſtigma behind, convex (towards the helmet) below the cells. *Peric.* Capſule oblong, twiſted, one-celled, three-keeled, three-valved, dehiſcing at the angles under the keels, coherent at the apex and baſe. *Seeds* numerous, very ſmall, reſembling ſaw-duſt..

Eſſ. Ch. Corolla ringent; petals four, erect; the lateral ones ſwelling at the baſe; lip of the nectary inſerted into the ſtyle above the adnate anther.

Sp. 1. C. *orobanchoides*. Willd. 1. Swartz. Act. Holm. 1800. p. 222. (Satyrium orobanchoides: Linn. jun. Supp. 402. Thunb. prod. 6.) "Leaves linear, in two rows; helmet with two ſpurs." *Root* perennial. *Flowers* denſely intricated in two oppoſite rows, forming a ſpike longer than the ſtem. 2. C. *criſpum*. Willd. 2. Swartz. Ibid. Arethuſa criſpa; Thunb. prod. 3.) "Leaves oblong-lanceolate, undulate-curled at the edges." *Root* perennial. *Stem* many-leaved. *Spike* many-flowered, denſe. 3. C. *veſtitum*. Willd. 3. Swartz. ibid. (Ophrys volucris; Thunb. prod. 2.) "Leaves oblong, ſheathing the ſtem, and forming a kind of hood, ſpotted; ſpike cylindrical." *Root* perennial. 4. C. *bicolorum*. Willd. 4. Swartz. (Ophrys bicolor; Thunb.) "Leaves ſword-ſhaped, ſomewhat undulate." *Root* perennial. All the ſpecies are natives of the Cape of Good Hope.

CORYCIUM ANTRUM, in *Ancient Geography*, a cave or grotto on mount Parnaſſus, about 60 ſtadia from Delphi, on the aſcent of the hill.

CORYCUM, or CORYCEUS, a ſmall town in Aſia Minor, in Ionia. Strabo ſays that Attalus Philadelphus fixed a colony here. This is ſuppoſed to be the ſame with CORYCUS.

CORYCUS, a town of Aſia, in Cilicia, celebrated under the Roman emperors, who always kept a fleet in its port, which was conſiderable. The inhabitants of this city were governed by their own laws; and it was deemed an aſylum to thoſe who reſorted thither. It was epiſcopal according to the acts of the council of Conſtantinople, held here in the year 381.—Alſo, a promontory of Cilicia, ſituated E. of the river Calycadorus, and of the promontory Anemurium, according to Strabo. This author adds, that the "Corycium antrum" of Cilicia was ſituated at the diſtance of 20 ſtadia from the ſea.—Alſo, a mountain of Aſia Minor, in Ionia; which, according to Strabo, was very high, and had below it the port of Caſyſtes, and that of Erythræ.—Alſo, a port of Aſia Minor, in Ionia, at the foot of mount Corycus.—Alſo, a town of Aſia Minor, in Lycia, between Olympus and Phaſelis—Alſo, a mountain of the iſle of Crete;—and alſo a port of Ethiopia.

CORYCUS, whence CORYCOMACHIA, among the Greeks, a kind of exerciſe with the hand-ball. The ſize of the ball, and the materials of which it was prepared, were adapted to the age and ſtrength of thoſe who uſed it. It was ſuſpended from the ceiling, and thrown off with different degrees of force, ſo that on its return it might act with proportionable violence. It was recommended by the phyſicians as a ſalutary exerciſe. Hoffman.

CORYDALEPODIUM, in *Botany*, a name given by ſome authors to the *delphinium*, or *larkſpur*.

CORYDALES, the twenty-eighth natural order of Linnæus in the Syſtema Naturæ, and the twenty-fourth of the Poſthumous Prælections. In the former it conſiſts of the following genera: melianthus, epimedium, hypecoum, fumaria, impatiens, leontice, monotropa? utricularia? tropæolum? pinguicula. In the latter: melianthus, monniera, epimedium, hypecoum, fumaria, leontice, impatiens, utricularia, calceolaria? pinguicula. Tropæolum is removed to the order trichilatæ. Linnæus acknowledges that he does not find in this order any common mark, much leſs a difference from the other orders; but obſerves, that they have a degree of brittleneſs or tenderneſs diſtinct from all others, which, with their glaucous colour, indicates an affinity at firſt ſight.

CORYDALIS, a name given by the old botaniſts to the genus fumaria.

CORYDALIS *fungoſa*; Vent. Choix de plantes 19. See FUMARIA *fungoſa*.

CORYDALLA, in *Ancient Geography*, a town of Aſia Minor, in Lycia; called by Ptolemy *Corydallus*.

CORYDALLUS, a borough of Greece, in Attica, near Athens, belonging to the Hippothootide tribe.—Alſo, a mountain of Attica.

CORYLEUM, a village of Aſia Minor, in Paphlagonia; named Coryle by Xenophon.

CORYLUS, in *Botany*, (καρυα, Theoph. Diſcor.) Tourn. Cl. 19. § 1. gen. 2. Linn. Gen. 1074. Schreb. 1450. Willd.

1699. Gært. 557. Juſſ. 410. Vent. 3. 562. (Noiſetti; Encyc.) Claſs and order, *monœcia polyandria.* Nat. Ord. *Amentaceæ*, Linn. Juſſ.

Gen. Ch. *Male flowers* in a long cylindrical imbricated amentum. *Cal.* Scale one-flowered, narrowed at the baſe, obtuſe, three cleft; middle diviſion equal in length to the others, but twice the breadth, and covering them. *Cor.* none. *Stam.* Filaments eight, (ſix or eight; Gært.) very ſhort, attached to the inner ſide of the calycine ſcale; anthers ovate-oblong, ſhorter than the calyx, erect. *Female flowers* remote from the males, in a very ſmall ſomewhat globular amentum, ſeſſile, included within the bud. *Cal.* Perianth bifid, leathery, erect, lacerated on the margin, ſcarcely viſible during the time of floreſcence. *Cor.* none. *Piſt.* Germ roundiſh, very ſmall; ſtyles two, much longer than the calyx, coloured; ſtigmas ſimple. *Peric.* Nut egg-ſhaped, appearing raſped at the baſe, ſomewhat compreſſed towards the ſummit, ſurrounded by the greatly enlarged calyx. *Seed* ſolitary, very rarely two in a nut.

Eſſ. Ch. Calyx of the male a three-cleft one flowered ſcale. Corolla none. Stamens ſix or eight. Calyx of the female bifid, lacerated. Corolla none. Styles two. Nut egg-ſhaped, even-ſurfaced, one-celled, ſurrounded by the much enlarged coriaceous calyx.

Sp. 1. C. *avellana.* Linn. Sp. Pl. 1. Mart. 1. Poir. 1. Willd. 1. Gært. tab. 89. fig. 3. Lam. Ill. Pl. 780. "Stipules egg-ſhaped, obtuſe; leaves roundiſh, heart-ſhaped, acuminate; branchlets hairy." α. *ſylveſtris.* Bauh. Pin. 418. 5. Tourn. 582. Eng. Bot. 723. Common hazel-nut tree. β. *grandis.* Sativa, fructu rotundo maximo; Bauh. Pin. 418. 2. Cob-nut tree. γ. *glomerata.* Nucibus in racemum congeſtis; Bauh. Pin. 418. 4. Cluſter-nut tree. A low tree. *Leaves* alternate, on ſhort petioles, doubly ſerrated, heart-ſhaped, and narrowed at the baſe, pubeſcent, particularly underneath. *Flowers* appearing before the expanſion of the leaves; male catkins terminal, ſomewhat panicled, cylindrical, pendulous, tremulous, many-flowered, yellowiſh; ſcales pubeſcent on the outſide, fixed to a common receptacle, not deciduous; female flowers few, included in ſolitary, lateral, imbricated, egg-ſhaped buds; ſtyles ſcarlet, exſerted; calyx at firſt ſmall, afterwards, as the fruit ripens, much enlarged, coriaceous, two-lobed, lacerated at the tip. *Nut* egg-ſhaped, even-ſurfaced, hard, eſculent. A native of woods and hedges in Great Britain, and other parts of Europe. The kernel is very generally eaten, on account of its agreeable flavour, but contains little nouriſhment, is of difficult digeſtion, and produces unpleaſant effects on weak ſtomachs. A ſweet oil is extracted from it when dry, which is of an anodyne nature, and is found ſerviceable in obſtinate coughs. Several improved varieties have been produced by cultivation and importation from more favourable climates. The trivial name adopted by Linnæus is ſaid to be derived from Avellino, in the kingdom of Naples, but is rather improperly applied to our wild hazel-nut, as the nuts cultivated in the neighbourhood of that city are of the large kind, generally known in England by the name of Spaniſh nuts, and ſaid to have been originally imported by the Romans from Pontus. The trees are an excellent under-wood, and are cut down periodically for poles, fiſhing-rods, walking-ſticks, &c; their tough and flexible texture renders them peculiarly fit for wattled hurdles, crates, and ſpringles to faſten down thatch. They likewiſe burn into an excellent charcoal. 2. C. *tubuloſa.* Willd. 2. (C. avellana β and γ; Linn. Mart. Poir. C. ſativa, fructu albo minore, ſive vulgaris; & C. ſativa, fructu oblongo rubente; Bauh. Pin. 418.) Filbert tree. "Stipules oblong, obtuſe; calyx of the fruit tubular-cylindrical, preſſed cloſe, and gaſh-toothed at the tip; leaves roundiſh, heart-ſhaped, acuminate." Willdenow aſſerts that this is not, as Linnæus and other authors have ſuppoſed, a variety of the preceding ſpecies, ſince it conſtantly preſerves the diſtinguiſhing character when raiſed from ſeed. Miller had already made the ſame obſervation, to which Dr. Smith, in his Engliſh Botany, has in ſome degree given his ſanction. 3. C. *americana.* Willd. 3. Mich. Amer. 2. p. 201. C. americana humilis; Wangenh. Amer. 88. tab. 29. fig. 63. "Calyx of the fruit roundiſh-campanulate, larger than the nut; border dilated, tooth-ſerrated; leaves roundiſh, heart-ſhaped, acuminate." A low ſhrub. Taken up by Willdenow from a dried ſpecimen ſent from Canada, which had not preſerved its ſtipules; but as he has applied the ſynonym from Michaux alſo to the next ſpecies, and, by a ſtrange inadvertence, has copied *verbatim* the ſpecific character of that author under both, in the ſame page, and at the diſtance of only a few lines, further obſervation muſt determine whether they be really diſtinct. 4. C. *roſtrata.* Mart. 2. Hort. Kew. 3. 364. (C. americana; Poir.?) "Stipules lanceolate; leaves oblong-heart-ſhaped, acute; branchlets ſmooth; calyx of the fruit beaked." Hort. Kew. "Stipules lanceolate; leaves cordate-acute; fruit ſolitary." Poir. This ſpecies is remarkable for the length of the calyx, which, as in the filbert, continues to cover the fruit after it is ripe. It differs from the preceding, according to Poiret, in having the amenta of the flowers, eſpecially of the males, ſolitary. He believes the plant from which he formed his deſcription to be the ſame with that of Ayton, in the Hortus Kewenſis; it being cultivated in the garden of the muſeum of natural hiſtory at Paris, from ſeeds ſent ſeveral years ago from England. A native of North America. 5. C. *colurna.* Linn. Sp. Pl. 2. Mart. 3. Poir. 2. Willd. 5. (C. bizantina; Herm. Lugdb. 91. Seb. Muſ. 1. tab. 27. fig. 2. Avellana peregrina humilis; Bauh. Pin. 418. A. pumila bizantina; Cluſ. Hiſt. 1. 11.) "Stipules linear, acute; calyxes deeply cut; fruit very large." Linn. and Poir. "Stipules lanceolate-acuminate; calyx of the fruit double; outer one with many diviſions; inner one with three; ſegments palmate; leaves roundiſh, ovate, heart-ſhaped at the baſe." Willd. It differs from C. avellana chiefly in its fruit, which is rounder, twice as large, and entirely covered by the calyx. A native of the country about Conſtantinople.

CORYMBIA, one of the names given to the iſle of Rhodes.

CORYMBIFER, in *Mythology*, an epithet of Bacchus, in alluſion to the ivy-leaves which adorned his crown, and becauſe the ivy was ſacred to him.

CORYMBIFERA, in *Botany*, *millefolii umbella*; Rai. See Achillea *macrophylla*.

CORYMBIFERÆ, the third natural order of the tenth claſs in the ſyſtem of Juſſieu. It conſiſts of ſuch dicotyledonous monopetalous plants as have perigynous ſtamens, with the following diſtinguiſhing characters. *Flowers* either all floſculous, conſiſting entirely of regular tubular florets; or radiate, *i. e.* with the florets of the diſk regular, and thoſe of the ray irregular, and ſtrap-ſhaped. The florets of the former are moſt generally all hermaphrodite; the inner ones are ſometimes hermaphrodite, and the outer ones female or neuter; in a few inſtances, the inner ones are ſimply male, and the outer ones female. The florets of the latter are never all hermaphrodite; but have often regular hermaphrodite florets in the diſk, and ſtrap-ſhaped female, rarely neutral florets in the ray; or ſometimes male florets in the diſk, and female fertile ones in the ray. *Common calyx* one or many-leaved, ſimple, or calycled, or imbricate; generally

rally many-flowered. *Common receptacle* naked, or hairy, or chaffy. *Regular florets* moſt frequently quinquefid, rarely quadrifid, or trifid. *Strap-ſhaped florets* entire, or toothed. *Stamens* in the female and neutral florets none; in the hermaphrodite and male ones five, rarely four; anthers united into a tube, very rarely diſtinct and approximate. *Stigma* a continuation of the ſtyle, without a joint, double in the hermaphrodite and fertile female florets; ſimple in the male; ſimple or none in the abortive female ones. Seed naked or crowned. *Stems* generally herbaceous, ſometimes ſhrubby, or inclining to ſhrubby, almoſt always branched. *Leaves* in moſt caſes alternate, in a few oppoſite. *Flowers* generally yellow, or purple; florets of the diſk generally yellow; of the ray often of the ſame colour with the diſk, but ſometimes of a different colour.

Vaillant firſt called the flowers of this order corymberiferous, becauſe they moſt commonly form a corymb, ſometimes widely ſpreading, and ſometimes compact. They comprehend all the radiate, and many of the floſculous flowers of Tournefort, which Juſſieu aſſerts cannot be ſeparated, ſince genera in both are nearly allied to each other, as bidens and verbeſina, anacyclus and anthemis, &c. and ſince flowers of both kinds are ſometimes found in the ſame genus, as in tuſſilago, ſenecio, &c. They include all the compound flowers of Linnæus, with the exception of the capitate and ſemifloſculous, which compoſe the firſt two diviſions in his natural order compoſitæ; and conſtitute more or leſs of all the ſix orders of his artificial claſs ſyngeneſia.

As the genera are numerous, Juſſieu divides them in the following manner: I. *Receptacle naked. Seed pappous. Flowers floſculous (radiate in mutiſia, barradeſia, and leyſera). Kuhnia*, cacalia, eupatorium, ageratum, *elephantopus, chuquiraga, mutiſia, barnadeſia*, xeranthemum, gnaphalium, filago, *leyſera, ſhavia, ſeriphium, ſtæbe*, conyza, baccharis, chryſocoma. II. *Receptacle naked. Seed pappous. Flowers radiate (ſome of the ſpecies in tuſſilago and ſenecio are deſtitute of a ray)*. Erigeron, aſter, ſolidago, inula, *perdicium*, tuſſilago, *brachyglottis*, ſenecio, cineraria, othonna, *didelta*, tagetes, pectis, bellium, doronicum, arnica, gortenia. III. *Receptacle naked. Seed not pappous. Flowers radiate.* Oſteoſpermum, calendula, madia, chryſanthemum, matricaria, bellis, cenia, lidbeckia. IV. *Receptacle naked. Seed not pappous. Flowers floſculous.* Cotula, *adenoſtemma, ſtruchium*, grangea, *ethulia*, carpeſium, *hippia*, tanacetum, artemiſia. V. *Receptacle chaffy. Seed not pappous. Flowers generally radiate, rarely floſculous. (Tarchonanthus, calea, and athanaſia are ſlightly pappous.)* Tarchonanthus, *calea*, athanaſia, micropus, ſantolina, anacyclus, anthemis, achillea, erocephalus, buphthalmum, *oſmites*, encelia, *ſclerocarpus, unxia, flaveria*, milleria, ſigiſbeckia, polymnia, baltimora, eclipta. VI. *Receptacle chaffy. Seed toothed or chaffy at the tip. Flowers in moſt radiate, in a few floſculous. (The receptacle of helenium almoſt naked).* Spilanthus, bidens, verbeſina, coreopſis, zinnia, *ballieria*, ſilphium, *melampodium, chryſogonum*, helianthus, helenium, rudbeckia, *tithonia*, galardia, *wedelia, oedera*, agriphyllum. VII. *Receptacle chaffy. Seed pappous; pappus plumoſe, capillary, or awn-like. Flowers often radiate.* Arctotis, tridax, amellus, *paradiſium, ceruana.* VIII. *Anomalous. Anthers approximate, not united. Calyx monoicous.* Iva, *clibadium*, parthenium. IX. *Anomalous. Anthers approximate, not united. Calyxes dioicous.* Ambroſia, xanthium, *nephelium.* The firſt two are removed by Ventenat to urticæ.

Ventenat has retained the order, but has omitted ſome of Juſſieu's genera, added others, and given a different arrangement to the whole. It ſtands thus in his "Tableaux du regne Vegetal." I. *Receptacle naked. Seeds pappous. Flowers floſculous.* A. Scales of the calyx not ſhining. Cacalia, eupatorium, ageratum, conyza, baccharis, chryſocoma. B. Scales of the calyx ſcarious, or membranous and ſhining. *Elichryſum*, filago, *argyrocome, antennaria.* II. *Receptacle chaffy. Seeds naked, or very rarely almoſt naked. Scales of the calyx often ſcarious.* Micropus, *evax*, gnaphalium, xeranthemum, athanaſia, ſantolina, anacyclus. III. *Receptacle chaffy. Seeds naked. Flowers radiate.* Anthemis, achillea, eriocephalus, buphthalmum, encelia, milleria, ſigeſbeckia, polymnia, baltimera, eclipta. IV. *Receptacle chaffy. Seeds either toothed or awned. Flowers almoſt always radiate.* A. Flowers floſculous, ſpilanthus, bidens. B. Flowers radiate, verbeſina, coreopſis, *ſanvitalia*, zinnia, ſilphium, helianthus, helenium, rudbeckia, galardia, *alcina*, agriphyllum. V. *Receptacle chaffy, rarely villous. Seeds pappous. Flowers radiate.* A. Receptacle villous. Arctotis. B. Receptacle paleaceous. *Urſinia*, tridax, amellus. VI. *Receptacle naked. Seeds pappous. Flowers radiate (Floſculous in ſome ſpecies of ſenecio and tuſſilago).* Erigeron, aſter, ſolidago, inula, *pulicaria*, tuſſilago, ſenecio, cineraria, othonna, tagetes, pectis, bellium, doronicum, arnica, gorteria. VII. *Receptacle naked. Seeds not pappous. Flowers radiate.* Oſteoſpermum, calendula, madia, chryſanthemum, *pyrethrum*, matricaria, bellis, cenia, ledbeckia. VIII. *Receptacle naked. Seeds not pappous. Flowers floſculous.* Cotula, grangea, carpeſium, tanacetum, *balſamita*, artemiſia. IX. *Receptacle villous. Seeds not pappous. Flowers floſculous. Abſinthium*, tarchonanthus. X. *Anomalous. Anthers diſtinct.* Iva, parthenium. The genera printed in Italics occur in the arrangement of only one of the French botaniſts.

CORYMBIUM, in *Antiquity*, an ornament of hair worn by the women. Its form was that of a *corymbus*.

CORYMBIUM, in *Botany* (from κορυμβος, *a corymb*), Linn. Gen. 1004. Schreb. 1361. Willd. 408. Gært. 547. Juſſ. 176. Corymbiole; Enc. Claſs and order, *ſyngeneſia monogamia*, Linn. *Pentandria monogynia*, Willd. Nat. Ord. *Compoſitæ diſcoideæ*, Linn. *Cinarocephalæ anomalæ*, Juſſ.

Gen. Ch. *Cal.* two-leaved, one-flowered, inferior, long, priſmatic, ſix-angular; leaflets erect, converging longitudinally, triangular at the back, truncated, obſcurely three-toothed; with a calycle conſiſting of four or five very ſmall leaves or ſcales. *Cor.* monopetalous, regular; tube very ſhort; border with five oblong ſpreading ſegments. *Stam.* Filaments five, ſimple, erect, attached to the tube; anthers oblong, erect, united into a hollow cylinder. *Piſt.* Germ within the calyx, inferior to the corolla, hirſute; ſtyle ſimple, erect; ſtigma bifid. *Peric.* none, except the unchanged calyx (utricle hairy, cloſely inveſting the ſeed, Gært.) *Seed* ſingle, oblong, almoſt the length of the calyx, covered with a wool reſembling down (crowned with a pitcher-ſhaped chaffy calycle, Juſſ.)

Eſſ. Ch. Calyx inferior, two-leaved, priſmatic. Corolla funnel-ſhaped, ſuperior. Seed woolly.

Sp. 1. C. *ſcabrum.* Linn. Syſt. Nat. 1. Mart. 1. Lam. 2. Willd. 1. Lam. Ill. Pl. 723. fig. 1. Burm. afr. 189. tab. 70. fig. 1. (Bupleurifolia; Pluk. alm. 73. tab. 272. fig. 5.) "Leaves linear, channelled, nearly ſmooth; ſtem, bractes, and calyxes villous-ſcabrous." *Root* perennial, with a thick, very woolly crown. *Stem* a foot high, reddiſh, cylindrical. *Root-leaves* ſlightly ſtriated, ſhorter than the ſtem. *Flowers* purple, in very cloſe, erect, terminal faſcicles, diſpoſed in a corymb. 2. C. *glabrum.* Linn. Syſt. Nat. 2. Mart. 2. Lam. 3. Ill. Pl. 723. fig. 2. (Bupleuro ſimilis; Pluk. alm. 73. tab. 272. fig. 4.) "Quite ſmooth; leaves ſword-ſhaped, flat, nerved." Crown of the root and baſe of the leaves very woolly. *Stem* nearly cylindrical, about a foot high. *Root-leaves* from ſeven to nine inches long, five or ſix lines broad. *Stem-leaves* ſhort, acute, embracing the ſtem, a little villous at their axils. *Flowers* in numerous faſcicles, which compoſe a looſe, rather large, terminal corymb or panicle. 3. C. *gramineum*; Lam. 1. Ill. Pl. 723. fig. 3. (C. filiforme; Linn. jun.?) "Leaves linear, nerved, quite ſmooth, erect; corymb ſmooth, ſtiff, and ſtraight." Crown of the root very woolly. *Stem* eight or nine inches high. *Root-leaves* a line, ſometimes a line and half broad, ſlightly channelled. *Stem-leaves alternate*, embracing the ſtem; upper ones gradually leſſening into ſcales. Communicated to La Marck by Sonnerat. 4. C. *villoſum*. Linn. jun. Supp. 392. Mart. 4. Willd. 4. "Villous-woolly; ſtem-leaves embracing the ſtem, awl-ſhaped; ſtraight, flat." All the ſpecies are natives of the Cape of Good Hope.

CORYMBUS, a corymb, (*κορυμβον*, or *κορυμβος*, a branch or cluſter crowning the ſummit of a plant), is uſed by Linnæus to expreſs a particular form of infloreſcence, the definition of which is, "a ſpike whoſe partial flower-ſtalks are gradually longer as they ſtand lower on the common ſtalk, ſo that all the flowers are nearly on a level." This is well exemplified in *Spiræa opulifolia*, a frequent ſhrub in gardens. Other examples of the ſame are found in the *Tetradynamia* claſs of Linnæus, as the Wall-flower, Stock, Cabbage, &c. The flowers of the Mountain Aſh, and of Yarrow, are alſo diſpoſed in a corymboſe manner, that is, they form a nearly level ſurface, though their various ſtalks ſpring from various points, and are conſequently of different lengths. The ſtalks alſo in theſe laſt-mentioned plants are ſubdivided, conſtituting a compound *corymbus*, and differing from a cyme in not originating collectively from any general point of union. See CYMA.

The above definition, taken from Linnæus, implies that his own original character of a ſpike, which requires the flowers to be all ſeſſile (without partial ſtalks) on one common ſtalk, was not obſerved even by himſelf. Nor indeed can it be rigidly adopted, for the lowermoſt flowers, even in a true ſpike, are often ſtalked, and all of them, though originally ſeſſile, are liable to acquire ſtalks as they ripen their fruit. A corymb, however, after flowering, becomes a true *racemus*, or cluſter. See SPICA and RACEMUS. S.

CORYNA, in *Ancient Geography*, a town of Aſia Minor, in Ionia, on the ſea-coaſt, between Clazomenæ and mount Corycus.—Alſo, a town of Peloponneſus in the Elide, at a diſtance from the ſea. Ptolemy.

CORYNEUM PROMONTORIUM, a promontory of Aſia Minor, in Ionia, being part of mount Mimas, which extended ſo far.

CORYNOCARPUS, in *Botany*, (from κορυνη, *a club*, and καρπος, *fruit*.) Forſt. Gen. 16. Linn. jun. Supp. 21. Schreb. 394. Juſſ. 288. Claſs and order, *pentandria monogynia*. Nat. Ord. *Berberides*, Juſſ.

Gen. Ch. *Cal.* Perianth inferior, five-leaved; leaves oblong, concave. *Cor.* Petals five, roundiſh, narrowed at the baſe, erect. Nectaries five, petal-ſhaped, alternate with the petals, nearly the ſame length, but narrower; each with a globular gland at the baſe. *Stam.* Filaments five, awl-ſhaped, attached to the baſe of the petals; anthers oblong. *Piſt.* Germ ſuperior, globular; ſtyle ſhort, filiform; ſtigma obtuſe. *Peric.* Nut club-ſhaped, with an oblong kernel.

Eſſ. Ch. Nectaries five, petal-ſhaped, alternate with the petal, glandulous at the baſe.

Sp. C. *lævigata*. Forſt. Gen. 31. tab. 16. *Leaves* alternate, petioled, obovate or wedge-ſhaped, ſlightly emarginate, entire, veined, quite ſmooth. *Panicle* terminal, ſeſſile, large. *Flowers* white. A native of New Zealand.

CORY̆PHA, (from κορυφη, *vertex*, becauſe it bears its leaves only on the top of the ſtem.) Linn. Gen. 1221. Schreb. 1690. Gært. 23. Juſſ. 39. Vent. 2. 124. Claſs and order, *palmæ flabellifoliæ*, Linn. Nat. Ord. *Palmæ*, Juſſ.

Gen. Ch. *Cal.* Spathe univerſal, none. Spathes partial, numerous; alternate, on a common peduncle or ſpadix, one-leafed, embracing the peduncle, producing panicles of hermaphrodite flowers. Perianth proper, ſhort, with three diviſions. *Cor.* Petals three, egg-ſhaped, concave, half open, longer than the calyx. *Stam.* Filaments ſix, about the length of the petals; anthers almoſt arrow-ſhaped, ſhort, verſatile. *Piſt.* Germ ſuperior, conical; ſtyle ſhort; ſtigma obtuſe, pubeſcent. *Peric.* Berry (Linn. Gært. Juſſ. Lam. Drupe; Vent.) ſpherical, ſmooth. *Seed* ſolitary, bony; with a white, rather firm kernel.

Eſſ. Ch. Flowers hermaphrodite. Spathe univerſal, none. Spathes partial, numerous. Berry or drupe globular. Seed bony.

Sp. 1. C. *umbraculifera*. Linn. Sp. Pl. Mart. 1. Lam. 1. (Codda panna; Rheed. Mal. 3. tab. 1. 12. Talipot; Knox Ceyl. Palma Montana; Rai. Hiſt. 1367.) Great fan-palm. "Fronds pinnate-palmate, plaited; petioles ciliate-ſpinous; ſpadix erect." *Trunk* ſixty or ſeventy feet high, cylindrical, even-ſurfaced. *Leaves* eight or ten at the ſummit of the trunk, fourteen feet broad, and eighteen long excluſive of the petiole, forming a faſcicle or head of about forty feet in diameter, really pinnated, but the leaflets are ſo plaited and joined together, about two-thirds of their length, as to appear palmate or fan-ſhaped, connected in their upper diſtinct part by a thread. *Spadix* riſing from the centre of the leaves, and in the ſpace of three or four months growing to the height of about thirty feet, conical, entirely covered with cloſe imbricated ſcales, or partial ſpathes, branched; branches ſimple, alternate, covered with ſimilar ſcales; lower ones twenty feet long; the whole having the appearance of a magnificent chandelier. *Flowers* whitiſh, in compound panicles, which proceed from the ſcales of the branches, ſeſſile, ſeveral together, in cylindrical pendulous ſpikes. They have ſo ſtrong and overpowering a ſcent, that the inhabitants frequently cut down thoſe trees which grow near their houſes, ſoon after the ſpadix begins to ſhoot. *Fruit* about an inch and half in diameter, exactly ſpherical, ſmooth and even, green, fleſhy, ſucculent, ſomewhat oily, and rather bitter; not eatable. This palm does not flower before it is thirty-five or forty years old, and is above fourteen months in ripening its fruit, after the firſt appearance of the ſpadix. The ſpadix then withers, and the whole plant preſently periſhes. A ſingle tree produces more than twenty thouſand berries. But though theſe are of little or no value, the tree itſelf is far from being uſeleſs. Its abundant pith, pounded in a mortar, is made into a tolerable kind of bread, and is very ſerviceable in times of ſcarcity, when there is a failure of rice. The expreſſed juice of the tender branches of the ſpadix, is a powerful emetic, and is ſaid to be beneficial to perſons who have been bitten by ſerpents. A liquor is obtained from the unripe fruit, which ſoon condenſes into a concrete ſubſtance, and is medicinally preſcribed to facilitate the paſſage of a dead fœtus. This drug is ſometimes abuſed by unhappy females for the purpoſe of procuring abortion. But the leaves are of moſt frequent uſe. One of them reduced to a roundiſh form by cutting off the expanding points of the leaflets, will ſhelter ten or a dozen men from a heavy rain, or the burning rays of the ſun. They are ſufficiently firm to be employed by the country people for the covering of their houſes, and by the ſoldiers inſtead of canvas in the conſtruction of their tents. They are alſo a kind of natural paper, which requires no previous proceſs to fit it for uſe; and moſt of the books which are ſhewn in Europe for the Egyptian papyrus, are compoſed of theſe leaves. The characters are cut by a ſharp-pointed iron ſtyle, which, penetrating the epidermis, makes indelible marks on a very durable ſubſtance. A native of the coaſt of Malabar, the iſland of Ceylon, and other parts of the Eaſt Indies. 2. C. *rotundifolia.* Lam. 2. (Saribus; Rumph. Amb. 1. 42. tab. 8.) "Fronds orbicular, palmate-peltate, plaited in a radiate form; petioles ciliate-ſpinous; ſpadixes pendulous." This ſpecies was confounded with the preceding by Linnæus, in oppoſition to Rumphius himſelf, who thought his ſaribus diſtinct from the Codda-panna of the hortus malabaricus. Juſſieu ſuſpects it to be ſo, and Loureiro has confirmed the opinion. But to put the matter out of doubt with European botaniſts, there is, or lately was, a fine plant of it in the imperial garden at Schoenbrunn, near Vienna, where it was ſeen by La Marck. It was then young, and had not begun to form a ſtem. Rumphius has given the following deſcription of it in its ſtate of maturity. *Trunk* thicker and more lofty than that of the Areca. *Leaves* about ten, in a looſe faſcicle at the top of the trunk, three or four feet in diameter, plaited from a common centre, and diverging in all directions, till they form ſeparate acute leaflets; petioles near ſix feet long, ſlightly channelled, bordered by ſmall ſharp teeth. *Peduncles* or ſpadices ſeveral, riſing from the midſt of the leaves, about three feet long, pendulous, reddiſh. *Flowers* in compound racemes, or long panicles. *Fruit* ſpherical, ſcarcely the ſize of a piſtol ball, at firſt of a beautiful orange colour, which ſoon becomes black. A native of the Molucca iſlands, where its leaves and pith are applied to the ſame purpoſes as thoſe of the Codda-panna, on the coaſt of Malabar, &c. The leaves on account of their firmneſs and pliability are much uſed to wrap up fruit, tobacco, and other commodities. 3. C. *minor.* Mart. 2. Lam. 3. Jacq. Hort. 3. 8. tab. 8. (C. pumila; Walter. Chamærops acaulis; Michaux. Sabal; Adan. 495. Sabal Adanſonii; Guerſent.) "Fronds palmate, fan-ſhaped, plaited, ſomewhat bifid; petioles not ſpinous." A dwarf plant, with the habit of a Chamærops. Crown of the root thick, reſembling a bulb. *Leaves* ſpringing from the crown of the root, ſmooth, rigid, ſtriated, plaited below, and ſeparating upwards into ſword-ſhaped, acute ſegments; petioles a foot or a foot and half long, even-ſurfaced, ſlightly channelled or flat above, round underneath. *Spadix* erect, two or three feet high, riſing among the leaves from the crown of the root, cloathed with membranous ſheathing ſpathes. "*Flowers* in panicled racemes, ſeſſile, ſmall, white, without ſcent; germ trigonous, roundiſh; ſtyle conical, three-furrowed. *Fruit* about the ſize of a pea, of a ſweet taſte, ſmooth, black, not very ſucculent. A native of marſhy ground in Carolina. It flowered firſt in Europe, in the imperial garden at Schoenbrunn, in 1773. M. Guerſent, who has ſeen the plant flower and fruit ſeveral times in the botanic garden at Rouen, follows Adanſon in making it a diſtinct genus, and gives the following as its eſſential character. "*Flowers* hermaphrodite; ſpathes partial; ſtamens ſix, free; filaments thickened at the baſe; germs three, coadunate; berries three, monoſpermous; two generally abortive; ſeed bony; embryo lateral." According to this deſcription, it differs from the preceding chiefly in the number of its germs and berries; and in the ſituation of the embryo, which is ſaid by Gærtner to be at the baſe of the ſeed in corypha. But as neither of the Aſiatic plants have flowered in Europe, and have not been deſcribed from recent ſpecimens by any modern botaniſts, it does not appear certain that they alſo have not abortive germs. And with reſpect to the ſituation of the embryo, we cannot think it ſufficiently important to be admitted into a generic character. See Annals of Botany, vol. ii. p. 199.

CORYPHA, in *Ancient Geography*, a mountain of India, near the Ganges, in which was a temple of Diana Orthia.—Alſo, a mountain of Aſia, in Syria, between Antioch and Berœ; the Coryphæus of Polybius.—Alſo, a mountain of Aſia Minor, in the vicinity of Smyrna.—Alſo, an ancient name of Libya, a province of Africa.

CORYPHÆNA, in *Ichthyology*, a genus of the thoracic tribe. The fiſhes of this kind have the head ſloping ſuddenly downwards; the gill membrane furniſhed with five rays, and the dorſal fin extending the whole length of the back.

Species.

Hippurus. Sea-green, ſpotted with orange; tail forked; dorſal fin with about ſixty rays. Gmel. &c. Common coryphene.

The Coryphæne genus is in general diſtinguiſhed from the peculiar brilliancy of its ſpecies, none of which appear, however, in this reſpect to excel the preſent kind. The C. Hippurus grows to the length of three, four, or five feet, its colour a beautiful blue-green, gloſſed with gold on the back and ſides, and becoming ſilvery towards the abdomen. The upper parts are marked with a number of round orange-coloured ſpots; the head large, but ſhort and very much compreſſed; the lips ſtrong, the mouth wide, and armed with four rows of teeth, which are ſmall and incurvated. The fins are green, with a tinge of yellow on the rays. When in the water, this fiſh appears gloſſed with the fineſt golden hue imaginable, and hence it obtains the name of dorado among the Portugueſe. But, on being taken out of the water, the beautiful combination of its colours, and golden ſplendour, gradually fade till the fiſh expiring, it becomes altogether of a cinereous caſt, with ſcarcely a trace remaining of its original luſtre. Our ſailors call this brilliant fiſh the dolphin, but erroneouſly, the dolphin of ancient writers being of the cetaceous tribe of mammalia. See Delphinus *Delphis.*

The coryphæna hippurus is a fiſh of a ſtrong and vigorous nature, ſwims with great rapidity, is extremely voracious, and is obſerved to be perpetually engaged in purſuit of ſmaller fiſhes. In the Mediterranean, Indian, and Atlantic ſeas, which it inhabits, this fiſh is often ſeen in large ſhoals following ſhips, and devouring, with avidity, any kind of food that may happen to be thrown over-board. Bloch aſſures us, on the authority of Father Plumier's manuſcripts, that in the ſtomach of a coryphene which he examined were found four nails, one of which meaſured more than five inches in length.

Equiselis. Tail furcated; dorſal fin with about fifty-three rays. Linn. *Guaracapema*, Marcgrave. Braſilian coryphene.

This kind is repreſented as a moſt beautiful fiſh, and as a ſpecies allied to the former, though it ſeems doubtful whether it be a diſtinct fiſh, or merely a variety. Marcgrave is the principal author who deſcribes it. This writer informs us, that it is known to the Braſilians by the name of guaracapema, that it grows to the length of ſix or ſeven feet, and is of a ſilvery-green colour on the head, and upper parts, and variegated with numerous blue ſpots of different ſizes, all which are, however, very ſmall, and that the belly is of a whitiſh colour. He adds, that it is a very ſwift ſwimmer, and is conſidered an excellent fiſh for the table.

Plumieri. Variegated with curved blue lines; anal fins with about fifty-three rays. *Coryphæna Plumieri,* Gmel. *Paon de mer,* Bloch. Plumer's coryphene.

This elegant ſpecies is deſcribed on the authority of a drawing by Father Plumier, and, in compliment to whom it is named plumieri. According to this naturaliſt, the fiſh meaſures eighteen inches, or more, in length; in its general form, it is allied to the common coryphene, but has the head longer in proportion. The uſual colour is bright-yellow, with a ſilvery caſt on the abdomen, and the back brown, variegated with numerous, and ſomewhat irregular, blue ſtreaks diſpoſed tranſverſely; the fins are yellow, the tail creſcent-ſhaped, edged with blue.

Caerulea. Entirely blue. Linn. *Novacula caerulea,* Cateſby, *Le raſoir bleu,* Bloch. Blue coryphene.

This is an American ſpecies; Cateſby found it near the Bahama iſlands, and Plumier about the Antilles. It is eaſily diſtinguiſhed from the other ſpecies by its uniform blue colour, the breadth of its body, and ſuperior ſize of its ſcales. The head is very large, but ſhort, and is covered with ſmaller ſcales than thoſe on the body.

Novacula. Head and fins cancellated with blue lines. Gmel. Razor coryphene.

This ſpecies is deſcribed by Salvian as a ſmall fiſh, ſcarcely exceeding a palm in length. The head is very large and compreſſed, as is likewiſe the whole body, which riſes into an edge both above and below; the mouth is rather ſmall, and furniſhed with ſharp teeth, the four anterior ones of which are larger than the reſt. The eyes are ſmall and ſituated on the upper part of the head; the dorſal fin, which is of moderate breadth and red colour, ſpotted with blue, commences from the back of the head, and is continued nearly to the tail; the vent is placed nearer the head than the tail. The tail is broad, and nearly even at the tip. The general colour of this fiſh is reddiſh-yellow. It is a native of the Mediterranean, and feeds on ſmaller fiſhes and marine inſects.

Pentadactyla. Five black longitudinal ſpots near the head. Gmel. Bloch, &c. Five-ſpotted coryphene.

The ſpecies pentadactyla is a native of the Chineſe and Indian ſeas, and is known in the Molucca iſles by the name of banda, ican baſida, and ican potou banda. The uſual length of this fiſh is about twelve inches; its habit is ſimilar with the other ſpecies in having the head abrupt, and in being deep in proportion to its length, as well as greatly compreſſed at the ſides. The ſpecies is of a gregarious nature, and is ſaid by Renard to aſſemble in ſuch vaſt ſhoals about the Molucca iſlands, that it affords a branch of commerce among thoſe people, almoſt as important as that of the cod-fiſhery among the Europeans. Valentine ſays the fleſh is white, firm, and well flavoured.

Chrysurus. Golden-yellow; body ſprinkled with ſmall blue ſpots. Cepede. *Le coryphene chryſure.* Gilt tail coryphene.

Nearly allied to the common coryphene, but is of a more compreſſed and lengthened form, and differs in the number and diſpoſition of the teeth, which are very ſhort, ſmall, and acute, and ſtand apart from each other; the general colour is bright gold, the tail moſt reſplendent and richly gloſſed with this metallic luſtre; throat and breaſt ſilvery; the back clouded with blueiſh, with the reſt of the body ſprinkled all over with bright blue lenticular ſpots. This beautiful fiſh was obſerved by Commerſon in the Pacific Ocean, and is deſcribed from the manuſcripts of that navigator by Cepede.

Pompilus. Black with ſmall yellowiſh bands above the curved lateral line. Linn. Striped coryphene.

This ſpecies is ſhorter and thicker in proportion than the common coryphene, with the head ſmaller, the mouth more capacious, and the ſides of the head marked with ſeveral ſmall impreſſed ſpots. The lateral line is curved; the pectoral fins very ſharp pointed, and the tail lunated ſlightly. Over each eye is a gold-coloured ſpot. The fiſh is a native of the Mediterranean and Atlantic ſeas.

Fasciolata. Milk-white and ſilvery, with tranſverſe brown circles running from the bands of the dorſal fin, generally cohering on the back, and diſappearing on the belly. Pallas, &c.

The length of a ſpecimen of this fiſh deſcribed by Pallas was only two inches, but this was ſuppoſed not to have attained its full ſize. The head is conical, flat above, with the eyes large, and the irides gold-colour; mouth wide; tongue flat and ſmooth; gill-covers compoſed of two large rounded plates; lateral line ſtraight; pectoral and ventral fins hyaline; dorſal and anal variegated by duſky bands; tail deeply furcated, and marked by a duſky creſcent. It is a native of the ſeas about Amboina.

Velifera. Silvery-aſh; dorſal and anal fins very large, and ventral very ſmall. Gmel.

A ſmall ſpecies firſt deſcribed by Pallas as a native of the Indian ſeas. The body is of a tapering form, and covered with eleven longitudinal rows of large thin ſtriated ſcales, each of which is marked at the baſe by a ſmall recumbent ſpine, and is emarginated at the tip.

Psittacus. Lateral line intercepted; fins with longitudinal coloured lines. Linn. Parrot coryphene.

Inhabits the American ſeas, where it was firſt obſerved by Dr. Garden, and communicated to Linnæus. The head is finely variegated; the irides a flame-colour edged with blue. On the middle of the body towards the back is a rhomboid purple ſpot, accompanied by green, yellow, and blue variegations; the dorſal and anal fin are linear, the former commencing from the head, and reaching like the ventral fin to the tail, which is even at the extremity. The colours are evaneſcent, being obſerved to vaniſh as the fiſh expires.

Scomberoides. Silvery; back blueiſh, with the dorſal and anal fin ſinuated towards the tail. Cepede. *Le coryphene ſcomberoide.* Mackrel coryphene.

Deſcribed by Cepede from the manuſcripts of Commerſon, who obſerved it in the South Seas. Its ſize is between that of a mackrel and a herring; the colour bright ſilver, tinged with browniſh-blue on the back and top of the head, but on the latter darkeſt, and tinged with golden. All the fins brown, except the ventral, which are white on the exterior ſides, the pectoral ſlightly golden. The lower jaw is longeſt. The tongue large, and ſhaped ſomewhat like the human nail, with a ſquariſh rough bone in the middle. The gill-covers conſiſt of two large, ſmooth, and rounded plates; and the lateral line is marked by ſeveral undulations, which decreaſe as they approach the tail. The dorſal fin reaches from the back of the head to the tail, and is ſcalloped towards the poſterior part, ſo as to bear ſome reſemblance to the ſmall or ſpurious fins in the ſcombrel or mackrel tribe. Vaſt multitudes of theſe fiſhes were obſerved by Commerſon to follow the French ſhips for many days together; they appeared to prey chiefly on young flying fiſhes, which he ſays at intervals ſprang round the ſhips like ſo many butterflies, and which they ſcarcely ſurpaſſed in ſize.

Lineata. Head variegated with tranſverſe coloured ſtripes. Linn. Lineated coryphene.

This ſpecies inhabits the ſeas about Carolina; the head is naked and compreſſed; the two fore teeth in each jaw longer than the reſt, and placed at a diſtance ; gill-covers ſmooth. The head, together with the dorſal and anal fins, are marked by coloured ſtreaks ; tail rounded, and body covered with large ſcales.

Japonica. Yellow ; aperture of the gills a tranſverſe cleft. Linn. Haarl. Tranſ. Houtt. Japan Coryphene.

Deſcribed by Houttuyn in the Tranſactions of the Haarlem Society. The ſpecies is a native of the Japaneſe ſeas, its length ſix inches, colour deep yellow, and body covered with very thin ſcales.

In the Linnæan Syſtema, another coryphene, nearly allied to japonica, is inſerted under the name of branchioſtega ; like the former, it is ſaid to have the aperture of the gills a tranſverſe cleft, and not being diſtinguiſhed by any other character, we conclude it may be of the very ſame ſpecies. They agree very nearly alſo in the number of rays contained in each fin, and both inhabit the Aſiatic ſeas.

Virens. Greeniſh, with filiform appendages to the fins. Linn. and Gmel. Greeniſh coryphene.

The general colour of this fiſh is greeniſh, the dorſal fin contains about twenty-ſix rays; pectoral ſixteen; ventral ſix; anal thirteen, and caudal ſixteen. It inhabits the Aſiatic ocean.

Hemiptera. Jaws nearly equal; dorſal fin ſhort. Gmel. Half-finned coryphene.

Inhabits the Aſiatic ſeas.

Acuta. Tail ſharp-pointed ; lateral line convex. Gmel. Sharp-tailed coryphene.

The ſize of this fiſh is uncertain ; it inhabits the ſame ſeas as the former.

Sima. Tail entire ; lower lip longer. Gmel. Flat-ſnouted coryphene.

This alſo is a native of the Aſiatic ſeas ; the ſize uncertain. In the dorſal fin are thirty-two rays.

Sinensis. Silvery-green ; ventral fin very ſhort. Cepede. Chineſe coryphene.

Deſcribed by Cepede on the authority of a Chineſe drawing. The colour is green, more or leſs deep on various parts of the body, and accompanied by a gloſs of ſilvery. Its dorſal fin is very long, that at the vent, on the contrary, remarkably ſhort ; tail rounded ; the body, gill-covers, and tail, covered with large ſcales, the lower jaw longer than the upper, and ſlightly turned upwards. The drawing from whence this deſcription is taken, formed part of the magnificent collection of the prince of Orange, at preſent in the National Muſeum of France.

Clypeata. Bony plates between the eyes. Gmel.

An obſcure ſpecies, ſaid to be diſtinguiſhed by a long bony proceſs or lamina, ſituated between the eyes, and is a native of the Indian ſeas. The dorſal fin has thirty-two rays ; the pectoral fourteen ; the ventral five ; anal twelve ; and caudal ſeven.

The Gmelinian coryphæna rupeſtris is of a genus altogether diſtinct from the preceding. This is the berglax or mountain ſalmon of Northern Europe, and which Bloch conſiders as forming a genus of itſelf. In this reſpect we believe he is perfectly right, or at all events having an example of the fiſh now before us, we are entirely ſatisfied it cannot be of the coryphene tribe. See Macrourus.

CORYPHÆUM, in *Ancient Geography*, a mountain of Peloponneſus, in the Argolide, near Epidaurus. On this mountain Diana was worſhipped under the appellation of Corypha.

CORYPHÆUS, in *Entomology*, a ſpecies of *ſcarabæus* with a bicorn thorax, and ferruginous body ; found at the Cape of Good Hope. See Scarabæus.

Coryphæus, formed from κορυφη, *tip of the head*, in the *Ancient Tragedy*, was the chief or leader of the company that compoſed the chorus.

The coryphæus ſpoke for all the reſt, whenever the chorus took part in the action, in quality of a perſon of the drama, during the courſe of the acts.

Hence coryphæus has paſſed into a general name for the chief or principal of any company, corporation, ſect, opinion, &c. Thus, Euſtatius of Antioch is called the coryphæus of the council of Nice ; and Cicero calls Zeno the coryphæus of the Stoics.

CORYPHANTA, in *Ancient Geography*, a town of Aſia Minor, in Bithynia ; deſtroyed in the time of Pliny.

CORYPHANTIS, or Coryphas of Pliny, a town or village of Aſia, on the bank of the gulf of Adramyttium.

CORYPHASIUM, a promontory on the weſtern coaſt of the Peloponneſus, in Meſſenia, and near the iſle of Prote, according to Pauſanias. It is now "Cape Zonchio."—Alſo, a town of Meſſenia, to the weſt, on the above-mentioned promontory, S. E. of the iſland of Aſina. The inhabitants of Pyla retired hither after the deſtruction of their town ; and hence Thucydides ſays, that Pyla was called Coryphaſium by the Lacedæmonians.—Alſo, a town of the Peloponneſus, in the Argolide, according to Pliny. It was ſituated on the coaſt, between the iſthmus of Corinth and the promontory Scyllæum.

CORYPHE, in *Medical Writers*, is uſed for the crown of the head ; as alſo for the interior extremity of the fingers next the nails.

CORYS, in *Ancient Geography*, a river of Arabia, which diſcharges itſelf into the Erythræan ſea.

CORYSTION, in *Ichthyology*, a name given by Klein to the yellow gurnard or Callionymus *Lyra*. See Lyra.—Alſo, a name given by the ſame author to the Trachinus *Draco*, or wever.—Alſo, to the Cottus *grunniens* and *ſcorpius* ; and to the Trigla *gurnardus*, *cuculus*, and *hirundo*.

CORYTHENSES, in *Ancient Geography*, a people of the Peloponneſus, in Arcadia.

CORYVREKAN, in *Geography*, a gulf or bay between the iſland of Jura and Scarba, on the weſtern coaſt of Scotland ; with a dangerous whirlpool.

CORYZA, in *Medicine*, is that form of defluxion, or catarrh, which is confined to the membranes lining the noſtrils, and paſſages to the throat. It is commonly called a *cold in the head*. The ſymptoms of coryza have been already detailed under the head of Catarrh, as well as the cauſe and method of treatment. See that article.

COS, Coos, or Cous, in *Ancient Geography*, one of the Sporades, is reckoned by Pliny among the moſt conſiderable iſlands of the Ægean, or rather Myrtoan ſea. It was formerly known by the names of Merope, Cea, Nymphœa and Caris ; and is now called by the Greeks *Cos*, by others Lango, and by the European navigators Stancho, or Stanchio. It was ſituated at a ſmall diſtance from the coaſt of Caria, E. of the town of Cnidus on the continent S.E. of the iſland of Niſyros, to which, as Strabo ſays, it was once joined, and N.E. of that of Calymna, and 15 miles from Halicarnaſſus. Strabo aſſigns to it a circuit of about 550 ſtadia or about 70 miles, and Pliny makes it 100 miles. By modern meaſure, it is about 24 miles long, and 3 or 4 broad. The chief city of this iſland was firſt called Aſtypalæa, and afterwards Cos. Strabo mentions a ſtately temple erected by the Coans in honour of Æſculapius, the tutelary god of their iſland, and enriched with offerings and preſents of great value; but the chief ornament of the place was a Venus riſing out of the ſea, done by Apelles, and deemed one of his beſt performances. This admirable piece of ſculpture was conveyed by Auguſtus to Rome, and dedicated to Cæſar; Venus being reckoned the mother of the Julian family. In conſideration of this loſs, the Coans were eaſed by Auguſtus of a conſiderable part of their annual tribute. This iſland was famous for a kind of fine ſtuff, much valued by women of diſtinction at Rome; for it covered them, as Vellerius Paterculus ſays, and yet ſhewed them naked; and hence it has been ſo much inveighed againſt by the Latin poets. This iſland has been rendered ſingularly famous by the number of illuſtrious perſons which it has produced. Among theſe, we may reckon Hippocrates, Senius, another celebrated phyſician, Ariſton, a Peripatetic philoſopher, and Apelles, the celebrated painter. To theſe we may add, Siſiphus, who is ſaid to have been ſecretary to Teucer, and to have poſſeſſed the records of the Trojan war, uſed by Homer. Before the Trojan war, this iſland was inhabited by Greeks, a colony of Dorians, from the continent. The government was at firſt monarchical; as hiſtory mentions among its kings Eurypylus, contemporary with Hercules, Antiphus, and Phidippus, the two latter of whom are ſaid by Homer and Theocritus to have aſſiſted at the ſiege of Troy. The kingly government was ſucceeded by democracy; and this, as Ariſtotle informs us, by an ariſtocracy, which was aboliſhed by ſome private perſons, who, aſſuming the whole power to themſelves, governed with an abſolute ſway. Hippocrates ſays, that the Coans refuſed to ſuccour the meſſengers of Darius and Xerxes; but Herodotus numbers the Coans among the Greeks, who ſerved as auxiliaries in the army of Xerxes. In the 20th year of the Peloponneſian war, the city of Cos was demoliſhed by an earthquake; and ſoon after this calamity, Aſtyochus, the Lacedæmonian, invaded the iſland, laid waſte the whole country, plundered the city, the inhabitants having fled to the mountains, and then retired to Cnidus with an immenſe booty. When Mithridates commanded all the Romans in Aſia to be maſſacred, the iſland of Cos afforded them an aſylum. However, Mithridates ſoon after invaded the iſland, took the metropolis, and ravaged its territory. The Coans, provoked by this outrage, as ſoon as they ſaw Lucullus, Sylla's queſtor, off their coaſt, took up arms, expelled the king's garriſon, and admitted the Romans, by whom they were amply recompenſed. The Coans remained ever faithful to the Romans, and highly contributed to ſeveral victories gained by their fleets. Nevertheleſs, in the reign of the emperor Claudius, they, like the other Greek ſtates, paid an annual tribute to Rome, which this emperor remitted, in compliance with the requeſt of Xenophon, his phyſician. This immunity they enjoyed till the reign of Veſpaſian, who, reducing them to a Roman province, exacted the ſame tribute from them as from the other Aſiatic iſlands. The ſoil of this iſland is fertile, and produces a great variety of fruit: it is now covered with groves of lemon trees, and it has an oriental plane tree of very large ſize. Its chief trade is in oranges and lemons: from this iſland was firſt derived the name and ſubſtance of the whetſtone: and Cos is the reſidence of a Turkiſh pacha. The knights of Rhodes found in this iſland a ſmall city or town, near the ſea, at the bottom of a large bay, and at the foot of a high mountain. The haven was then commodious and wide; but its mouth has been ſo choaked with the ſand thrown into it by the waves, that none but ſmall veſſels can put into it, while thoſe of a larger bulk are obliged to ride in the road near it, where they have a good bottom and anchorage. On this iſland the great maſter cauſed a ſtrong caſtle to be built, and then left it under the government of one of the knights, who laid the foundation of commerce in the iſland: and this gradually became ſo conſiderable, that the town flouriſhed, and was regarded as a ſecond Rhodes; ſo that it was raiſed to the dignity of a biſhop's ſee under that of Rhodes, and erected into one of the bailiwicks of the order. For a further account of its preſent ſtate, ſee Stanchio.

Cos, a town of Egypt, Steph. Byz.—Alſo, an iſle of Egypt, over againſt the town of Cynopolis. Ptolemy.

Cos, *whetſtone,* in *Natural Hiſtory,* a genus of ſand-ſtones, conſiſting of fragments of an indeterminate figure, ſubopake, and granulated. There are ſeveral ſpecies of this genus, which are uſed for *mill-ſtones,* &c. See Sand-stones and Whetstone.

COSA, or Cossa, in *Ancient Geography,* a town ſituated on a ſmall iſthmus, which joined the ancient mountain Argentarius, mount Argentato; in which place Jupiter was worſhipped. Rutilius, in his Itinerary, ſays, that it was deſolated by rats, and on this account was abandoned by its inhabitants. Its port, ſituated to the ſouth, was called "Portus Herculis," porto Ercole. This town was municipal and a Roman colony: it was treacherouſly ſurrendered to Hannibal. During the troubles in the time of Sylla, it was beſieged and taken by that general.

Cosa, or *Koſs,* in *Geography* a river of Aſia, equal to the Rhine, which riſes in the mountains of Thibet, and which once ran by Purneah, and joined the Ganges oppoſite to Rajemal; but its junction is now 45 miles higher up; almoſt oppoſite to Boglipour.

COSACKS. See Cossacks.

COSALE, a town of Naples, in the province of Abruzzo Citra; 6 miles S. E. of Civita Borella.

COSAMBA, in *Ancient Geography,* a town of India, on this ſide of the mouths of the Ganges. Ptol.

COSARIA, in *Botany,* Forſk. See Dorstenia *radiata.*

COSCEZ, in *Britiſh Antiquity,* a diſtinctive appellation given to a claſs of perſons, who were original holders of manors, and contradiſtinguiſhed from *Bordarii,* who were holders of land by particular ſervices, and who furniſhed the maſter with poultry, eggs, &c.; *Coliberti,* who were a band of freedmen, of a particular claſs, and were made free by one and the ſame maſter; and *Villani,* the originals of our preſent copy-holders, who held their lands by performing the ſervices of huſbandry on their lord's demeſne, which were, in aftertimes, commuted for what is now called a *quit-rent;* and *Cotarii,* who held by a free ſocage tenure, and were afterwards known by the title of "Sockmen," a kind of farmers, who provided wheat for their reſpective lords. Some of our antiquaries have conſidered Coſcez and Cotarii, as ſynonymous terms; and have claſſed them under one and the ſame denomination of cottagers. But they were evidently diſtinct, and erroneouſly claſſed under the ſimple name of cottager. The *Coſcez,* as diſtinguiſhed from the *Cotarii,* or as they are ſometimes called *Coches,* i. e. *Couchees,* from the French verb *coucher,* were obliged to furniſh the lord and his retinue with lodging, whenever they might chuſe to demand it. This particular privilege of the lords of manors is, in the feudal law, pointed out by the term *Coſhering*, (i. e. *couchering*, *couchant*, Fr.) The word *Coſcez*, or *Coſhes*, was, therefore, apparently, choſen to diſtinguiſh ſuch people from the tenants, who were merely required to furniſh proviſions for the uſe of the lord.

COSCINIA, in *Ancient Geography*, a village of Aſia Minor, ſituated on the ſide of the Meander, according to Strabo. Pliny calls it *Coſcinus*, and places it in Caria.

COSCINOMANCY, the art of divination, by means of a ſieve.

The word comes from κοσκινον, *cribrum*, a *ſieve*, and μαντεια, *divination*.

The ſieve being ſuſpended, after rehearſing a formula of words, is taken between two fingers only; and the names of the parties ſuſpected, repeated: he at whoſe name the ſieve turns, trembles, or ſhakes, is reputed guilty of the evil in queſtion.

This muſt be a very ancient practice: Theocritus, in his third Idyllion, mentions a woman very ſkilful in it. It was ſometimes alſo practiſed by ſuſpending the ſieve by a thread, or fixing it to the points of a pair of ſheers, giving it room to turn, and naming, as before, the parties ſuſpected: in which laſt manner, *coſcinomancy* is ſtill practiſed in ſome parts of England. It appears from Theocritus, that it was not only uſed to find out perſons unknown, but alſo to diſcover the ſecrets of thoſe that were known.

COSCOROBA, in *Ornithology*, a ſpecies of ANAS, with the end of the beak dilated and rounded, and a white body. Its beak and legs are red, and its eyes very black. It is found in Chili.

COSCYLIUM, in *Natural Hiſtory*, a name given by ſome of the old writers to the kermes, the true nature of which they did not know, but ſuppoſed it to be a ſort of ſcabrous excreſcence, formed of the abundant juices of the tree, and of the nature of the galls on the oak, and other trees.

CO-SECANT, in *Geometry*, the ſecant of an arc, which arc is the complement of another arc to ninety degrees.

COSEDIA, in *Ancient Geography*, a town of Gaul, in Lyonnenſis Secunda; placed by d'Anville on the ſea-coaſt, N. of Conſtantia.

COSEL, in *Geography*, a town of Pruſſia, in Upper Sileſia, ſituated in the principality of Oppeln, not far from the Oder. After the great Frederic had wreſted Silesia from the houſe of Auſtria, Coſel was ſtrongly fortified; yet, in 1745, the Auſtrians took it by ſtorm, but were ſoon driven again from the place by the Pruſſians. In the year 1758, Coſel was for a long time blockaded by the Auſtrians, and in the ſhort war of 1806 and 1807, it was one of the few Pruſſian fortreſſes, which were ably defended againſt the French and their allies. Colonel Neumann, who commanded in the place, was raiſed to the rank of major-general, but died ſoon after his promotion. A few months after the peace of Tilſit, the king of Pruſſia publicly expreſſed his ſatisfaction at the gallant conduct of the garriſon of Coſel by ſending the Order of the Red Eagle to prince Biron of Courland, and the order *pour le merite* to captains Caſpari, Woſtrowſky, and Lehman.

COSEL, or *Coeſlef*, is alſo a ſmall town of Denmark, in the duchy of Sleſwick.

COSENAGE, or COSINAGE, in *Law*, a writ that lies where the treſail, that is, the tritavus, the father of the beſail, or great grandfather, being ſeized in fee at his death of certain lands or tenements, dies; a ſtranger enters and abates; then ſhall his heir have this writ of *coſenage;* the form of which ſee in Fitzh. Nat. Bro. fol. 221. See ASSISE *de Mort d'Anceſtor*.

COSENING, an offence whereby any thing is done deceitfully, in, or out of, contracts, which cannot be fitly termed by any eſpecial name. In the civil law, it is called *ſtellionatus*. See STELLIONATE.

COSENZA, in *Geography*, a city of Naples, the capital of Calabria Citra, pleaſantly ſituated, about 12 miles from the Mediterranean ſea, at the ſouthern extremity of a ſpacious plain, which, with a conſiderable breadth, extends above 20 miles down the courſe of the river Crati. The city, now the ſee of an archbiſhop, and reſidence of the governor of the province, ſtands upon ſeven hills, which form part of its armorial coat. The metropolitan church is the only church within the walls; but in the fauxbourgs there are three pariſh churches; and there are twelve convents. The environs are beautiful, populous, and well cultivated, producing abundance of corn, fruit, wine, oil, and ſilk. From the ſituation of the low grounds, which are very fertile, and from frequent waterings, they exhale vapours in ſummer that conſtitute a "Mal Aria," very productive of fevers. Coſenza was anciently the capital of the Brutian ſtate, and of ſome conſequence during the ſecond Punic war. In the tenth century it was reduced to aſhes by the Saracens, but by the munificence of its prelates it ſoon recovered from the calamity. The attachment of the natives to the Angevine family, the deſcendants of Lewis III. of Anjou, who died here in 1434, and to the French cauſe, excited the vengeance of the Arragonian party, who committed ſhocking outrages at Coſenza in the year 1457. Earthquakes have been very deſtructive in this place. The number of its inhabitants has been variouſly ſtated to amount to 18,000; but from Mr. Swinburne's information, it does not much exceed 9,000. It is diſtant 145 miles S. E. of Naples. N. lat. 39° 22′. E. long. 16° 22′.

COSETANI, in *Ancient Geography*, a people of Spain, S. E. of the Lacetani. Their principal town was Tarraco.

COSEUS, in *Geography*, a town of Aſiatic Turkey, in the Arabian Irak; 80 miles S. of Bagdat.

COSH, in *Agriculture*, is a term ſignifying the ſame as pod, or the capſule which contains the ſeed in many ſorts of plants, eſpecially thoſe of the leguminous kind. See POD.

COSHERING, in the *Feudal Cuſtoms*, a kind of right of the lords to lie, and, as ſome ſay, feaſt themſelves, and their followers, at their tenants houſes. See COSCEZ.

COSHERING, in the hiſtory of Ireland, means viſitations and progreſſes made by the lord and his followers among his tenants, which were very grievous to the latter, and with other exactions made the lord an abſolute tyrant, and the tenant a very ſlave. Ledwich.

COSIA DI DONNA, in *Geography*, a ſmall iſland near the weſt coaſt of Sardinia; 6 leagues W. S. W. of Boſa.

COSILAUS, in *Ancient Geography*, a village of Paleſtine, not far from the town of Chalcedon; called Colæus by Sozomen.

COSILINUM, a place of Italy, in Lucania, forming a part of Magna Græcia. It was ſituated towards the N. W. and ſeparated from Campſa by the mountains.

COSIMO, PIETRO DA, in *Biography*, a painter, born at Florence, in the year 1441. He was the ſcholar of Coſimo Roſſelli, whom he attended to Rome, where, by the advances he made in his profeſſion, he acquired the favour of the pope, and was employed ſome years in the Vatican. He painted both hiſtory and portrait. His colouring is good, but though his figures have much ſpirit, his deſign was not always correct, and though highly ſpoken of by Vaſari, his celebrity is perhaps principally owing to his having been the maſter of Andrea del Sarto. Amongſt his ſmall pictures, which are his beſt performances, the ſtory of Perſeus in the gallery of Florence is worthy of notice. Towards the cloſe of his life he amuſed himſelf by painting monſters, ſuch as harpies, ſatyrs, &c. and died in 1521. Vaſari. Lanzi. Stor. Pittor.

COSIN, John, was born at Norwich, of reſpectable parents, in 1594. Here he received an excellent grammatical education; and at an early age was admitted at Caius college, Cambridge, where he took his degree in Arts, and was appointed Fellow. Before he was twenty years of age he was made ſecretary to the biſhop of Litchfield and Coventry, and, in 1619, he was appointed domeſtic chaplain to Dr. Neile, biſhop of Durham, who eventually conferred upon him a prebend: which was but preparatory to additional rank and honour in the church. He was the friend of Laud, and was ſuppoſed to have a ſtrong tendency to the doctrines and diſcipline of popery. "A Collection of private Devotions," publiſhed by Mr. Coſin in the year 1627, led many perſons to ſuſpect, that he had no particular partiality for the church, of which he was a member, and this ſuſpicion was ſtrengthened by the part which he took in the proſecution of Mr. Peter Smart for his diſcourſe preached againſt the advances towards popery. This was in the year 1628, about which period he took his degree as doctor in divinity. In 1634, he was elected maſter of Peter-houſe, and, in 1640, were delegated to him the high offices of vice-chancellor of the univerſity; dean of Peterborough, and chaplain to the king. He had now attained to great rank, but probably not to the acme of his wiſhes, when a reverſe of fortune was reſerved for him. The proſecution of Smart was not forgotten, and upon a petition complaining of Dr. Coſin's ſuperſtitions and innovations in the church of Durham, the houſe of commons not only ſequeſtered all his benefices, but preferred againſt him, before the upper houſe, an impeachment, containing twenty-one articles. Of theſe charges he vindicated himſelf and was acquitted; but, as in other caſes of a ſimilar nature, the proſecutors never thought of making him any compenſation for the various injuries which he had ſuſtained by impriſonment and loſs of property. The ſpirit of Dr. Coſin was however unbroken, and, in 1642, he was concerned with others in ſending the plate, belonging to the univerſity of Cambridge, to king Charles, who was then at York. For this he was by parliament declared incapable of holding any eccleſiaſtical preferments, and loſt his ſituation as maſter of Peter-houſe. Fearing that the reſentment of the government might be carried ſtill farther, he left the kingdom and ſought for ſafety in Paris. Here, when reduced to conſiderable difficulties, he exhibited a ſtrict regard for the proteſtant religion, and rejected certain handſome offers which were made to him, to unite with the Catholics of that country. He formed a congregation of Engliſh exiles, in which he kept up the Engliſh church diſcipline, and the form of worſhip appointed in the Common Prayer. On the reſtoration of Charles II., Dr. Coſin returned to his native country, where he was reinſtated in his former preferments; and as a reward for his tried attachment to royalty, he was, in the year 1660, elevated to the rich ſee of Durham. After this he took little if any ſhare in the politics of the day, and was diſtinguiſhed for his moderation and benevolence. He died in the year 1671-2 of the dropſy in the cheſt, having entered his ſeventy-eighth year. He had written many books chiefly on controverſial points of theology, the enumeration of which would not intereſt our readers. His character for integrity and independence was fully eſtabliſhed as well by active zeal, as by a readineſs to ſuffer in defence of the cauſe which he had eſpouſed. Biog. Brit.

CO-SINE, in *Geometry*, is the right *ſine* of an arch, which is the complement of another to 90 degrees.

COSINISSA, in *Geography*, a ſmall iſland in the Grecian Archipelago. N. lat. 36° 36′. E. long. 25° 42′.

COSINTUM, in *Ancient Geography*, a town of Thrace between Topiris and Pyrſoalis, according to the Itinerary of Antonine.

COSLI, in *Geography*, a town of European Turkey, in the province of Bulgaria; 52 miles S.S.E. of Siliſtria.

COSLIACO, a town of Auſtrian Iſtria; 12 miles W. of St. Veit.

COSLIN. See Cosslin.

COSMAS, in *Biography*, an Egyptian merchant, who, under the emperor Juſtinian, in the courſe of his traffic, made ſome voyages to India, about the year 522, whence he acquired the ſurname of "Indicopleuſtes," or the Indian navigator; but afterwards, by a tranſition not uncommon in that ſuperſtitious age, renounced all the concerns of this life, and aſſumed the monaſtic character, as it is ſaid, among the Neſtorians. In the ſolitude and leiſure of a cell, he compoſed ſeveral works, between the years 535 and 547; one of which, dignified by him with the name of "Chriſtian Topography" has reached us. This book was publiſhed at Alexandria, A.D. 547; and ſome curious extracts of it may be found in Photius (Cod. xxxvi. p. 9, 10. edit. Hoeſchel), Thevenot in the 1ſt part of his "Relations des Voyages, &c." and Fabricius (Bib. Græc. l. iii. c. 25. tom. ii. p. 617). The entire work has been publiſhed by father Montfaucon at Paris, A.D. 1707, in the "Nova Collectio Patrum" (tom. ii. p. 113—344). The main deſign of this work is to combat the opinion of thoſe philoſophers, who aſſert that the earth is of a ſpherical figure, and to prove that it is an oblong plane, 12,000 miles in length from eaſt to weſt, and 6000 miles in breadth from north to ſouth, ſurrounded by high walls, covered by the firmament as with a canopy or vault:—that the viciſſitude of day and night was occaſioned by a mountain of prodigious height, ſituated in the extremities of the north, round which the ſun moved:—that when it appeared on one ſide of this mountain, the earth was illuminated; when concealed on the other ſide, the earth was left involved in darkneſs. However, amidſt theſe wild reveries, more ſuited to the credulity of his new profeſſion, than to the ſound ſenſe characteriſtic of that in which he was formerly engaged, Coſmas ſeems to relate what he himſelf had obſerved in his travels, or what he had learned from others, with great ſimplicity and regard for truth. He appears to have been well acquainted with the weſt coaſt of the Indian peninſula, and names ſeveral places ſituated upon it: he deſcribes it as the chief ſeat of the pepper trade, and mentions Mala, probably the origin of Malabar, as one of the moſt frequented parts on that account. From him alſo we learn, that the iſland of Taprobane, which he ſuppoſes to be at an equal diſtance from the Perſian gulf on the weſt, and the country of the Sinæ on the eaſt, had become, on account of this commodious ſituation, a great ſtaple of trade; that into it were exported the ſilk of the Sinæ, and the precious ſpices of the Eaſtern countries, which were conveyed thence to all the parts of India, to Perſia, and to the Arabian gulf. To this iſland he gives the name of Sielediba, nearly the ſame with that of Selendib, or Serendeb, by which it is ſtill known over the Eaſt. To Coſmas we are alſo indebted for the firſt information of a new rival to the Romans in trade having appeared in the Indian ſeas. All the conſiderable ports of India were frequented by traders from Perſia, who, in return for ſome productions of their own country in requeſt among the Indians, received the precious commodities, which they conveyed up the Perſian gulf, and by means of the great rivers, Euphrates and Tigris, diſtributed them through every province of their empire. As the voyage from Perſia to India was much ſhorter than that from Egypt, and attended with leſs expence and danger, the intercourſe between the two countries increaſed rapidly. Coſmas mentions a circumſtance, which is a ſtriking proof of this fact. In moſt of the cities of any note in India he found Chriſtian churches eſtabliſhed, in which the functions of religion were performed by prieſts ordained by the archbiſhop of Seleucia, the capital of the Perſian empire, and who continued ſubject to his juriſdiction. Accordingly we learn from this traveller, that Chriſtianity was ſucceſsfully preached to the Bactrians, the Huns, the Perſians, the Indians, the Perſarmenians, the Medes, and the Elamites. The coaſt of Malabar, and the iſles of the ocean, Socotora and Ceylon, were peopled with an increaſing multitude of Chriſtians. It is remarkable, however, that, according to the account of Coſmas, none of theſe ſtrangers were accuſtomed to viſit the eaſtern regions of Aſia, but reſted ſatisfied with receiving their ſilk, their ſpices, and other valuable productions, as they were imported into Ceylon, and conveyed thence to the various marts of India. Coſmas publiſhed alſo "A Coſmography of the ſouthern parts of Africa, &c." "Aſtronomical Tables," and "A Commentary on the Song of Songs." Robertſon's Hiſtorical Diſquiſition concerning Anc. India, ſect. 2. Gibbon's Hiſt. of the Rom. Emp., vol. vii. and viii.

COSME, or Come, Frere Jean de St., a monk of the order of the Feuillans, in Paris, famous for his ſkill in lithotomy, was educated to the practice of ſurgery; but loſing his father, under whom he had been inſtructed, at an early age, he retired from the world, and became a monk. Here, however, he continued improving himſelf in the art to which he had been bred, giving his aſſiſtance to all who applied, without receiving any compenſation, but the thanks of the perſons he relieved. The inſtrument with which he performed the operation for extracting ſtones from the urinary bladder, he called *lithotome caché*, a hollow tube, in which was concealed a knife, with which he cut through the proſtate gland, into the bladder. His care was to make the wound ſufficiently large, to enable him to extract the ſtone eaſily, and without bruiſing the parts. To this, it is probable, his ſucceſs, far ſuperior to any of his rivals, muſt be attributed. The fame he acquired drew upon him the envy of the ſurgeons of Paris ſo far, that they are ſaid to have applied to the king to interdict his practiſing. Not ſucceeding in this attempt, Monſ. Le Cat publiſhed "Lettre au Sujet du Lithotome Caché, &c. contra F. Coſme Diſſert.," 1749. Coſme's diſſertation, deſcribing the operation, had been publiſhed the preceding year, in the "Journal des Savans." This produced an anſwer from De Coſme, under the title of "Recueil des Pieces importantes ſur l'Operation da la Taille," Paris, 1751; in which he acknowledges ſome failures of ſucceſs, and that he had loſt one patient by hæmorrhage; but challenges his adverſaries to produce liſts of ſucceſsful caſes equal to his, which, it ſeems, they were not able to do. That his ſucceſs was rather owing to his adroit manner of performing the operation, than to the excellence of his inſtrument, is more than probable, as on his death the inſtrument ſoon fell into diſuſe. He has the credit of having made ſome improvement on the operation for extracting, inſtead of depreſſing or couching, cataracts. For the titles of the ſeveral rejoinders, explications, &c. of Le Coſme and his opponents, ſee Haller's Bib. Chirurg. One of Le Coſme's controverſial pieces is dated 1763, which, as he was born in 1703, ſhews that his life was protracted to ſixty years; how much farther we have no opportunity of knowing.

COSMEA, in *Botany*, Willd. 1537. (Coſmos; Cav. Ic. 1. 9.) Claſs and order, *ſyngeneſia polygamia fruſtranea*.

Gen. Ch. *Common calyx* double, both one-leafed, eight-cleft, permanent. *Receptacle* chaffy. *Florets* of the diſc numerous, tubular, hermaphrodite; of the ray ligulate, three-toothed, female, barren. *Seeds* tetragonous, crowned with three or four recurved awns.

It differs from coreopſis in the ſtructure of the calyx.

Sp. 1. C. *ſulphurea*. Willd. 1. (Coſmos ſulphureus; Cav. 1. 56. tab. 79. Coreopſis artemiſiæ folio; Jacq. Ic. 3. tab. 595.) "Leaves bipinnatifid; ſegments lanceolate; ſegments of the outer calyx lanceolate." *Root* annual. 2. C. *bipinnata*. Willd. 2. (Coſmos bipinnatus; Cav. 1. 10. tab. 14.) "Leaves bipinnated; leaflets linear-awl-ſhaped; ſegments of the outer calyx egg-ſhaped." *Root* perennial. *Stem* three or four feet high, cylindrical, branched near the top. *Flowers* large, with a yellow diſk, and deep purple or dark roſe-coloured ray, ſolitary, axillary, and terminal, on long peduncles. 3. C. *parviflora*. Willd. 3. (Coreopſis parviflora; Jacq. Hort. Schoenb. 3. 65. tab. 374.) "Leaves bipinnated; leaflets filiform; ſegments of the outer calyx lanceolate." *Root* annual. Outer *calyx* longer than the inner. Ray of the *flowers* white. All the three ſpecies are natives of Mexico. Willdenow aſſerts that the florets of the ray in the firſt ſpecies are fertile.

COSMETIC, from *κοσμειν, to adorn*, a term in *Phyſic*; uſed for any medicine, preparation, or means, employed to beautify and embelliſh the face, and preſerve or improve the complexion; as ceruſs, and the whole tribe of fucuſes, waſhes, cold creams, lip-ſalves, &c. See Water.

The Indians uſe the water of green cocao-nuts as a grand coſmetic, which wonderfully improves their complexion.

COSMI, in *Ancient Hiſtory*, magiſtrates of Crete, during the period of its republican government, next in authority to the ſenate, and ſo called from the Greek word *coſmos*, ſignifying order; theſe magiſtrates being appointed for the maintaining of good order in the ſtate. Their power was much the ſame with that of the ephori at Sparta: they were ten in number, and, like the ephori, choſen out of the body of the people; the meaneſt of the populace having an equal right to this dignity with the moſt illuſtrious families of the republic. They were intended as the balance between the people and the ſenate, and a check upon both; for, without their approbation, no decree was of any validity. Out of their body the ſenators were choſen; none being admitted to that office who had not before given ſome proofs of their prudence, equity, and diſintereſtedneſs, in the college of the coſmi. In time of war, they commanded the armies of the republic with abſolute power, but were afterwards liable to be called to an account; whereas the ſenators were not accountable for their adminiſtration. See Crete.

COSMICAL, ſomething that refers, or has a relation to the world; in Greek *κοσμος*.

Cosmical *Aſpect*, among *Aſtrologers*, is the aſpect of a planet with reſpect to our earth. See Aspect.

Cosmical *Qualities* are uſed by Mr. Boyle in the ſame ſenſe with ſyſtematical ones.

Though, in conſidering the qualities of natural bodies, we uſually only take in the powers any particular one has of acting on, or its capacity of ſuffering from the action of another, wherewith it is obſerved to have ſome manifeſt commerce, by a communication of impreſſions; yet there may be ſeveral alterations to which it may be liable, not barely on account of thoſe qualities preſumed to be evidently inherent in it, nor of the reſpect it bears to thoſe other particular bodies, whereto it ſeems manifeſtly related; there may be many unheeded agents, which by unperceived means have great operations on the body we conſider, and work ſuch changes in it, as are not otherwiſe to be accounted for. And theſe are what Mr. Boyle calls *coſmical*, or *ſyſtematical qualities*.

To account for theſe coſmical qualities, the ſame author propoſes ſome coſmical ſuſpicions, as to ſome unobſerved laws and orders of nature; and refers them principally to the action of certain effluvia hitherto unobſerved.

Cosmical is alſo uſed, in *Aſtronomy*, to expreſs one of the poetical riſings of a ſtar.

A ſtar is ſaid to riſe coſmically, when it riſes together with the ſun; or with that degree of the ecliptic wherein the ſun then abides.

Coſmical ſetting is, when a ſtar ſets and goes down in the weſt, at the ſame time the ſun riſes in the eaſt.

But, according to Kepler, to riſe or ſet coſmically is only to aſcend above, or deſcend below, the horizon.

COSMIN, or Kosmin, in *Geography*, a town of Poland, in the palatinate of Kaliſch; 16 miles S.W. of Kaliſch.

COSMO I. in *Biography*, grand duke of Tuſcany, ſon of John de Medici, was born in 1519. On the aſſaſſination of Alexander, he took ſuch meaſures as cauſed himſelf to be unanimouſly elected chief of the republic. A party, headed by ſome perſons of high rank, was formed againſt him, but Coſmo was ſupported by the power of Charles V. and firmly fixed on his throne. To ſtrengthen his hands he married Eleanora de Toledo, daughter of the viceroy of Naples. In 1553 the Siennese revolted from the emperor: the mal-contents were aſſiſted by France, but Coſmo joined the imperialiſts, and triumphed over all oppoſition. Sienna ſurrendered to his power, and with the adjoining diſtrict was annexed to the Florentine dominions. He inſtituted the military order of the knights of St. Stephen for the defence of the coaſt, and allotted to them a palace at Piſa. Conſpiracies were formed againſt him by the high ſpirited Florentines, but he rendered himſelf ſuperior in every ſtruggle for power; in his own family, however, he was one of the moſt unfortunate of ſovereigns. He had a numerous offspring, but the fate of his two ſons John and Garcia was truly tragical, the elder, John, at the age of 17, was raiſed to the dignity of cardinal: Garcia then but 15, jealous, probably, of the high honours conferred on his brother, and poſſeſſing a cruel and malignant diſpoſition, took an opportunity, while on a hunting party, to ſtab him to the heart; after which he joined the reſt of the company with an air of perfect tranquillity. The dead body was ſoon diſcovered, and the death of the youth was ordered by the duke to be attributed to apoplexy. He was, however, too wary to be deceived himſelf, well knowing by whom the bloody deed was done: and ſending for Garcia charged him with the crime, which, though at firſt, he denied in the moſt peremptory manner, he at length confeſſed. The unhappy father, armed with arbitrary power, commanded his ſon to prepare for the puniſhment which he deſerved, and, almoſt at the ſame inſtant, ſnatching Garcia's dagger, the inſtrument of his guilt, he plunged it into the criminal's boſom, and laid him dead by the corpſe of his brother. Their mother ſurvived the loſs of her ſons a few days only. Coſmo enjoyed the ſupreme power during a period of 38 years, and died in 1574, aged 55. The magnificence of his diſpoſition, which has been greatly and juſtly celebrated, ſhewed that he merited the crown which he wore. He is ſignalized as an encourager of letters and the fine arts. He reſtored the univerſity of Piſa, invited to it profeſſors of the firſt talents, and founded in it a new college for the education of forty ſtudents. Coſmo was the founder of the Florentine academy: made great additions to the Laurentian library, and laid the foundation of the famous gallery of Florence, at the ſame time furniſhing it with the relics of antiquity, and the moſt precious works of art. By the encouragement which he offered, the moſt celebrated artiſts in every line crowded to his capital: here they were ſure of employment, and of rewards proportioned to their merit. He engaged the ableſt printers in the publications of important works. He promoted the ſciences of aſtronomy and navigation; and encouraged the arts of agriculture and medicine, which began to be ſtudied on general principles; and at Florence and Piſa he laid out botanical gardens, and expended large ſums in the proſecution of his plans. His own time was ſpent in the moſt uſeful and liberal ſtudies, for which he had a great taſte. In conſideration of his munificence as a prince and patron of learning and learned men, he was, in 1569, created by pope Pius V. "Grand duke of Tuſcany," a title which he conferred with his own hands. To this innovation ſeveral of the powers of Europe objected at firſt, though, in a ſhort time, they all acquieſced in it; and the honour deſcended to the ſucceſſors of Coſmo, in common with their other titles.

Cosmo II. ſon of Ferdinand I. and grandſon to the preceding, ſucceeded to the dukedom in 1609, and rendered himſelf illuſtrious by the equity and mildneſs of his government, and by his zeal in the promotion of literature and the fine arts. He was a capital economiſt, but without the liability of being charged with ſelfiſhneſs or avarice, and ſo well did he manage the public money, that in 1617 he was able to ſend an army of 20,000 men to the aſſiſtance of the duke of Mantua againſt Savoy, without laying a ſingle tax upon his ſubjects. He died in 1621.

Cosmo III., born in 1642, was ſon of Ferdinand II., whom he ſucceeded in 1670, and inclining to the houſe of Auſtria in oppoſition to that of France, he obtained from the emperor the title of Royal Highneſs, which was confirmed by the pope, and, after ſome oppoſition, admitted by the other powers. In the year 1700 he went to Rome, and at the jubilee he expreſſed a vehement deſire to touch the holy handkerchief, an indulgence which the pope refuſed to grant to any one who was not a canon of St. Peter's. Coſmo without heſitation entered into prieſt's orders, obtained a canonry, and then was allowed what he ſo anxiouſly deſired, together with the privilege of beſtowing his benediction upon the ſurrounding crowd. His part of his conduct has ſubjected him to reproaches either as a hypocrite, or a weak devotee. His religion did not prevent him from attending to his temporal rights: but by ſtrict economy and the taxes which he impoſed on his people he was one of the richeſt princes of Europe. His liberality was by no means proportioned to his wealth; and after a long reign he died in 1723, having attained to the great age of 81 years. He was devoted to the chemiſtry of the day, and is ſaid to have been pleaſed when his friends requeſted medicines made up at his own laboratory. Univer. Hiſt. Moreri.

Cosmo. See Cosmas.

COSMOGONY, in *Phyſics*, ſignifies the ſcience of the formation of the univerſe. The term is formed of κοσμος, the *world*, and γεινομαι, *I am born*. It differs from *coſmography*, which is the ſcience of the parts of the univerſe, ſuppoſing it formed, and in the ſtate in which we behold it; and from *coſmology*, which reaſons on the actual and permanent ſtate of the world formed as it now is; whereas *coſmogony* reaſons on the variable ſtate of the world at the time of its formation. In our conjectures about the formation of the world there are two principles which we ought never to loſe ſight of. 1. That of *creation*; for certainly matter could not give itſelf exiſtence, it muſt have received it. (See CREATION.) 2. That of a ſupreme intelligence directing this creation, and the arrangement of the parts of matter, in conſequence of which this world was formed.

Various opinions have been held both by the ancients and moderns concerning the origin of the univerſe, and the time as well as the manner of its formation. Although a brief abſtract of theſe opinions will be found under the appropriate titles or appellations of thoſe by whom they were maintained, we ſhall in the ſequel of this article give a connected ſummary of them, together with references to thoſe heads or titles under which the particular detail of them occurs. Theſe opinions may be comprehended under the three following diſtinctions; *viz.* 1. That the world is eternal, both as to matter and form: 2. That the matter of the world is eternal, but not the form: 3. That the world had a beginning, and will undergo a diſſolution: being in its own nature periſhable.

Ocellus Lucanus, whoſe antiquity and authority have been contraſted againſt thoſe of Moſes, though he lived in the age preceding that of Plato, was one of the moſt ancient aſſertors of the eternity of the world. In a book which he wrote "On the Univerſe," and which is ſtill extant, he affirmed, that the univerſe never had a beginning, and never will have an end, being incapable of generation or of corruption; that of itſelf it is eternal, perfect, and permanent for ever, and that the frame and parts of the world, as well as the ſubſtance and matter of the whole, and alſo mankind, muſt neceſſarily be eternal. His arguments for this opinion are either very abſurd and ridiculous, as when he attempts to prove, that the world muſt be eternal, becauſe its figure and motion are both circular, and therefore without beginning or end; or elſe they are ſuch as tend to prove, that ſomething muſt be eternal, becauſe it is impoſſible for every thing to originate from nothing, or to fall into nothing, alleging that ſince there is nothing exterior to the univerſe, it is a contradiction to aſcribe to it a beginning, becauſe it muſt have been produced by ſome other thing, and then it is not the univerſe. He himſelf however ſeems to be perſuaded that the neceſſity of exiſtence muſt flow from an eternal and intelligent mind, the neceſſary perfections of whoſe nature are the cauſe of that harmony which ſubſiſts in the univerſe, and which prevents its diſarrangement. He allows, that God has given to man faculties, organs of ſenſe, and appetites, not for the ſake of pleaſure, but for final cauſes; and expreſsly aſſerts, that the ever-active being governs, and that the ever paſſive is governed; that the one is firſt in power, the other poſterior: that the one is divine, rational, and intelligent, the other generated, irrational, and liable to change. See OCELLUS LUCANUS. Ariſtotle, who ſeems to have freely borrowed from the above work in his treatiſe "On Generation and Corruption," held the ſame opinion with regard to the univerſe; and he was the firſt, at leaſt among the Greeks, who aſſerted it; for he ſays, (De Cœlo. l. i. c. 10.) that, before his time, the temporary production of the world was a tenet univerſally received, though it was a queſtion whether it ſhould ever periſh or not. It was his doctrine, that not only the matter of the heavens and the earth was ungenerated and eternal; but that even mankind, and all the ſpecies of animals, male and female, have ſubſiſted from everlaſting to everlaſting by a perpetual courſe of generation, without any original beginning or production; or that the earth has for ever been adorned with trees, plants, flowers, animals, and other productions as we now obſerve it. The great reaſon, which induced Ariſtotle to aſſert the eternity of the world, was his conceiving, that ſuch an effect muſt of neceſſity eternally proceed from ſuch an eternal cauſe as the divine mind, which, being altogether act and energy, could not reſt in a ſtate of inactivity. He acknowledged, however, (Metaph. l. i. c. 2, 3.) that a ſpiritual ſubſtance is the cauſe of the univerſe, and the ſource of all the order and beauty, as well as of the motions and forms which we ſo much admire. And he expreſsly deſcribes God to be an intelligent being (Νȣς,) incorporeal, the firſt mover of all things, himſelf immoveable, eternal, indiviſible, and deſtitute of all quantity; and he affirms, that if there were nothing but matter in the world, there would be no original cauſe, but an infinite progreſſion of cauſes, which is evidently abſurd. However we may infer the true notion of this great philoſopher to have been, that though the world had no temporary generation, yet it was produced from one Supreme Deity, after ſome other manner. (See ARISTOTLE.) Although Plato himſelf acknowledged that the world was made by God, yet he uſed ſome expreſſions which intimated that the time of its formation was indefinite; ſuch as when he ſays, that the world muſt be an eternal reſemblance of the eternal idea; ſo that many of his followers, adhering to Ariſtotle's opinion, availed themſelves of theſe expreſſions, and explained them as denoting, that by the creation of the world was not to be underſtood a creation in time, but only in order of nature, cauſality, and dependance; the will of God, and his power of acting, they ſay, being neceſſarily as eternal as his eſſence, the effort of that will and power muſt be ſuppoſed coeval with the will and power themſelves. According to theſe philoſophers, exiſtence from eternity, and being cauſed or produced by another, were not apprehended to be contradictory or inconſiſtent. And as they were led into this opinion, from the ſole conſideration of the benevolent will and generative power of the Deity, they allowed that the world, notwithſtanding its exiſtence from eternity, might in ſome ſenſe be ſaid to be made, as being produced from another cauſe, and not ſelf-originated. To this purpoſe, Proclus himſelf, the grand champion for the world's eternity, plainly acknowledges, that the generation of the inferior gods and of the world muſt be ſo underſtood; meaning, when they called it the generation of the gods, not any temporary production, but their ineffable proceſſion from a ſuperior firſt cauſe (Procl. in Tim. p. 85. Cudworth. p. 253.) The later Platoniſts, being fond of this notion of the eternity of the world, endeavoured, by forced conſtructions, to wreſt their maſter's words, eſpecially his "Timæus," to their own purpoſe. Accordingly this doctrine of the world's co-eternity with God was, in the 6th century, allowed to be publicly taught in Alexandria, by Ammonius the ſcholar of Proclus, and not without ſucceſs. (See PLATO and PLATONISTS.)

Some modern aſſertors of the eternity of the world have ventured to affirm the material univerſe to be ſelf-exiſtent, and to be the ſupreme deity himſelf. This is the doctrine of Spinoza, the firſt, as it is ſuppoſed, who reduced Atheiſm into a ſyſtem, by regular deductions, after the method of the mathematicians. (See SPINOZA.) However the fundamental opinion, on which Spinoza erected his ſyſtem, was not new; but others long before his time had led the way, though in ſome reſpects he departed from them. The opinion that the univerſe is one ſubſtance, and that God and the world are one and the ſame thing, is ſuppoſed to have been firſt taught by Xenophanes, the founder of the ſect afterwards called the Eleatic. He is ſaid to have held not only the eternity and immutability of the world; but alſo, that whatever exiſted was one being; that there was neither any generation nor corruption; that this one being was immoveable, and remained always the ſame, and was the true God. This doctrine was not only defended by his ſucceſſors, Parmenides, Meliſſus, and Zeno of Elea, but by Stilpo, and the Megaric philoſophers alſo. (See the articles XENOPHANES, PARMENIDES, ZENO, and STILPO.) Strato of Lampſacus departed eſſentially from the ſyſtems both of Plato and Ariſtotle; for though he made nature inanimate, and acknowledged no God but nature, yet it is not certain that he taught that the univerſe, or nature, was one ſimple being. His opinion ſeems to have approached much nearer to Spinoziſm than the *corpuſcular* ſyſtem, which ſee. (See alſo the article STRATO.) Whatever was the real notion of this diſtinguiſhed Peripatetic philoſopher, and whatever difference ſubſiſted between him and the Epicureans, it is certain, that Alexander the Epicurean, who is ſuppoſed to have been contemporary with Plutarch, maintained, that God is matter, or not diſtinct from it; that all things are eſſentially God, that forms are imaginary accidents, having no real exiſtence; and that all things are ſubſtantially the ſame. This extravagant opinion was embraced by ſome heretical Chriſtians; as by one Amalric in particular, whoſe dead body was taken up and burnt, in the beginning of the 13th century, for having taught, that all things were God, and that God was all things, and the eſſence of all creatures; ſo that the creator and creature were the ſame; and that God was the end of all things, becauſe all returned into him. Theſe ſentiments were adopted by his ſcholar David of Dinant, and ſeveral others; and the learned Peter Abelard has been accuſed of holding the ſame opinion. This notion has not been confined merely to Europe, but has made progreſs in the Eaſt; among the Japaneſe and the Mahometans; and the dogma of the ſoul of the world, is not only common in the Eaſt, but prevailed among the ancients, forming the chief part of the Stoic ſyſtem, though in reality it is the ſame, with ſome ſhades of difference, with that of Spinoza. Some heterodox Stoics, as in particular Boethius, not only denied the world to be an animal, or intelligent being; ſubſtituting in the room of its mind or ſoul a plaſtic nature; but they alſo aſſerted the world's eternity and incorruptibility, or one conſtant and invariable courſe or tenor of things. The elder Pliny ſeems to have been of this opinion; for he declares, that the world, and that which is alſo called heaven, by whoſe circular motion all things are governed, ought to be believed to be an immenſe and eternal deity, ſuch as was neither made, nor will ever be deſtroyed. (Nat. Hiſt. l. ii. c. 1.)

The *ſecond* opinion, reſpecting the coſmogony, *viz.* that the ſubſtance of the univerſe is eternal, though the form be not, was generally adopted by the ancients, who inferred from the eſtabliſhed axiom, "ex nihilo, nihil," or that nothing can be produced from nothing, that the creation of matter was an abſolute impoſſibility; but, at the ſame time, had ſufficient reaſon for believing that the world had not always been in its preſent ſtate and order. Thoſe who embraced this opinion may be divided into two claſſes; of which the firſt endeavoured to account for the generation of the world, or its reduction to its preſent form, from mechanical principles only, and the activity of matter, without having recourſe to the aſſiſtance of any divine power; and the others introduced an intelligent mind as the architect and diſpoſer of all things. No principle can be more abſurd than that which ſuppoſes matter to be uncreated; for, if matter was eternal and uncreated, and diſtinct from God, it owed its exiſtence to its own nature only, depending on no other cauſe, either in reſpect of its eſſence or its properties. Moreover, it is contrary to all rules of reaſon, that another being ſhould exerciſe ſo great a power over matter as entirely to change it, and form a world out of that which had been ſelf-exiſtent from all eternity without being a world. Beſides, thoſe who attribute the formation of the univerſe to mere matter and motion, ſuppoſe the eternal motion of matter; but if motion be eternal, it was either eternally cauſed by ſome eternal intelligent being, which would again introduce the deity, who, on their hypotheſis, had been excluded; or it muſt be of itſelf neceſſary and ſelf-exiſtent; whence it would follow, that it muſt be a contradiction in terms to ſuppoſe any matter to be at reſt, or to ſuppoſe that there might have been originally more or leſs motion in the univerſe than there actually was, both which conſequences are too abſurd to be admitted; or elſe, without any neceſſity in its own nature, and without any external neceſſary cauſe, it muſt have exiſted from eternity by an endleſs ſucceſſive communication, which is alſo a plain contradiction; for an infinite ſucceſſion of merely dependent beings, without any original cauſe, is a ſeries of beings, which has neither neceſſity nor cauſe, nor any reaſon at all of its exiſtence, neither within itſelf nor from without; that is, it is an expreſs impoſſibility. Mr. Toland, indeed, (Lett. iii.) has ventured to aſſert, and pretended to prove, that motion, meaning the conatus, or endeavour to move, is eſſential to all matter; but this is a very unphiloſophical poſition. The conatus to motion in any one particle of matter, muſt be either a conatus to move ſome one determinate way at once, or to move every way at once; but a conatus to move ſome one determinate way, cannot be eſſential to any particle of matter, but muſt ariſe from ſome external cauſe; becauſe there is nothing in the pretended neceſſary nature of any particle to determine its motion, neceſſarily and eſſentially, one way rather than another; and a conatus to move equally every way at once, is either an abſolute contradiction, or at leaſt can produce nothing in matter, but an eternal reſt of all and every one of its parts. (Clarke's Demonſtr. of the Being and Attrib. of God, p. 66.) According to this ſecond opinion, the ſtate in which matter is ſuppoſed eternally to have been, is liable to ſeveral objections. The original of the earth they ſuppoſe to have been a chaos in a confuſed and diſordered ſtate; and to this chaos they attribute a certain motion, which they conceive to be irregular and tumultuous, but it was changed into a regular motion either by chance or divine power; but Ariſtotle has long ago obſerved, that the ſuppoſition of ſuch an irregular motion deſtroys itſelf; as that which is infinite and eternal muſt neceſſarily have a regular and natural motion; and if the motion of the chaotic particles be natural, according to their ſeveral qualities and properties, the very poſſibility of matter's having continued in that ſtate from eternity is deſtroyed; becauſe, we thus introduce a principle, which will neceſſarily ſeparate the ſeveral kinds of bodies one from the other, and that within a certain limited ſpace of time. This principle alſo renders the aſſiſtance of a deity unneceſſary; for if the chaos be acknowledged to have in itſelf all the internal power that is requiſite for the ſeparation of its parts, and the placing of every element in its proper ſituation, there can be no occaſion for the intervention of any external cauſe, (See CHAOS.) It is neceſſary, therefore, if we would reaſon juſtly concerning the production of the world, to conſider God as the author of nature, and as the firſt and ſole principle of motion. Without a deity, we ſhall be involved in an endleſs labyrinth of abſurdities and contradictions. Thoſe philoſophers, therefore, determine reaſonably, who aſſert that the world had a beginning, and was once formed out of a confuſed chaos. And though, without a divine revelation, the æra of its commencement cannot be aſcertained; yet, we have ſtrong preſumptive proofs, that the preſent frame and conſtitution of the earth, at leaſt, have been of no very ancient date. To this purpoſe, the following circumſtances have been mentioned: The changes which muſt neceſſarily, and in the ordinary courſe of nature occur in the earth during a long interval of time, by putrefaction, the ſubſidence of mountains, the daily encroachments of the land upon the ſea, the conſumption of water, and other innumerable accidents; the univerſal tradition of the moſt ancient nations, both learned and barbarous; the population of the earth; the late original and invention of all arts and ſciences; the ſhortneſs of the hiſtory of the earth, which reaches up to a very few years; the manifeſt abſurdities and contradictions of thoſe few accounts which pretend to a greater antiquity; the impoſſibility that univerſal deluges, or other accidents, ſhould at certain long periods have often times deſtroyed the far greater part of mankind, with the memory of all former actions and inventions, and yet never have happened to deſtroy them all: theſe circumſtances, and many more conſiderations, deduced from nature, reaſon, and obſervation, render it exceedingly probable, that the formation of the earth was novel, and of no great antiquity. And, it is not to be doubted, that the doctrine of thoſe ancient poets and philoſophers, who taught that the world had a beginning, was founded on ſtill more ancient traditions, which were ſo many authorities to them, as their teſtimonies are at this day to us. (See Nicholl's Conf. of a Theiſt, vol. i. p. 1. Clarke's Diſc. concerning the Evidences of Nat. and Revealed Religion, p. 252. Burnet's Theory of the Earth, b. i. c. 4.) Under this head, many different hypotheſes of coſmogony have been framed; and in the recital of them, we ſhall begin with thoſe which, excluding all divine interpoſition, accounted for the formation of the univerſe from the properties and action of matter only. The firſt is, that of the Phœnicians, tranſmitted to us by Sanchoniatho, and taken originally, as he aſſures us, from the coſmogony of Taautus, who was the ſame with the Egyptian Thoth, the Hermes of the Greeks, and the Mercury of the Romans. According to his account, the firſt principles of the univerſe were a ſpirit of dark air, and a turbid obſcure chaos, which, for many ages, had no bounds; and the formation of all things began by the conjunction of this ſpirit with its own principles, which produced " mot," derived by Bochart from the Arabic, *madah*, ſignifying, as he ſays, the firſt matter of things. But as Sanchoniatho makes the chaos, and not mot, to be the firſt material principle; Cumberland deduces it from another Arabic word, *matha*, denoting to ſteep or macerate in water, whence is formed *mauth* or mot, ſignifying ſuch a ſolution or confuſion, denominated by ſome mud, and, by others, a corruption of a watery mixture, which became the ſeed of all creatures, and hence proceeded the generation of the univerſe. From certain animals which had no ſenſe, proceeded others that were intelligent, called " Zophaſemin," *i.e.* the contemplators of heaven, being formed alike in the ſhape of an egg; and upon this mot, with the ſun, moon, ſtars, and larger conſtellations, immediately ſhone forth; and from this relation it hath been inferred, that Thoth conſidered the earth as a planet. The air being intenſely enlightened by the violent degree of heat communicated to the ſea and earth, winds were generated and clouds, and great deſcents and defluxions of the celeſtial waters; and when they were ſeparated and drawn from their proper place by the heat of the ſun, and then met again in the air, and daſhed againſt one another, thunder and lightning were engendered; and at the noiſe of the thunder, the above-mentioned intelligent animals awoke, terrified with the ſound, and male and female moved on the earth, and in the ſea. Euſebius of Cæſarea, who has preſerved this fragment, obſerves, that this coſmogony of the Phœnicians introduces atheiſm; Sanchoniatho having delivered no theology concerning the ſupreme God, nor concerning the inhabitants of heaven, or angels. Biſhop Cumberland conſiders this account of the origin of things as a profeſſed apology for the idolatrous worſhip paid to dead men, and the ſeveral parts of the univerſe. Whereas, others think that Euſebius would rather wiſh to render the theology of the pagans ridiculous and abſurd: and that, by the moſt favourable interpretation of the words of Sanchoniatho, it is not improbable that the Phœnicians ſuppoſed two principles, one of which was a turbid dark chaos, and the other a ſpirit, or an underſtanding prolific goodneſs, forming and hatching the corporeal world into perfection; the eternity of which ſpirit ſeems alſo to be aſſerted by the declaration, that it knew not its own generation, that is, had no original at all. This Phœnician coſmogony being confeſſedly taken from that of Thoth, agrees in ſubſtance with the Egyptian. (Sanchon. apud Euſeb. Præp. Evang. l. i. c. 10. Cumberland's Rem. on the Coſmogony of Sanchon. Cudworth's Intell. Syſtem.) The account of the origin of the univerſe, given by Diodorus Siculus, (lib. i.) is generally ſuppoſed to be the coſmogony of the Egyptians; and it is as follows.

When the univerſe firſt coaleſced, heaven and earth were of one form, their nature being blended together; but afterwards, as bodies ſeparated, the world took on it the entire diſpoſition wherein we now behold it, and the air began to have a conſtant motion; upon which, its fiery parts flew to the upper regions, being naturally carried upward by their own levity; and hence proceeded the rapid circular motion of the ſun, and other ſtars. The muddy and turbid matter, after it had been incorporated with the humid, ſubſided in one place by its own weight, and, being agitated with continual internal volutations of the watery parts, the ſea became formed, and of the more ſolid the earth, which was ſlimy and very ſoft at firſt; but, ſtiffening by the rays of the ſun, the ſurface began to ferment, by reaſon of the heat; and ſome of the humid parts ſwelled, and roſe by degrees into putrid puſtules, covered with thin membranes. The humid matter, thus fecundated by the genial heat, by night received nutriment from the miſt falling from the ambient air, and by day grew more and more ſolid by the ſun's warmth, till at length the incloſed brood being arrived at perfect maturity, and the membranes burnt up and burſt, all kinds of creatures were produced. Of which thoſe that had obtained the greater degree of heat, became volatiles, and flew upwards; thoſe, in which the earthy concretion prevailed, were placed in the rank of reptiles, and other terreſtrial animals; and the creatures, which chiefly conſiſted of a watery nature, repaired to a congenial element, and were called fiſh. At length the earth, continually hardening more and more by the heat of the ſun, and by the winds, could no longer produce any of the larger animals; but they began to propagate their ſeveral ſpecies by generation. And, to obviate any objection againſt the poſſibility of the earth's producing living creatures, our author inſtances in the vaſt number of mice, which are ſaid to be bred in the Upper Egypt, out of the putrified mud, after the overflowing of the Nile.

This coſmogony is charged with being a mechanical explication of the generation of the world, without any help from God; and Euſebius obſerves, that the name of God is not ſo much as mentioned in it, but a kind of fortuitous and ſpontaneous formation of the univerſe introduced. From this imputation of acknowledging no deity beſides ſtupid matter, the Egyptians have been ſtrenuouſly defended by Dr. Cudworth (Intell. Syſt.); and we have the authority of Plutarch (Iſis and Oſiris) for ſuppoſing, that the Egyptians admitted an active principle, or intelligent power, eternally united with the chaotic maſs, by whoſe energy the elements were ſeparated, and bodies were formed, and which continually preſides over the univerſe, and is the efficient cauſe of all effects. The teſtimony of Plutarch is corroborated by that of many other writers. (See Agathodæmon and Cneph.) Notwithſtanding what has been advanced, in ſupport of the contrary opinion, by Euſebius, Porphyry, and others, it appears highly probable that the ancient Egyptians acknowledged an active as well as a paſſive principle in nature, and, as Plutarch aſſerts, worſhipped τω πρωτω θεω, the ſupreme deity. The Egyptian prieſts alſo taught, that the earth had certain periods of revolution, being alternately deſtroyed by water and fire, and renewed again.

As to the Chaldæans or Babylonians, Diodorus ſays, they held the nature of the world to be eternal, and that it had neither any original generation, nor is ſubject to any future corruption; yet that the order and beautiful diſpoſition of all things were cauſed by a divine providence; and that whatever are now in the heavens were not caſual, or ſpontaneous, but perfected by the determinate and eſtabliſhed decree of the gods. From the account given by Beroſus of the Chaldaic coſmogony, it appears that the old Babylonians expreſsly attributed the orderly diſpoſition of the world, the perfecting of the heavenly bodies, and the formation of men and animals, to their ſupreme god, Bel; though they ſeem to have held the pre-exiſtence of matter. It muſt, therefore, be ſome theology of the later Babylonians, which could with juſtice be charged with paſſing over in ſilence the one principle of the univerſe (ſee Cumberl. Coſm. Sanchon. p. 280.); in which they muſt have departed from the tradition of their anceſtors, the ancient Chaldæans, who were celebrated for their acknowledgement of one ſovereign deity, or maker of the world, as appears from that oracle of Apollo, cited by Euſebius from Porphyry, where the Chaldæans and Hebrews are alone declared to be poſſeſſed of the true wiſdom, as worſhipping God, the ſelf-begotten king, in an holy manner. See Chaldæan *Philoſophy.*

The ancient pagan poets, who greatly contributed to the depravation of theology in general, have particularly countenanced the opinion of the world's having been produced from a chaos, without the intervention and influence of God. For an account of the coſmogony of Orpheus, ſee Orpheus. The coſmogony of Heſiod is ſomewhat confuſed, commencing twice from the chaos, and relating things rather in a poetical than a philoſophical order. The ſubſtance of what he delivers is, that in the beginning the chaos firſt exiſted, then the widely-extended earth, and next love, the faireſt of the immortal gods; that the chaos produced Erebus and Night, from the conjunction of which two iſſued Æther and Day. After which he proceeds to give an account of the ſeparation of the heavens and ſtars from the earth, the raiſing of mountains, and the ſinking of caves; and of the production of the ſea, from the heavens and earth together. Ariſtophanes has given a much more methodical and complete deſcription of this ancient coſmogony. His account is ludicrouſly introduced in a comedy; but it is conceived to have been a ſketch of the old atheiſtic ſyſtem, and may be thus explained. Chaos, or matter, confuſedly moved, being the original of all things, did thence riſe up gradually from leſſer to greater perfection; firſt, inanimate things, as the elements, heaven, earth, and ſeas; then, brute animals; afterwards, men; and, laſt of all, gods; as if not only the ſubſtance of matter, and theſe inanimate bodies of the elements, fire, water, air, and earth, were firſt in order of nature before God, as being themſelves alſo gods, but alſo irrational animals at leaſt, if not men too. And this is the atheiſtic creation of the world, gods, and all, out of ſenſeleſs and ſtupid matter, or dark chaos, as the only original deity. (Cudw. Intell. Syſt.) For the opinions of ſeveral ancient philoſophers concerning the origin of the world, and the manner of its formation; ſee Thales, Anaximander, Anaximenes, and Anaxagoras. The next atheiſtic ſyſtem of philoſophy and of coſmogony, which we ſhall mention, is the *atomic;* for an account of which, ſee this article. The doctrine of Leucippus and Democritus, to whom this ſyſtem is aſcribed, as to the origin of the world, was, that the firſt principles were an infinite number of atoms, or indiviſible particles, of different ſizes and figures, which, moving fortuitouſly, or without deſign, from all eternity, in infinite ſpace, and encountering one another, became variouſly implicated and entangled, and produced firſt a confuſed chaos of all kinds of particles, which afterwards, by continual agitation, ſtriking and repelling each other, diſpoſed themſelves into a vortex, or vortices, where, after many convolutions and evolutions, molitions and eſſays, in which all imaginable ſhapes and combinations were tried, they chanced at length to ſettle into this preſent form and ſyſtem of things. This hypotheſis, as to the formation of the principal parts of the world, agrees with that of Epicurus, as it is repreſented by Lucretius, excepting that no mention is made of thoſe vortices, which were an eſſential part of the former. To the two properties, attributed to atoms by Democritus, magnitude and figure, Epicurus added a third, *viz.* weight; without which he did not conceive they could move at all. See Epicurean *Philoſophy.*

Thoſe who, allowing the eternity of matter, introduce an intelligent mind as the diſpoſer of it into the form which the world now bears, may again be ſubdivided into two claſſes: one, who, allowing no ſubſtance but matter, ſuppoſed it to be endued with underſtanding and life, and conſequently to be God; and another, who held God and matter to be two diſtinct and independent beings. The firſt opinion, which differs but little from Spinoziſm, ſeems to have been that of Diogenes of Apollonia, and was certainly maintained by Hippaſus of Metapontus, Heraclitus, and the Stoics. Hippaſus and Heraclitus held fire to be the firſt principle, of which all things were made; into which, after the revolution of certain periods, they will be again reſolved; and that this fire was God, whom Heraclitus deſcribed to be the moſt ſubtle and ſwift ſubſtance which permeates or paſſes through the whole univerſe. Heraclitus's account of the formation of the world was, that the fire being extinguiſhed, the groſſeſt parts of it coaleſcing made the earth, which, being looſened by the fire, produced water, and from the exhalation of this water the air was generated. Hippocrates had the ſame notion of the deity with Heraclitus, declaring his belief to be, that heat or fire was immortal and omniſcient, and that it ſaw, heard, and knew all things, both preſent and future.

The Stoics held two firſt principles: God, and matter void of all quality; the one active, and the other paſſive, and that they were both corporeal; for they did not acknowledge any ſuch thing as incorporeal ſubſtance; by which means they ſtrangely confounded themſelves, and reduced their two principles in effect to one and the ſame. See STOICS. With the notions of the Stoics concerning the conſtitution of the world, agrees the doctrine which is ſaid to be almoſt univerſal among the Pundits, or learned men, in India, and ſecretly entertained by the Sophis and learned men of Perſia. There is alſo a ſect among the Chineſe, who acknowledge nature to be the ſole deity, thereby underſtanding that natural power or operation, which, being the efficient cauſe of motion and reſt, produces, maintains, and preſerves all things. But the opinion more commonly embraced at this time by the Chineſe, and in which the atheiſm which has been ſo prevalent among them conſiſts, approaches nearer the Stoic doctrine. (See CHINA.) The Siameſe have alſo ſome agreement with the Stoics, in their notion of the alternate deſtruction and renovation of the univerſe. (See CONFLAGRATION.) Another claſs of perſons comprehends ſuch as held two diſtinct and independent principles, coexiſtent from eternity, God and matter: and this is ſuppoſed to have been the opinion of Pythagoras and Plato; and was certainly that of Anaxagoras, Archelaus, and ſeveral others. (See PHERECYDES, PLATO, and PYTHAGORAS.)

The third and laſt, and only true opinion concerning the origin of the univerſe is held by thoſe, who aſſert that the world had a beginning, being produced by God out of a ſtate of non-exiſtence; and conſequently, that it is in its own nature liable to diſſolution. Beſides ſuch of the nations and philoſophers already mentioned, who moſt probably believed this creation of the world, though ſuſpected of contrary opinions, there were ſeveral among the heathens who unqueſtionably belonged to this claſs. Such were the ancient *Tuſcans*, or *Etrurians;* the *Druids;* the *Magi*, among the ancient Perſians; the *Brachmans*, and *Bramins;* which articles ſee reſpectively. Before idolatry prevailed in China, they acknowledged one God, or ſupreme, eternal, omnipotent Spirit, the lord of heaven and earth, the governor and director of all things, whom they worſhipped under the name of Shang-ti. They held, that a chaos was the beginning of things, from which God produced whatſoever is material in the univerſe. See CHINA, and alſo JAPAN. Cudworth's Intellectual Syſtem. Brucker's Hiſt. of Philoſ. by Enfield, vol. i. Anc. Un. Hiſt. vol. xviii. Appendix.

For an account of modern theories of coſmogony, ſee CARTESIAN *Philoſophy*, CREATION, and *Theory of the* EARTH.

COSMOGRAPHY, from κοσμος, *world*, and γραφω, *I deſcribe*, the deſcription of the world; or the art which teaches the conſtruction, figure, diſpoſition, and relation of all the parts of the world, with the manner of repreſenting them on a plane.

Coſmography conſiſts chiefly of two parts: *aſtronomy*, which ſhews the ſtructure of the heavens, and the diſpoſition of the ſtars; and *geography*, which ſhews thoſe of the earth.

COSMOLABE, from κοσμος, *world*, and λαμβανω, *I take*, an ancient mathematical inſtrument, ſerving to meaſure diſtances, both in the heavens, and on earth.

The coſmolabe is in great meaſure the ſame with the aſtrolabe. It is alſo called *pantacoſm*, or the *univerſal inſtrument*, by L. Morgard, in a treatiſe written expreſsly upon it, printed in 1612.

COSMOLOGY, from κοσμος, *world*, and λογος, *diſcourſe*, the ſcience of the world in general. This Wolfius calls *general* or *tranſcendental coſmology*, and has written a treatiſe on the ſubject, wherein he endeavours to explain how the world ariſes from ſimple ſubſtances; and treats of the general principles of the modifications of material things, of the elements of bodies, of the laws of motion, of the perfection of the world, and of the order and courſe of nature. Wolf. Coſmologia Generalis, Francfort, & Leipſic, 1731. 4to.

COSMOPOLITE, or COSMOPOLITAN, a term ſometimes uſed to ſignify a perſon who has no fixed living, or place of abode; or a man who is a ſtranger no-where.

The word comes from κοσμος, *mundus*, and πολις, *city*.

One of the ancient philoſophers being interrogated what countryman he was, anſwered he was a coſmopolite, *i. e.* "an inhabitant or citizen of the world." "I prefer, ſays another philoſopher, my family to myſelf, my country to my family, and the human kind to my country."

COSMOPOLITICAL FEDERATION, denotes a concert between all the nations of the earth for arranging their diſputes by means of umpires, inſtead of armies; the poſſibility of which is diſcuſſed by profeſſor Kant, in a Berlin Magazine for the year 1784.

COSMOS, in *Ancient Geography*, a town of Paleſtine, E. of Jordan. Ptolemy.

COSNAC, in *Geography*, a town of France, in the department of the Lower Charente, near the Gironde; 18 miles S. of Saintes.

COSNE, a town of France, in the department of Nievre, ſituated on the river Loire. It is the chief place of a diſtrict, and has a ſub-prefect, and a court of juſtice. The number of its inhabitants amounts to 4709. The canton has 10 communes, with 11,515 inhabitants, on an extent of 165 kiliometres, but the whole diſtrict counts a population of 57,788 individuals, and 66 communes, on a territorial extent of 1397 kiliometres and a half. The diſtrict of Coſne produces good wine, and abundance of corn. It has ſeveral iron mines and forges. Its principal trade is in hardware and cutlery.

COSPEAN, PHILIP, in *Biography*, a celebrated French preacher and prelate, who flouriſhed in the beginning of the ſeventeenth century. In early life he ſtudied under Lipſius, and in 1604 became one of the doctors of the college of the Sorbonne. As a writer he is known as a controverſialiſt in theological ſubjects; but his fame as a preacher was very remarkable, eſpecially for having introduced in his diſcourſes illuſtrative citations from the ſacred writings, which is perhaps one of the moſt uſeful modes of preaching. He was ſucceſſively biſhop of Aire, Nantes, and Liſeux, and died in 1646 at the age of ſeventy-eight.

COSPODA, in *Geography*, a town of Germany, in the circle of Upper Saxony, near Neuſtadt.

COSPOUR, or COSPORE, a town of Aſia, the capital of CACHAR, in the kingdom of Ava, or Birman empire; 376 miles E. of Patna. N. lat. 24° 56′. E. long. 92° 57′.

COSS, a meaſure of length uſed in Hindooſtan, the ſtandard of which has varied at different periods, according to the caprice of the emperors. The firſt perſon who made a great innovation in this ſtandard was Acbar, who directed it to be taken at 5000 guz, equal to 4757 yards, *i. e.* about two Britiſh miles and five furlongs; and Shah Jehan, about half a century afterwards, increaſed the ſtandard one-twentieth part, making the coſs more than two miles and ſix furlongs. But ſince the time of Aurungzebe, the ancient, or common, coſs has reſumed its place, and thoſe of Acbar and Shah Jehan are only heard of in the hiſtories of the times when they were in uſe. All the coſſes of the Ayin-Acbaree are of the old ſtandard, that is, the common or Hindooſtanny coſs, ſuch as Acbar found in uſe when he aſcended the throne. Although the eſtimated length of the coſs varies in different parts of the country, it does not appear that this variation through the whole of it amounted to ſo much as one-ſixth part; and between the northern and ſouthern extreme of India, that is, in an extent of about 1700 miles, the difference is not more than one-ſixteenth part. The miles, it is well known, vary much more in their proportions in the different parts of Europe. Taking the medium of the coſs throughout Hindooſtan, and the Deccan, there will be about 40 of them to a degree of a great circle on the globe; that is, each coſs is about a geographical mile and a half. In road meaſure the coſs is about one ſtatute mile and nine-tenths, or at the rate of 190 Britiſh miles to 100 coſſes; one part in ſeven being allowed for winding, when the line of diſtance is extenſive:—or, ſeven miles of road meaſure are allowed to produce ſix miles horizontally, or in a direct line. In Malwa and its neighbourhood, the coſſes are larger than any where elſe, and are about 1.7 geographical mile each, or 35 to a degree: and in the road from Baglana to Maſulipatam they are ſo ſhort, that 46 are required to make a degree. The proportions adopted by major Rennell (in his "Memoir") for Hindooſtan, Malwa, and the Carnatic, from a great number of examples, are reſpectively 1.43, 1.71, and 1.6 of geographical miles to a horizontal coſs; or 42.35, and 37½ to a degree of a great circle. The coſs of Hindooſtan Proper is therefore ſhorter than any other, and prevails throughout the greateſt extent of country. In Nagpour (the ancient Goondwaneh) there is a *Goondy* coſs, which is, at a mean, about 2.76 geographical miles, reduced to horizontal diſtance; or 21.9, or 22 to a degree. This meaſure appears to be in uſe by the natives throughout Mundilla and Boggilcund, as well as in Nagpour; and ſometimes occaſions great confuſion in the reports of the "coſſids," or couriers; however, they have a computation of Hindooſtanny coſſes alſo, in the ſame country; and the proportions agree in general remarkably well with that ſcale, between the Bengal provinces and Aurungabad, and between Mundilla and Hydrabad.

Coss, *Rule of*, in *Mathematics*, was uſed for the ſcience of algebra, when it was firſt introduced into Europe by means of the Italians, who named it "Regola de coſa," or the rule of the thing; the unknown quantity, or that which was required in every queſtion, being called "coſa," the thing, whence we have coſs, and coſſic numbers, &c. See ALGEBRA.

COSSA, in *Ancient Geography*, a town of Italy, in Oenotria. Steph. Byz.

COSSA. See COSA.

COSSACKS, or KOZACKS, is the general name of the nations of the Ukraine, on the frontiers of Ruſſia, Little Tartary, and northern Turkey, in the governments of Kief, Tſchernigof, Novgorod-Sivirſk, Kurſk, Orel, Tambof, &c. Their language is the Ruſſian, their religion the Greek, and their vocation to defend the extenſive frontiers of the Ruſſian empire, againſt the incurſions of the Tartars and other ſavage tribes. Unlike the reſt of the Ruſſian peaſants, they cannot be given away as ſerfs, neither do they furniſh recruits for the army; but they all ſerve as light horſemen, and receive pay only when they are in actual ſervice.

The name Coſſack or Kozack is probably Tartarian. It ſignifies an armed warrior. So early as the ninth century the emperor Conſtantine Porphyrogeneta mentions a country of Kaſachia between the Euxine and the Caſpian ſeas, at the foot of the Caucaſian mountains; and in the year 1021, prince Mſtiſlaf, ſon of the great Vladimir, made war upon a nation called Koſagi. Both ſeem to be the ſame people, and of Tartarian origin.

By reaſon of their federal conſtitution, military and civil, the Coſſacks form a diſtinct part and claſs of the Ruſſian nation. This conſtitution they obtained after the deſtruction of the Tartarian empire, when the Ruſſian government appointed them the guardians of the new frontiers, and allotted certain diſtricts of the country for their ſupport. The Coſſacks have no nobility, conſequently no vaſſals. All are brethren, and may reciprocally command and obey. They elect their ſuperiors from their own body, reduce them again to the common level, and chooſe others in their ſtead. The commander in chief alone is appointed by government, and in conſtant pay. The Coſſacks are obliged to clothe themſelves at their own expence, to provide themſelves with horſes and arms, and to be at all times completely ready to march. While in actual ſervice each common man receives the munition and the pay of a ſoldier, *viz.* twelve roubles a year. They enter the ſervice at the age of eighteen, and obtain their diſcharge at fifty. As countrymen they call their commanders in the *ſtænitzas*, villages, *ſtarſhini*, aldermen, and over towns and diſtricts, *attamans*, corruptly hetmans. As militia they have ſubaltern officers, *deſiatniki* and *piætideſetniki*, over tens and fifties; captains, *ſotniki*, over hundreds; and every regiment, which, according to the extent of the diſtrict, is from one thouſand to three thouſand men ſtrong, has a general officer, *voiſkovoi attaman*. A regiment is called a *polk*, and a whole diviſion of Coſſacks is under rhe command of a *glavnoi attaman*. The officers have the rank of officers of the regular militia.

The weapons of the Coſſacks are, a lance headed with iron, about a ſpan long, with a ſhaft of three yards and a half in length, a ſabre, a firelock or piſtols, or only a bow and arrows. The lance is generally decorated with a ſmall ſtreamer juſt below the iron. The *kantſhoo*, a plaited leather laſh, an ell long, and an inch thick, faſtened to a ſhort ſtick, may alſo be reckoned among their weapons, ſince beſides exerciſing it upon their horſes, they uſe it againſt an unarmed or conquered enemy. Their ſaddle is merely a wooden frame, under which they lay a piece of felt, to ſave the ſkin of the horſe. They are all expert horſemen, and their hardy and ſwift, though miſerably looking horſes, are well taught, and perform wonders. Each polk or regiment has two or more banners of ſilk, with the figure of ſome patron ſaint; but they have neither drums nor martial muſic. Each man has two horſes.

On their expeditions the Coſſacks are encumbered with no tents or baggage. A piece of felt is their cloak and their bed. Proviſions and forage are carried by the ſecond horſe.

The Coſſacks by their origin, as well as by their preſent conſtitution, are divided into two main branches, *viz.* the *Coſſacks of Little Ruſſia*, and the *Coſſacks of the Don*. From the former are derived the *Slobode* regiments in the government of Charkow, and the *Zaporogians*; and from the Coſſacks of the Don the *Volgaiſki*, *Grebenſki*, *Orenburgſki*, *Uralſki*, *Sibirſki*, &c.

During the Poliſh wars, numerous bodies of fugitive Coſſacks fled from the weſtern to the eaſtern ſide of the Dnieper, into the ſouthern provinces of the Ruſſian empire, where, preſerving their military conſtitution, they ſettled in an uninhabited but fertile region, partly in the government of Charkow, and partly in thoſe of Kurſk and Voronetch. This is the origin of what are called the *Slobode* Coſſacks. The country in which they were eſtabliſhed had anciently belonged to the grand duchy of Kief, and from the time of its being firſt overrun by the Tartars in the year 1240, had remained a deſert the whole eighty years that their dominion laſted. When the Coſſacks returned to the deſolated inheritance of their fathers, they were well received by the czar Alexis Michaelowitch.

The ſecond colony of the Coſſacks of Little Ruſſia, called

Zaporogian Coſſacks, from *za*, beyond, and *porogi*, cataracts, their *ſetcha*, or principal ſettlement, being near the cataracts of the Dnieper, aroſe from part of the young unmarried men having been ſtationed on the ſouthern borders of the Ukraine, where the Dnieper falls into the Euxine. By degrees they came to a total ſeparation from the parental ſtock, and erected a military ſtate of their own. They became ſo diſtinguiſhed for their bravery and ſkill in deſultory war, that perſons flocked from diſtant regions to this ſociety of warriors. No women were admitted in the ſetcha. Thoſe Coſſacks who were diſpoſed to marry were permitted to ſettle in the neighbouring diſtrict, with the privilege of re-admiſſion, provided they were not attended with their wives and families, whom they were allowed occaſionally to viſit. The Zaporogians increaſed their numbers by affording an aſylum to deſerters, and by forcing and enticing youths and children from the Ukraine and Poland into their community. They frequently performed incredible feats of valour in the campaigns of the Ruſſians againſt the Turks and Tartars; nor were their ſervices confined ſolely to land; by their ſkill in navigating the Dnieper, they occaſionally defended the mouth of that river, and attacked with ſucceſs the armed veſſels on the contiguous coaſts of the Black ſea. Their boats were rowed by fifty or ſixty men, had no ſail, and generally carried two ſmall cannon.

But while the Zaporogian Coſſacks were thus terrible to their enemies, they were ſcarcely leſs formidable to their allies. Though nominal ſubjects of the Ruſſian empire, they pillaged the Ruſſian merchants who paſſed through their country, and interrupted the navigation of the Dnieper by continual piracies. This induced the Ruſſian government to deſtroy their ſetcha in 1775. However the Zaporogian Coſſacks ſtill ſubſiſt, only under another name. By an ukaſe of the 30th of June 1792, Catherine II. gave them the iſland of Taman belonging to the province of Taurida, with the whole tract of country between the river Kuban and the ſea of Azof, as far as the rivers Yeya and Laba, which Mr. Tooke computes at 1017 Engliſh ſquare miles in extent. Under the name of *Coſſacks of the Euxine*, they obtained the right of electing their own attamans, but are immediately dependent on the governor of the province of Taurida.

The ſecond main branch of Coſſacks comprehends the *Donſkoi*. They have this appellation from the region of the River Don, which they have conſtantly inhabited and moſt probably derive their deſcent from Novgorodian Ruſſians. Their firſt ſettlements on the Don muſt have taken place after the Tartars were driven from thoſe parts. Their firſt appearance as warriors among the Ruſſian troops is in the year 1579, when 3,000 of them formed part of the army which the Czar Ivan Daſſilowitch marched againſt Livonia.

The Donſkoi Coſſacks inhabit the plains about the Don, between the governments of Saratof, Caucaſus, Voronetſh, and Ekatarinoſlaf, as far as the ſea of Azof. Internal revolutions have given birth to many emigrations of the Donſkoi Coſſacks. The earlieſt happened to the Volga. In the year 1734, theſe *Volgaic* Coſſacks were declared independent on thoſe of the Don, but two colonies of them are only ſubſiſting now, the *Dubofskoi* and the *Aſtrachanſkoi*. The former have their chief ſeat in the little town of Duboſka on the right bank of the Volga, and their territory lies between Dmitrefsk and Tzaritzin. The Aſtrachan Coſſacks dwell partly in the city of Aſtrachan, and partly in the villages around.

A ſecond colony of the Donſkoi Coſſacks are *Grebenſkoi*, who ſeparated from their parent ſtock about the ſame time with the Volgaic, and ſettled about the River Terek, whence they are alſo called *Terekſkoi* Coſſacks. In a campaign of the Czar Ivan I. againſt the Caucaſian Tartars, a body of them penetrated into a part of this great chain of mountains which from its prominent rocks was compared to a comb, *Greben*, and on this occaſion they received the name of *Grebenſkoi* Coſſacks. Near theſe dwell the *Semeinſkoi*, who are of the ſame origin.

The *Orenburg* Coſſacks ſeparated ſtill later from their common ſtem. They dwell along the rivers Samara, Ui, and Ural, from Verkuralſk to Ilezk, and in the petty forts erected againſt the Kirghiſians and the Baſhkirs.

But one of the moſt numerous and moſt powerful branches of the Donſkoi Coſſacks is that of the *Uralſkoi*, formerly called the *Yaïkſkoi Coſſacks*, the river Ural having anciently been known by the name of Yaïk. Their reſidence is on the right ſhore of the Ural, where, beſides their capital Uralſk, they poſſeſs the important town of Gurief on the Caſpian, and defend the forts of the Ural againſt the Khirgiſians. They chiefly live on fiſhing, eſpecially the various kinds of ſturgeon of which they make caviar. Beſides the winter, ſpring, and autumn fiſhing, they fiſh particularly in the months of October and December, for the Imperial table. The fiſh caught at that time is ſent by deputations to St. Peterſburg, or Moſcow. The firſt deputation carries from 60 to 100, the ſecond upwards of 250 ſturgeons. Beſides the travelling and carriage charges, they receive ſabres mounted in ſilver, and 800 roubles for the firſt, and one thouſand roubles for the laſt deputation.

The *Siberian Coſſacks* form the laſt, and in its origin the moſt remarkable branch of the great Donſkoi family, numbers of which abandoned their homes on the Don in the 16th century, in order to plunder the countries ſituated eaſtward. They even acted as pirates on the Caſpian ſea, and ſpread terror on its ſhores. To chaſtiſe thoſe audacious hordes, Ivan II. aſſembled a conſiderable fleet and army in the year 1577, but panic-ſtruck at his preparations, the robbers fled into the neighbouring regions. A ſmall body of ſix or ſeven thouſand men, under the conduct of Yermak, proceeding along the rivers Kama and Tſchuſſovaja onwards to Permia, aſcended the Ural mountains, and preſſing forwards to the Tobol, the Irtiſh and the Oby, ſubjugated Tartars, Vogouls and Oſtiaks. Their conqueſts they formally made over to the Czar in 1581. More regiments of Donſkoi Coſſacks were ſent to Siberia. They puſhed their victorious career as far as the Eaſtern ocean and the mountains of China, and remained in Siberia to keep the reduced nations in obedience. See SIBERIA and YERMAK.

In 1804 there were ten regiments of regular Coſſacks in conſtant pay in the Ruſſian army, amounting to 9429 men organized as huſſars or light dragoons; and 98,211 irregular Coſſacks who receive no pay but when in actual ſervice. Coxe's Travels, vol. iii. Tooke's View of the Ruſſian Empire, vol. i. Storch's Ruſsland unter Alexander Demerſten.

COSSÆI, in *Ancient Geography*, a people of Aſia, who, according to Polybius, inhabited the mountains of Media. Diodorus Siculus adds, that they were a warlike nation, who availed themſelves of their difficult paſſes, and at firſt refuſed to ſubmit to Alexander; but this conqueror, having eſtabliſhed a flying company there and ravaged their country, reduced them in 40 days, afterwards paſſed the Tigris, and marched towards Babylon. Quintus Curtius ſays, that they inhabited a mountainous country. Plutarch calls them "Cuſſæi;" but Arrian, Ptolemy, and Pliny call them Coſſæi. The latter places them to the eaſt of Suſiana; Ptolemy places them in Suſiana, towards Aſſyria; and Arrian ſays, that their country was contiguous to Media, and on one ſide adjoined that of the Elymæans.

COSSART Lamb, in *Rural Economy*, is a term applied to a lamb which is left to itſelf, or to be brought up by the hand, in conſequence of having loſt its mother or dam, before it was capable of providing for itſelf; or to a lamb taken from an ewe that brings two, three, or four at a yeaning, and conſequently is incapable of bringing them all up. In all or many of theſe caſes if there be not another ewe at liberty to ſuckle and to take care of them, they muſt be brought up by the hand, or periſh. By an ewe being at liberty is meant, one that has, by ſome accident, loſt her lamb, and has milk enough to ſuckle one yeaned by another. The term is alſo applied to a colt, calf, &c. which is brought up in the ſame manner.

COSSATO, in *Geography*, a ſmall town of France, in the department of Seſia, which was formerly part of Piedmont in Italy. It has 2473 inhabitants, and is the chief place of a canton, which contains 11 communes, and a population of 9551 individuals.

COSSAY, or Cassay, a province of Aſia, in the northern part of the country of Ava. See Meckley.

COSSE *de geniſte*, an order of knighthood inſtituted in 1234, by Lewis IX. at his marriage with Margaret of Provence. The motto on the collar of this order was *exaltat humiles*.

COSSE', Charles de, in *Biography*, marſhal de Briſſac, was born about the year 1506, and educated with Francis, dauphin of Viennois and duke of Britanny, of whom his father was governor. He devoted himſelf to arms, and was greatly diſtinguiſhed in ſeveral wars, on account of which his ſovereign Francis I. created him a knight of his order. After ſucceſsfully ſerving in various parts of Italy, he returned to France, and contributed not a little to the capture of Havre de Grace from the Engliſh. He died of the gout in 1563, leaving behind him a character of great worth, for energy, integrity, and humanity. Many anecdotes are on record that do much credit to Coſſè, as a man and an officer; of theſe we ſhall mention but one. Having fulfilled a commiſſion in Piedmont, and no farther buſineſs being left for his army, it was diſbanded; the men, not knowing how to obtain the means of ſubſiſtence, exclaimed in an angry tone "Where ſhall we get bread?" "Of me" ſaid the general "as long as I have any." At the ſame time the people who had advanced goods to the ſoldiers on the word of Briſſac entreated him to ſave them from ruin. He gave them all that he poſſeſſed, and then invited them to accompany him to the court of France. The Guiſes refuſed to afford the neceſſary relief, upon which the marſhal ſaid to his wife; "Here are the people who have ventured their property upon my promiſes; government refuſes to ſanction the agreement, and they are ruined." "Let us defer the marriage of our daughter, and give to theſe unfortunate people the money deſtined for her portion." The lady acceded to his wiſhes, and he was thus enabled to pay half the debt, and give ſecurity for the remainder. Moreri.

Cosse' *le Vivien*, in *Geography*, a ſmall town of France, in the department of Mayenne, with a population of 3412 individuals. Its ſituation is 12 miles S. of Laval, and it is the chief place of a canton which has 11 communes, and 9981 inhabitants, on a territorial extent of 265 kiliometres.

COSSEA, in *Ancient Geography*, a country of Aſia, forming part of Perſia Propria. Steph. Byz.

COSSEIR, or Cossir, in *Geography*, a town of Upper Egypt, ſituated on the ſhore of the Red ſea, among hillocks of floating ſand. The houſes are built of clay, ſo that Bruce calls it "a ſmall mud-walled-village." It is defended by a ſquare fort of hewn ſtone, with three ſquare towers in the angles, which are ſurmounted with three ſmall cannon of iron and one of braſs, in very bad condition; ſerving merely to terrify the Arabs, and hinder them from plundering the town when full of corn, for the uſe of Mecca in time of famine. The ramparts are heightened by clay, or by mud-walls, to ſecure the ſoldiers from the fire arms of the Arabs, that might otherwiſe command them from the ſandy hills in the neighbourhood. The number of ſettled inhabitants is very ſmall, though the ſtrangers, who are continually paſſing and repaſſing, augment them prodigiouſly. At Coſſeir they have no great ſupply of proviſions, as there is no cultivable land near the town. The butter they uſe is brought from Arabia. They are ſupplied with good water, that of the wells near the town being brackiſh, by the Bedoweens from Terfowey, at the diſtance of three hours. The dreſs, and apparently the language, of the people of Coſſeir approaches nearer to thoſe of the eaſtern ſhore of the Arabian gulf than to thoſe of the Egyptians. They are armed with the *Jambia*, a crooked knife, not leſs than a yard long, and commonly a lance. Upon the whole they appear, ſays Mr. Browne, rather ſettlers from the oppoſite ſhore than Egyptians. The commerce in coffee is not inconſiderable. Formerly the whole of Upper Egypt was ſupplied with coffee by way of Suez and Cairo, but the Beys having impoſed a very heavy duty on that commodity, the inhabitants began to import from Coſſeir for themſelves, whence they are now ſupplied with the beſt coffee; and at a cheaper rate than from Suez. The town is provided with excellent fiſh, and pepper, and other ſpices, are brought hither free of duty. Some Abyſſinian ſlaves tranſplanted from Jidda are landed here, and carried to Cairo; but their number is very ſmall. The port, if it may be ſo called, is on the S.E. of the town; being merely a rock which runs out about 400 yards into the ſea, and defends the veſſels, which ride to the W. of it, from the N. and N.E. winds, as the houſes of the town cover them from the N.W. Within a large ſpace incloſed by a high mud-wall, every merchant has a ſhop or magazine, for his corn and merchandize; of which laſt little is imported, beſides coarſe India goods, for the conſumption of Upper Egypt itſelf, ſince the trade to Dongola and Sennaar has been interrupted. Coſſeir, ſays Mr. Bruce, has been miſtaken by different authors. M. Huet, biſhop of Avranches, ſays, it is the "Myos Hormos" of antiquity; others, the "Philoteras portus" of Ptolemy. He ſays, that neither the one nor the other is the port, both being conſiderably farther to the northward. The preſent town of Coſſeir, he ſays, was no ancient port at all; old Coſſeir having been 5 or 6 miles to the northward. Without doubt, ſays Bruce, it was the "Portus albus," or white harbour. Ptolemy places here the "Accaba," denoting in Arabic a ſteep aſcent or deſcent, which is found, as well as the marble mountains, towards Terfowey; and the "Aias" mountain of the ſame geographer is found over Coſſeir, on which and a neighbouring mountain are two chalky cliffs, which, being conſpicuous at ſuch a great diſtance, have given the name of white port to Coſſeir, by which it was anciently diſtinguiſhed. Mr. Browne informs us, that the rough and lofty rocks of porphyry and granite with which Coſſeir is environed exhibit a magnificent and terrific appearance; and the level road between this place and Ghenné, ſuggeſts the idea of immenſe labour in cutting it. All theſe circumſtances, he ſays, concur in teſtifying the importance Coſſeir muſt once have had as a port. At certain diſtances in the higheſt rocks is obſervable a ſucceſſion of ſmall ſtructures, formed with uncemented ſtones, which, by internal marks of fire, ſeem to have ſerved as ſignals. Coſſeir is ſituated, according to Bruce, in N. lat. 26° 7′ 51″ and E. long. 34° 4′ 15″. Bruce's Travels, vol. i. p. 193. Browne's Travels, p. 145, &c.

COSSETANIA, a country of Spain, according to Pliny and Ptolemy; the former of whom places in it the river Subi and the town of Tarragona.

COSSET-Lamb. See Cossart-Lamb.

COSSI, or Cassii, in *Ancient Geography*, a people of Britain who are ſuppoſed to have inhabited ſome parts of Hertfordſhire, perhaps the hundred of Caiſhow. See Cattivellauni.

COSSIERS, Jean, in *Biography*, an hiſtorical painter, was born at Antwerp in 1603, and was educated under Cornelius de Vos. After this he improved himſelf by travelling, and the reputation of his talents became known in foreign courts, and he was employed to paint ſeveral pictures for the king of Spain, the cardinal Infant, the archduke Leopold, and the princes. Coſſiers compoſed well; his figures are correctly drawn, and his back-grounds are rich and frequently ornamented with architecture. His manner of painting is broad, and his tone of colouring generally good, though ſometimes a little too yellow. In the church of Des Beguines at Malines are five pictures of the paſſion of our Saviour, and over the great altar three others, repreſenting the crucifixion, which riſe to the roof of the church. Coſſiers ſometimes painted portrait. His own head is engraved by P. de Jode. He was director of the academy at Antwerp in 1639. Heinecken. Pilkington.

COSSIMBAZAR, or Cossimbuzer, in *Geography*, a ſmall city of Hindooſtan, in the country of Bengal, nearly adjacent to Moorſhedabad, which was at all times the place of reſidence of the different European factors; this being the centre of their trade.

Cossimbazar *iſland*, a diſtrict of country ſo called, becauſe it is ſurrounded by the Hoogly, Coſſimbazar, and Ganges rivers. While the nabobs of Bengal continued to be independent princes, or nominally ſubjected to the court of Delhi, they reſided chiefly in this iſland, at leaſt during the laſt century. At Moorſhedabad, the capital, the Durbar was held, and the Engliſh reſident had a kind of fortreſs aſſigned him; and his attendants, about four miles diſtant, near the populous village (called a city) which bears the ſame name with the iſland. It is ſurrounded by a ſtone wall which ſtill remains; and the houſe affords elegant accommodations for the commercial reſident of the company. This gentleman has the ſuperintendance of a conſiderable manufacture of ſilk, for which Coſſimbazar has long been famous. The place is alſo noted for its ſtockings, which are knitted with wires, and are eſteemed the beſt in Bengal. The price is from 20 to 35 rupees for the "Corge," which conſiſts of 20 pairs. This village, according to Tavernier's account, ſends abroad every year 22 thouſand bales of ſilk, weighing each 100 *lbs.*; making in all 2,200,000 *lbs.* of 16 *oz.* each. Although this ſtatement is probably exaggerated, yet the quantity of ſilk conſumed by the natives in carpets, ſattins, and other ſtuffs, muſt have been very great. The ſoil of this diſtrict is not only rich, but it is the beſt in the country. Crops of every ſort are very luxuriant; and Coſſimbazar has obtained the name of the garden of Bengal, which itſelf has long had the appellation of the garden of India.

COSSIMCOTTA, a town of Hindooſtan, in the circar of Cicacole; 61 miles S.W. of Cicacole.

COSSIN, Coquin, or Cauquin, Louis, in *Biography*, an engraver, born about the year 1633, at Troyes, in Normandy. In 1690 we find him at Paris, where he ſtiled himſelf *engraver to the king*. We have a few portraits by this artiſt, and amongſt others a head of Louis XV. as large as life. Strutt. Heinecken. Coſta.

COSSINGTON, in *Geography*, a rectory in Leiceſterſhire, in the hundred of Eaſt Goſcote; in this pariſh the junction of the Leiceſter and Melton Mowbray navigation with the Leiceſterſhire navigation takes place, at a ſpot called Turnwater-meadow. See Canal. This village is ſituate upon the ſtratum of red-earth, and has the out-crop of the famous blue-line lime-ſtone about one or two miles to the north-weſt of it.

COSSINIA, in *Botany*, (named by Commerſon in honour of M. de Coſſigni, a ſkilful naturaliſt and zealous cultivator of plants in the Iſle de France.) Lam. Enc. Willd. 675. Juſſ. 248. Claſs and order, *hexandria monogynia*. Nat. Ord. *Sapindi*, Juſſ.

Gen. Ch. *Cal.* one-leafed, permanent, deeply divided into five ſegments, reflexed under the ripe fruit. *Cor.* Petals four or five, egg-ſhaped, ſlightly unguiculated, inſerted into the receptacle, expanding, longer than the calyx. *Stam.* Filaments ſix, briſtle ſhaped, about the length of the petals; anthers oval-oblong. *Piſt.* Germ ſuperior, roundiſh, obtuſely trigonous; ſtyle ſimple, ſhort; ſtigma truncated. *Peric.* Capſule egg-ſhaped, inflated, trigonous, three-celled, ſix-valved. *Seeds* two or three in each cell, globular, blackiſh, affixed to a central receptacle.

Eſſ. Ch. Calyx inferior, five-cleft. Corolla four or five-petalled. Capſule three-celled, dehiſcent at the apex; cells with two or three ſeeds.

Sp. C. *triphylla*. Lam. 1. Willd. 1. "Leaves ternate; leaflets oblong, obtuſe." A ſhrub, ſix or eight feet high; branches cylindrical, tomentous towards the ſummit. *Leaves* alternate, on a rather long petiole; leaflets narrowed towards the baſe, green, and ſomewhat ſcabrous above, tomentous and browniſh-white underneath; the terminal one a fourth longer than the two lateral ones. *Flowers* of a moderate ſize, white, in lateral and terminal racemes which all together form a panicle; petals four. Calyxes, peduncles, and petioles tomentous. A native of the Iſle of Bourbon, found by Commerſon on the ſummit of mount Rempart. 2. C. *pinnata*. Lam. 2. Ill. Pl. 256. Willd. 2. "Leaves pinnated; leaflets five or ſeven, lanceolate, emarginate." A ſhrub, in habit reſembling the preceding. *Leaflets* green, nearly naked, and a little ſcabrous above, tomentous and whitiſh underneath. Petioles, peduncles, and the ſummit of the branches cloathed with a ſhort ruſſet down. *Flowers* white, in ſmall axillary and terminal panicles; calyx tomentous; petals five, caducous; ſtamens longer than the petals. *Capſules* tomentous. A native of the Iſle of France.

COSSINITES, in *Ancient Geography*, a river of Thrace, which ran through the territory of Abdera, and diſcharged itſelf into the Biſtonie lake.

COSSIPOUR, in *Geography*, a town of India, in the country of Almora; 28 miles N. of Rampour.

COSSIUM, or Cossio, in *Ancient Geography*, a town of Gallia Aquitanica, in the country and the capital of the Vaſates, according to Ptolemy; now *Bazaz*.

COSSLIN, anciently Cossalitz and Cossalin, a neat town of Pruſſia, in the duchy of Pomerania; ſeated on the river Niſebach, about a league from the Baltic. The market-place is a large well built ſquare, in the centre of which is a ſtatue of Frederic William I. king of Pruſſia, erected in the year 1724, in grateful commemoration of his having rebuilt the town, which ſix years before had been conſumed by a dreadful conflagration. Coſlin is the ſeat of a court of juſtice, and has ſome manufactures. N. lat. 54° 9'. E. long. 16° 7'.

COSSOANUS, called by Pliny *Coſſoagus*, in *Ancient Geography*, a river of India, which, according to Arrian, diſcharged itſelf into the Ganges.

COSSONEY, a town of Swiſſerland, in the canton of Bern, built in the year 442; at one time a large town, but now reduced; 8 miles N.W. of Nion.

COSSUS, in *Ancient Geography*, a mountain of Aſia Minor, in Bithynia. Steph. Byz.

COSSYRA, or COSYRUS, a ſmall iſland in the African ſea, which ſome authors refer to Sicily; but Strabo makes it a part of the proper territory of Carthage. According to Ptolemy, it had a city of the ſame name, which, by reaſon of its vicinity to Carthage, was without doubt a place of ſome repute. Scylax tells us it was only a day's ſail from Lilybæum in Sicily; and Strabo places it in the middle of the African ſea, at an equal diſtance from Lilybæum and Clypea, a city of Africa Propria. From ſome antique coins exhibited by Paruta and Lucas Holſtenius, it appears, that Coſſyra was the name moſt frequently uſed; though Mela and Pliny call it *Coſura*. According to Strabo, this iſland was 150 ſtadia in circumference. It is thought to be the preſent iſle of *Pandataria*.

COST, in *Heraldry*, a ſubdiviſion of the bend, containing in breadth the half of a bendlet.

COSTA, GEORGE DA, in *Biography*, a native of Portugal, deſcended from low parents, but by his talents and induſtry attained to great rank and wealth in the church. After he had riſen to an archbiſhopric, his ſovereign Alphonſus V. ſent him as ambaſſador to the king of Caſtile; made him prime miniſter, and obtained for him a cardinal's hat. Elevated ſo much above his contemporaries, he became an object of envy, and to avoid the perſecution of his enemies he withdrew to Rome, in 1480, where he was entruſted with many concerns of high importance as well to the ſtate in which he ſought protection, as to that from whence he had fled. In 1495, on the acceſſion of Emanuel, he was invited back to Portugal with the offer of preſiding in the royal councils; but his advanced ſtate of life forbad him to undertake ſo long a journey, and ſo hazardous an employment; he remained at Rome, where he died in 1508, having paſſed his hundredth year. He was a ſingular inſtance of an almoſt unparalleled accumulation of eccleſiaſtical benefices and dignities on any one individual, having filled eight biſhoprics; two archbiſhoprics; and occupied a ſtill greater number of deaneries, and other rich preferments. Moreri.

COSTA, LORENZO, a Ferrareſe painter of conſiderable eminence, who flouriſhed towards the end of the fifteenth and at the commencement of the ſixteenth centuries. The period of his birth is unknown. He was employed at Ferrara, in the early part of his life, upon many conſiderable works both public and private: the choir of the church of the Dominicans, long ſince deſtroyed, was painted by him with great ſkill and diligence. The reputation which he acquired by theſe and his other works at Ravenna, occaſioned his being employed by the family of Bentivoglio, at Bologna, to paint in their chapel at San Petronio, ſeveral pictures in concurrence with Franceſco Francia, the moſt celebrated Bologneſe artiſt of his time: one of theſe, in which are introduced ſeveral admirable portraits, is dated 1488. The latter part of his life was ſpent at Mantua, where, after the death of Mantegna, he was conſidered the firſt painter. One of his altar pieces painted in 1505, in the chapel of the duke, is particularly worthy of notice. He has by ſome authors been conſidered the diſciple of Francia; but this opinion is combatted by Lanzi, who doubts the inſcription on which it is founded, and ſuppoſes Coſta rather to have been indebted to the ſtudies, which, when young, he made from the works of Lippi Gozzoli and other Florentine painters. He died at Mantua about the year 1530.

His deſcendants, Ippolito, Luigi, and Lorenzo Coſta, made no deſpicable figure in the ſchool of painting at a later period. Lanzi. Stor. Pittor.

COSTA, in *Botany*, is uſed indifferently with *nervus* for the longitudinal rib or nerve of a leaf. See NERVUS. It is moſt frequently preſent in leaves in general, eſpecially in plants of the ſame natural order, moſſes, however, and *Fuci* being uncertain in this reſpect. In the greater number of leaves the rib is ſolitary, running from their baſe or footſtalk to the ſummit or point. Such leaves as are deſtitute of it are termed *enervia*, not *ecoſtata*; ſuch only as have more than one rib are called *nervoſa*. See COSTATUM.

Leaves furniſhed with three ribs, all originating at the baſe, whether ſuch ribs all proceed to the point, or vaniſh, as often happens to the lateral ones, before they reach it, are called *trinervia*; when the lateral ribs branch off from the middle one at ſome diſtance above the baſe, leaves ſo conſtructed are termed *triplinervia*. When the two lateral ribs not only originate from the bottom of the other, but run, moreover, along the very edge of the leaf, for a certain ſpace, appearing ſometimes as if the baſe of the leaf had been cut away to the lower part of theſe lateral ribs, ſuch a leaf is defined *baſi trinerve*, three-ribbed at the baſe; as is ſeen in the Burdock, *Arctium Lappa*, and alſo in *Scrophularia nodoſa*, for which laſt plant it affords an excellent ſpecific character. Linnæus at one period expreſſed this mark by the words *folia baſi tranſverſa*. See *Fl. Suec. n.* 560.

Hedwig has choſen to contrive the term *ductulorum faſciculus*, a cluſter of veſſels, to expreſs the *coſta* of moſſes, which is altogether ſuperfluous, though undoubtedly correct. Every nerve and vein of all leaves is indeed a cluſter of veſſels, or the channel or ſheath along which ſuch veſſels run; yet nothing but inconvenience is occaſioned by the introduction of a new and compound term, in place of a ſimple one already well underſtood. It ſeems moſt commodious to uſe *coſta* excluſively for the central or main rib, common to leaves in general, and *nervi* for the lateral ones, when preſent, which practice has generally prevailed. The veins are ſent off, here and there, from both *coſta* and *nervi*, being ſubordinate ramifications, or cluſters of veſſels, for the tranſmiſſion of fluids. There is every reaſon to believe that each rib and vein is furniſhed with adducent as well as reducent veſſels, ſerving therefore to convey the vegetable fluids in both directions; at leaſt nothing deciſive of the contrary has ever been detected. S.

COSTA *Balenæ*, in *Ancient Geography*, a place of Italy, on the coaſt of Liguria, according to the Itinerary of Antonine, who marks it between Lucus Bormanni, and Albintimilium.

COSTA *Rica*, in *Geography*, the moſt ſouthern province of Guatimala in Mexico, bounded on the N. by Nicaragua, on the E. by the Spaniſh main, on the S. E. by the province of Veragua, and on the W. and S.W. by the Pacific ocean; 50 leagues in length and nearly as many in breadth. It is mountainous, abounding with deſerts and foreſts; thinly peopled and ill cultivated; the inhabitants live, for the moſt part, independently of the Spaniards. It derives its name from its rich mines of gold and ſilver: one at Tiſingal having been reputed another Potoſi. It produces excellent cacao or chocolate. Beſides, its principal commerce conſiſts in cattle, hides, honey, and wax. Its capital is Cartago. On the Pacific it has a large port, or rather ſmall bay, called Nicoya, or the gulf de las Salinas, noted for the pearl fiſhery, and for the ſhell-fiſh which dyes purple; while in the Atlantic is the port called that of Cartago, though at a great diſtance from the town.

Costæ, in *Anatomy*. See Ribs.

COSTANZI, Placido, in *Biography*, a painter born at Rome about the year 1688. A certain delicacy of ſtyle diſtinguiſhes the works of this maſter. There is a picture of his in the church of Santa Maddalena at Rome, repreſenting St. Camillo with angels, in which the figures are ſo graceful, that he ſeems ſucceſsfully to have imitated Domenichino. His paintings in freſco are much admired, of which a vault in the church of Sta. Maria in Campo Marzio is the moſt conſiderable. He died at the age of 71. Lanzi.

CONSTANZO, Angelo de, deſcended from a Neapolitan family of diſtinction, was born in 1507. He gave himſelf up to literary purſuits, and was employed more than 40 years in compiling a hiſtory of his own country, entitled "Hiſtorie del Regno di Napoli," which comprehended the events of about 240 years, *viz.* from 1250 to 1489, and is regarded as the beſt hiſtory of that kingdom. It has been republiſhed; but Conſtanzo was more celebrated as a poet; he wrote the beſt ſonnets of his time, and there have been many editions of his poetical pieces. The exact period of his death is not known; but there is a letter extant written by him in 1591. He was married and had two ſons, both of whom died very young. Moreri.

COSTARD, George, a learned clergyman of the church of England, was born about the year 1710. He was entered at Wadham college, Oxford, where, in 1733, he took the degree of M.A. and became tutor, and afterwards fellow of his college. His firſt occupation in the church was derived from the curacy of Iſlip in Oxfordſhire. No profeſſional duties however in the courſe of his life prevented him from the purſuits of literature. Before he had obtained a curacy he gave an honourable teſtimony to his diligence in the ſtudy of the Oriental tongues by the publication of "Critical Obſervations on the Pſalms:" and in 1746 he addreſſed a letter to Martin Folkes, eſq. preſident of the Royal Society, concerning the progreſs of aſtronomy among the ancients. The object of Mr. Coſtard was to prove that the ſcience of aſtronomy is to be traced to the Greeks only, after they had applied geometry to the heavens. The next work publiſhed by this ingenious gentleman, was "Obſervations tending to illuſtrate the Book of Job," to which as the proper date, he aſſigns the period of the Jewiſh captivity at Babylon. In 1748 he publiſhed "A farther account of the riſe and progreſs of Aſtronomy among the Ancients, in three letters" to Mr. Folkes. We have after this, ſeveral works printed ſeparately, or among the Tranſactions of the Royal Society, which exhibit the learning and critical powers of Mr. Coſtard. The reputation which he acquired for literature introduced him to the notice of the lord chancellor Northington, who, as a reward of real merit, preſented him in 1764 with the vicarage of Twickenham in Middleſex, where he ſpent the remainder of his life. In the ſame year he publiſhed the "Uſe of Aſtronomy in Hiſtory and Chronology, occaſionally exemplified by the Globes;" this work was printed in a thin quarto, and has been regarded as of conſiderable uſe to young people who have already made ſome proficiency in the elements of the ſcience. It has been ſince reprinted in the 8vo ſize. Mr. Coſtard's next work was entitled "Aſtronomical and Philological Conjectures on a Paſſage in Homer." He then engaged in a correſpondence with the late learned Jacob Bryant on the ſubject of the land of Goſhen, which has been printed in Mr. Bowyer's "Miſcellaneous Tracts." Another, and the laſt publication of this gentleman, was on the Antiquity of the Gentoo Code, in a letter to Nathaniel Braſſey Halhed, eſq., a gentleman diſtinguiſhed for his great learning, but who in the year 1794 was found among the adherents of Brothers, ſince confined in a receptacle for lunatics. Mr. Coſtard died in 1782 highly reſpected for his learning, and greatly beloved on account of the general benevolence and kindneſs of his private character. Biog. Brit.

COSTARUM Depressores Proprii, in *Anatomy*, a name given by Douglas, from Cowper, to what Albinus affirms to be only that part of the internal intercoſtal muſcles which lie neareſt the ribs.

Costarum *Levatores*. See Levatores.

COSTATUM Folium, in *Botany*, ribbed, ought perhaps ſtrictly to be confined to a leaf furniſhed with one central rib, in oppoſition to ſuch as have either no longitudinal rib or nerve at all, or no principal one, the term *nervoſum* being reſerved for leaves that have more than one. Linnæus however has incautiouſly applied the term in queſtion to the leaves of *Echites ſiphilitica*, which he deſcribes in his manuſcript *alternatim coſtata*, and in his *Supplementum, p.* 167, publiſhed and partly written by his ſon, *venoſo-coſtata*, meaning that the lateral veins, which branch off horizontally from the midrib, are conſpicuous and ſomewhat permanent; a ſenſe no one could have underſtood without a reference to the original authority. It would however be a very intelligible ſenſe of the word, ſuch veins, (as may be ſeen leſs diſtinctly in *Canna*,) bearing a great reſemblance to the ribs, *coſtæ*, of an animal, ranged parallel to each other along the ſpine; but it would be a new meaning, hitherto, we believe, unauthorized, and differing from what is generally adopted and underſtood. If this laſt ſenſe muſt, nevertheleſs, be admitted, the word *uninerve* will very well ſupply the place of *coſtatum* for a ſingle-ribbed leaf, as *nervoſum* at preſent does for one with ſeveral longitudinal ribs. S.

COSTEENING. See Mineralogy.

COSTER, Johnson, Laurence, in *Biography*, is ſaid to have lived at Haarlem early in the 15th century, and to have been the firſt inventor of the art of engraving on wood, which gave riſe to that of printing. The anxiety of the Dutch to ſhew that their country gave birth to the noble art of printing may have produced many improbable ſtories concerning this man. It is ſaid that, walking in a wood near Haarlem, he amuſed himſelf by cutting letters upon the bark of a tree, which he impreſſed upon paper. Improving this incident, he proceeded to cut ſingle letters upon wood, and uniting them by means of thread, he printed a line or two for his children. It is added, that he afterwards printed a book, entitled, "Speculum Salvationis;" but baron Heinecken, who has minutely inveſtigated the whole ſtory, conſiders it as not entitled to the leaſt credit; and pronounces the prints, attributed to Coſter, to be the works of a later date. Amongſt theſe prints are the following:. A ſmall buſt of a man, with a cap, near 2 inches high, and 1 in breadth, marked **Laurence Jaſſoen**, ſuppoſed to be the portrait of Coſter; a buſt of an old man in profile, 2 inches high by 1¾ wide, marked at bottom **Halchart Seil da Harleim**; another buſt, the face turned to the left; another, a three-quarter face; and in the royal library of St. James's is a Virgin, with the inſtruments of Chriſt's ſufferings, attributed to Coſter. He is ſaid to have died in 1441.

COSTERA, in *Geography*, a town of France, in the iſland of Corſica, in the department of Golo, diſtrict of Baſtia. It is the chief place of a canton, and has 1338 inhabitants.

COSTHEIM, or KOSTHEIM, a town of Germany, in the circle of the Lower Rhine, and electorate of Mentz, ſituated on an iſland in the Rhine, near the mouth of the Maine, on the ſide of the river oppoſite to Mentz, about a mile to the eaſt.

COSTIGLIOLE, a town of France, in the department of Tanaro, which was formerly part of Piedmont in Italy. It is the chief place of a canton in the diſtrict of Aſti, and has 4489 inhabitants. The canton contains 7 communes, and a population of 12,740 individuals.—Alſo, a town of France, in the department of Sture, which likewiſe formed a part of Piedmont in Italy; but this Coſtigliole has only 2600 inhabitants, and the canton, of which it is the chief place, counts but 4 communes, and 4923 inhabitants.

COSTIVENESS, in *Medicine*. See CONSTIPATION.

COSTIVENESS, in *Infants*. See INFANT.

COSTIVENESS, in *Farriery*, is alſo a diſeaſe to which horſes are ſubject, from violent exerciſe, or the want of exerciſe, and long feeding on hard meat. An opening diet, and lenitive mild purges, as of Glauber's ſalts, with lenitive electuary, four ounces of each diſſolved in warm ale or water, repeated every other day, and ſcalded bran, are recommended. But a natural or habitual coſtiveneſs, which is not uncommon, is not ſo eaſily removed. In this caſe the following purge is recommended; *viz.* ſuccotrine aloes ſix drams, ſpermaceti half an ounce, fenugreek ſeed in powder two ounces; the whole is to be made into two balls, with a ſufficient quantity of honey or treacle, and given to the horſe in a morning faſting. Scalded barley ſhould alſo be uſed inſtead of bran, and the liquor given milk-warm for his drink. The above purge ſhould be repeated once in four days, till he has taken ſix doſes. Gibſon's Farriery, vol. ii. p. 134.

COSTMARY, in *Botany*. See TANACETUM *Balſamita*.

COSTOBOCI, in *Ancient Geography*, a people of European Sarmatia; called alſo Coſtobocæ by Ammianus Marcellinus, and Coeſtoboci by Ptolemy.

COSTOTOTL, in *Ornithology*, the New Spain Oriole of Latham, and ORIOLUS *Coſtototl* of Gmelin, which ſee.

COSTOW, or COSTWAY, in *Geography*, a river of England, which falls into the Derwent, 2 miles N. of New Malton, in the eaſt riding of the county of York.

COSTS, in *Law*, are *expenſæ litis*, incurred in the proſecution and defence of actions, and conſiſting of money paid to the king and government for fines and ſtamp duties, to the officers of the court, to the counſel and attornies for their fees, &c. Theſe coſts may be conſidered either as between attorney and client, payable by the latter to the former, whether he ultimately ſucceed or not; or as between party and party, being only thoſe which are allowed, in ſome particular caſes, to the party ſucceeding againſt his adverſary. Between party and party they are either *interlocutory* or *final*; the former being given on various interlocutory motions and proceedings, in the courſe of the ſuit; and the latter, to which the term *coſts* is moſt generally applied, being ſuch as are not allowed till the concluſion of the ſuit.

Although it is now a maxim of ours as well as of the civil law, that "victus victori in expenſis condemnandus eſt," the common law did not profeſſedly allow any; the amercement of the vanquiſhed party being his only puniſhment. The firſt ſtatute which gave coſts, under that title, to the demandant in a real action, was the ſtatute of Glouceſter (6 Edw. I. c. 1.); as did the ſtatute of Marlbridge, (52 Hen. III. c. 6.) to the defendant in one particular caſe, relative to wardſhip in chivalry:—though in reality coſts were always conſidered and included in the *quantum* of damages, in ſuch actions where damages are given; and, even now, coſts for the plaintiff are always entered on the roll as increaſe of damages by the court. But, becauſe theſe damages were frequently inadequate to the plaintiff's expences, the ſtatute of Glouceſter orders coſts to be alſo added; and farther directs, that the ſame rule ſhall alſo hold place in all caſes where the party is to recover damages. And therefore in ſuch actions, where no damages were then recoverable, (as in *quare impedit*, in which damages were not given till the ſtatute of Weſtm. 2. (13 Edw. I.) no coſts are now allowed (10 Rep. 116.), unleſs they have been expreſsly given by ſome ſubſequent ſtatute. The ſtatute (3 Hen. VII. c. 10.) was the firſt which allowed any coſts in a writ of error. But no coſts were allowed the defendant in any ſhape, till the ſtatutes 23 Hen. VIII. c. 15. 4 Jac. I. c. 3. 8 & 9 W. III. c. 11. and 4 & 5 Ann. c. 16.; which very equitably gave the defendant, if he prevailed, the ſame coſts as the plaintiff would have had, in caſe he had recovered. When the plaintiff recovers ſingle damages, he is entitled only to ſingle coſts; unleſs more be expreſsly given by ſtatute. But if double or treble damages be given by ſtatute, in a caſe wherein ſingle damages were before recoverable, the plaintiff is entitled to double or treble coſts, although the ſtatute be ſilent reſpecting them (Say. Coſts 228.); as in an action upon ſtat. 2 Hen. IV. c. 11, &c. In ſome caſes double and treble coſts are expreſsly given to the plaintiff; as upon the game laws, by ſtat. 2 Geo. III. c. 19. § 5. And wherever a plaintiff is entitled to double or treble coſts, the coſts given by the court *de incremento* are to be doubled or trebled, as well as thoſe given by the jury. (2 Leon. 52. Cro. Eliz. 582. 3 Lev. 351. Carth. 297. 322. 2 Str. 1048.; but ſee 1 Term. Rep. 252.) However, double or treble coſts are not underſtood to mean, according to their literal import, twice or thrice the amount of ſingle coſts. Where a ſtatute gives double coſts, they are calculated thus: 1. The common coſts, and then half the common coſts. If treble coſts: 1. The common coſts; 2. Half of theſe; and then half of the latter. Double or treble coſts are in ſome caſes expreſsly given to the defendant; as in actions againſt pariſh-officers, by ſtat. 43 Eliz. c. 2. § 19;—againſt juſtices of the peace, conſtables, &c. by ſtat. 7 Jac. I. c. 5;—for diſtreſſes for rents and ſervices, by ſtat. 11 Geo. II. c. 19. § 21. 2;—and againſt officers of the exciſe or cuſtoms, by ſtats. 23 Geo. III. c. 70. § 34. 24 Geo. III. ſeſſ. 2. c. 47. § 35.

The king, and any perſon ſuing to his uſe, (ſtat. 24 Hen. VIII. c. 8.) ſhall neither pay nor receive coſts; and the queen-conſort participates the ſame privilege. In two other caſes alſo an exemption lies from paying coſts. Executors and adminiſtrators, when ſuing in the right of the deceaſed, ſhall pay none (Cro. Jac. 229. 1 Vent. 92.); for the ſtatute 23 Hen. VIII. c. 15. doth not give coſts to defendants, unleſs where the action ſuppoſeth the contract to be made with, or the wrong to be done to, the plaintiff himſelf. And paupers, that is, ſuch as will ſwear themſelves not worth five pounds, are, by ſtatute 11 Hen. VII. c. 12. to have original writs and ſubpœnas *gratis*, and counſel and attorney aſſigned them without fee; and are excuſed from paying coſts, when plaintiffs, by the ſtatute 23 Hen. VIII. c. 15.; but ſhall ſuffer other puniſhment at the diſcretion of the judges. And it was formerly uſual to give ſuch paupers, if non-ſuited, their election either to be whipped or pay the coſts (1 Sid. 261. 7 Mod. 114.); though that practice is now diſuſed (Salk. 506.). It ſeems, however, agreed, that a pauper may recover coſts, though he pays none; for the counſel and clerks are bound to give their labour to *him*, but not to his antagoniſts. (1 Equ. Caſ. Abr. 125.)

To prevent trifling and malicious actions, for words, for aſſault and battery, and for treſpaſs, it is enacted by ſtatutes 43 Eliz. c. 6. 21 Jac. I. c. 16. and 22 & 23 Car. II. c. 9. § 136. that, where the jury who try any of theſe actions ſhall give leſs damages than 40*s*., the plaintiff ſhall be allowed no more coſts than damages, unleſs the judge, before whom the cauſe is tried, ſhall certify under his hand on the back of the record, that an actual battery (and not an aſſault only) was proved, or that in treſpaſs the freehold or title of the land came chiefly in queſtion. This ſtatute does not extend to actions of debt, covenant, aſſumpſit, trover, or the like (3 Keb. 31. 1 Salk. 208.); or to actions for a mere aſſault (3 T. R. 391.); or for criminal converſations (3 Wilſ. 319.); or battery of the plaintiff's ſervant (3 Keb. 184. 1 Salk. 208. 1 Stra. 192.) In all theſe caſes, though the damages be under 40*s*., the plaintiff is entitled to full coſts without a certificate. Alſo, by ſtatute 4 & 5 W. & M. c. 23. and 8 & 9 W. III. c. 11. if the treſpaſs were committed in hunting or ſporting by an inferior tradeſman, or if it appear to be wilfully and maliciouſly committed, the plaintiff ſhall have full coſts, though his, as aſſeſſed by the jury, amount to leſs than 40*s*. The legiſlature has alſo been obliged to interfere ſtill further, to guard againſt trifling and vexatious actions, by means of what are commonly called the "Court of Conſcience Acts:" ſuch are ſtatutes 3 Jac. I. c. 15. § 4. 14 Geo. II. c. 10. which provide, that if an action be brought for leſs than 40*s*. againſt a defendant living in London, and liable to the juriſdiction of the Court of Requeſts there, the plaintiff ſhall not recover any coſts, but ſhall pay them to the defendant. See COURT *of Conſcience*. None of the ſtatutes, made for reſtraining the plaintiff's right to coſts, extend to actions brought in an inferior court, and removed by the defendant into a ſuperior court (2 Lev. 124. 4 Mod. 378, 9. 1 Ld. Raym. 395.); and it has been holden, that ſtat. 21 Jac. 1. c. 16. and ſtat. 22 & 23 Car. II. c. 9. only reſtrain the *court* from awarding more coſts than damages; but the *jury*, not being reſtrained thereby, may give what coſts they pleaſe.

Coſts are taxed, as between party and party, by the maſter in the King's Bench, or by one of the prothonotaries in the Common Pleas, upon a bill made out by the attorney for the party entitled; or frequently, without a bill, upon a view of the proceedings; and if there have been any *extra*-expences, which do not appear on the face of the proceedings, there ſhould be an affidavit made of ſuch expences, to warrant the allowance of them, which is called an affidavit of *increaſed* coſts. (Imp. K. B. 348.) Among fair practiſers, it is uſual to give notice to the oppoſite attorney of the time when the coſts are intended to be taxed. But for enforcing it, a rule is obtained from the clerk of the rules in the King's Bench, or one of the ſecondaries in the Common Pleas, which ſhould be duly ſerved; after which, if the coſts are taxed without notice, the taxation is irregular, and the attorney liable to an attachment. The means of recovering coſts, as between party and party, are by *action* or *execution*, upon a judgment obtained for them; or by *attachment*, upon a rule of court. There are alſo auxiliary means for the recovery of theſe coſts, as by moving to ſtay the proceedings, until ſecurity be given for the payment of coſts; or until the coſts are paid of a former action for the ſame cauſe; or by deducting the coſts of one action from thoſe of another. This practice of deducting, or ſetting off the coſts, in one action againſt thoſe in another, however agreeable to natural juſtice, does not ſeem to have obtained till lately in the court of K. B. (2 Stra. 891. 1203. Bull. N. P. 336. 4 Term. Rep. 124.) But in Common Pleas, it has been frequently allowed not only where the parties have been the ſame, but where they have been in ſome meaſure different. (Barnes 145. 2 Black. Rep. 826. Bull. N. P. 336.)

In caſes between attorney and client, the former may maintain an action againſt the latter for the recovery of his coſts. (Cro. Car. 159, 160.) But by ſtat. 3 Jac. I. c. 7. § 1. attornies and ſolicitors muſt deliver a bill to their clients before bringing an action; and by ſtat. 2 Geo. II. c. 23. § 23, explained by ſtat. 12 Geo. II. c. 13, made perpetual by ſtat. 30 Geo. II. c. 19. § 75, no attorney nor ſolicitor ſhall commence any action till the expiration of one month after the delivery of his bill, ſubſcribed with the attorney's hand. The ſaid ſtatute, 2 Geo. II. c. 23, alſo directs the mode of taxation of attornies' bills by the officers of the ſeveral courts; and directs that if the bill taxed be leſs, by a ſixth part, than the bill delivered, the attorney ſhall pay the coſts of taxation; but if it ſhall not be leſs, the coſts ſhall be in the diſcretion of the court. If the whole bill be for *conveyancing*, or for buſineſs done at the quarter-*ſeſſions*, &c. it cannot be taxed. But where an attorney had delivered two ſeparate bills, one for diſburſements and fees in cauſes, and the other for making conveyances, a rule was made for taxing both. And ſo, when it was moved, that the maſter might be directed to tax thoſe articles in an attorney's bill which related to conveyancing and parliamentary buſineſs, the reſt being for management of cauſes in the court of King's Bench, lord Mansfield ſaid, there was no doubt but the maſter might tax the whole. (Barnes C. B. 141. 2.; 4 Term. Rep. 124.; Say, Rep. 233.; Say, Coſts 320.)

By 14 Geo. I. c. 17, if the plaintiff, who intended to try a cauſe, changes his word, and does not countermand the notice of trial given to the defendant ſix days before the trial, he ſhall be liable to pay coſts to the defendant for not proceeding to trial.

Coſts are allowed in *Chancery*, for failing to make anſwer to a bill exhibited, or making an inſufficient anſwer: and if a firſt anſwer be certified by a maſter to be inſufficient, the defendant is to pay 40*s*. *coſts*; 3*l*. for a ſecond inſufficient anſwer; 4*l*. for a third, &c. But if the anſwer be reported good, the plaintiff ſhall pay the defendant 40*s*. *coſts*. An anſwer is not to be filed (until when, it is not reputed an anſwer) until *coſts* for contempt in not anſwering, are paid. If a plaintiff in chancery diſmiſſes his bill, or the defendant diſmiſſes the ſame for want of proſecution, *coſts* are allowed, by ſtat. 4 and 5 Anne, c. 16. In other caſes, it ſeems that the matter of coſts to be given to either party is not, in equity, held to be a point of right, but merely diſcretionary, by the ſtatute 17 Rich. II. c. 6., according to the circumſtances of the caſe. Nevertheleſs, the ſtatute 15 Hen. VI. c. 4., which requires ſurety to ſatisfy the party aggrieved his damages, in granting the ſubpœna, ſeems expreſsly to direct that as well damages as coſts ſhall be given to the defendant, if wrongfully vexed in this court. In caſe of a great fraud, a perſon may be obliged to pay ſuch coſts as ſhall be aſcertained by the injured party's oath. 2 Vern. 123.

COSTUS, in *Botany*, (κοστος, Theophr. Dioſcor.) Linn.

gen. 3. Schreb. 4. Willd. 7. Juſſ. 63. Vent 2. 204. Roſcoe Linn. Tranſ. vol. 8. 349. Claſs and order, *monandria monogynia.* Nat. Ord. *Scitamineæ,* Linn. Roſcoe. *Cannæ,* Juſſ. *Drymyrrhizæ,* Vent.

Gen. Ch. *Cal.* Perianth ſuperior, trifid, ſhorter than the corolla. *Cor.* three-parted, nearly equal. Nectary petal-ſhaped, longer than the corolla. *Stam.* Filament petal-ſhaped, linear, flat, extending beyond the anther, terminating in an ovate-lanceolate apex (upper lip of the nectary; Swartz. Dryander.) anther double, adnate longitudinally to the ſtamen. *Piſt.* Style paſſing in a groove between the lobes of the anther; ſtigma capitate. *Peric.* Capſule three-celled, crowned with the permanent calyx, angular, opening at the angles. *Seeds* numerous.

Eſſ. Ch. Anther double. Filament elongated beyond the anther, ovate-lanceolate at the apex, flat. Capſule three-celled, dehiſcent outwards. Seeds numerous. Roſcoe.

Sp. 1. C. *ſpecioſus.* Smith Linn. Tranſ. 1. 249. Willd. 3. Roſcoe. 1. (C. arabicus; Mart. Jacq. Ic. rar. 1. 1. Collect. 1. 143. Swartz. Prod. 11. Bankſia ſpecioſa; Koenig. Hellenia grandiflora; Retz. obſ. faſc. 6. 18. Tsjana-kna; Rheed. Mal. 11. 15. tab. 8? Herba ſpiralis hirſuta; Rumph. Amb. 6. 143. tab. 64. fig. 1. Amomum hirſutum; Lam. Ill. Pl. 3. Encyc. 6.) "Nectary obſoletely three-lobed, undulated, fringed; leaves ſilky-villous." *Root* two inches thick, knotty, creeping. *Stems* annual, three or four feet high, cylindrical, ſimple, fleſhy, with a ſtrong bark. *Leaves* about ſix inches long, and four broad, alternate, lanceolate, acuminate, coriaceous; green and ſmooth above; ſilky, ſoft and whitiſh underneath. *Flowers* in a terminal, nearly ſeſſile, erect, cloſe ſpike; bractes two at the baſe of each flower; outer one egg-ſhaped, acute, concave, coriaceous, broad, blood-red; the other oblong, only one-third of the breadth of the former, purple at the tip, embracing the flower; calyx, in the time of flowering, green, with a purple tip; on the fruit, blood-red; petal and nectary fleſh-coloured, ſometimes almoſt white; anthers white. A native of the Eaſt Indies. The root, according to La Marck, who received ſpecimens from Commerſon, has a ſlight flavour of ginger. 2. C. *arabicus.* Linn. Sp. Pl. Hort. Clif. 2. Willd. 1. Roſcoe 2. Rheed. hort. mal. n. tab. 8? "Nectary egg-ſhaped, quite entire; leaves ſmooth on both ſides." *Root* perennial. A native of the Eaſt Indies. 3. C. *ſpicatus.* Mart. 3. Willd. 2. Roſc. 3. (Alpinia ſpicata; Jacq. 1. tab. 1. Amomum petiolatum; Lam. Enc. 7.) "Nectary undulated, ſomewhat trifid; leaves acuminate, quite entire, ſhining, attenuated at the baſe." *Root* perennial, fleſhy, irregular, white. *Stems* ſeveral, nearly erect, leafy, ſmooth, ſomewhat jointed, from one to two feet high. *Leaves* alternate, oblong, ſmooth, on ſhort cylindrical petioles. *Flowers* yellow, or without ſcent, in a terminal conical ſpike, with an involucrum of three or four leaves at its baſe; bractes imbricated, coriaceous, bright red; corolla an inch long. A native of Martinico by the ſide of torrents. The inhabitants of Martinico make a decoction of the ſtem and root which they eſteem a refreſhing beverage, particularly ſalutary in gonorrhea and other complaints. 4. C. *comoſus.* Roſc. 4. (Alpinia comoſa; Willd. Jacq. plant. rar. 2. tab. 202.) "Nectary thick, oblong, channelled, erect, five-toothed at the tip; leaves lanceolate, undulated, ſomewhat villous on both ſides." *Root* perennial. *Stems* four feet high, ſimple, pubeſcent. *Leaves* ſheathing. *Flowers* in a terminal ſpike; bractes numerous, red, ovate-lanceolate, longer than the flowers; calyx red; corolla yellow; nectary yellow. A native of Caraccas in South America. 5. C. *ſpiralis.* Roſc. 5. (Alpinia ſpiralis; Jacq. hort. Schoenb. 1. tab. 1.) "Nectary concave, quite entire; leaves elongate-elliptical, coriaceous, ſhining."

In their natural habit, the ſpecies of this genus are diſtinguiſhed from others of the ſame natural order, by their inclined and ſpiral ſtem, which is frequently hirſute, and ſometimes fruteſcent. Roſcoe.

The ancients eſteemed the coſtus on account of the ſpicy quality of its root, but it is not eaſy to determine which of the ſcitamineous plants they called by that name. Dioſcorides mentions three ſorts. The beſt, ſays he, is the Arabian, which is white and light, and has a ſtrong pleaſant ſmell; the ſecond is the Indian, which is thick, light, and dark-coloured; the third is the Syrian, which is heavy, with a box-coloured bark, and pungent ſmell. Pliny ſpeaks of only two kinds, the white and the black. The Arabs, the later Greeks and the Latins, divide it alſo into two kinds, the ſweet and the bitter, a diſtinction not known to the earlier Greek writers. La Marck conjectures that the coſtus of the ancients is no other than our ginger; but in this he is certainly wrong, for Ζιγγιβερις, Zingiber, is ſeparately deſcribed both by Dioſcorides and Pliny, though it does not occur in Theophraſtus.

Propagation and Culture.—Theſe plants are propagated by parting the roots in the ſpring. They ſhould be put into pots, filled with light kitchen-garden earth, and kept conſtantly in the tan-bed in the ſtove.

Costus *hortenſis;* Dalech. See Tanacetum *Balſamita.*

Costus *Indicus,* an American bark, called alſo *coſtus corticoſus, coſtus corticus,* or *Winter's bark.* The iſlands of Madagaſcar, in Africa, of Domingo and Guadaloupe, in America, are the places where the moſt and beſt is found.

COSWICK, in *Geography,* a ſmall town of Germany, in the principality of Anhalt Zerbſt, with an old caſtle pleaſantly ſituated on the Elbe.

COSYRI, in *Ancient Geography,* a people of India, placed by Pliny towards the Emodes mountains.

COSYTA, a town of Italy, in Umbria. Steph. Byz.

COTABAMBA, in *Geography,* a province or diſtrict of the vice-royalty of Peru, in South America, commencing S. E. of Cuzco, and at the diſtance of about 20 leagues, and extending above 30 leagues between the rivers Avancay and Apurimac, within which extent are various temperatures of air. This juriſdiction abounds in all kinds of cattle, and the temperate parts produce plenty of wheat, maize, and fruits. Here are alſo mines of ſilver and gold; the richneſs of which formerly rendered this province very flouriſhing; but their produce at preſent is greatly declined.

COTACE, in *Ancient Geography,* an ancient town of Aſia, in Aria. Ptolemy.

COTACENA, or Cotarzena, a country of Aſia, in Greater Armenia, in the vicinity of the Moſchic mountains. Ptol.

COTÆA, a province of the Leſſer Armenia. Ptol.

COTÆNA, a town of Leſſer Armenia, in the præfecture of Muriana. Ptol.

COTAISIS, or Contaisis, a town of the Perſians, in Aſiatic Iberia, near the Phaſis.

COTAMBA, a town of Perſia Propria, according to Ptolemy.

COTANA, an epiſcopal city of Aſia, in Pamphilia Secunda.

CO-TANGENT, is the tangent of an arc, which is the complement of another arc to 90 degrees.

COTANTIN, or CONTANTIN, or *Cotentin*, in *Geography*, a country of France, before the revolution, in Lower Normandy, including the towns of Coutances, Valogne, St. Sauveur, Cherbourg, Barfleur, Carentan, Ville Dieu, Granville, &c.

COTARII. See COSCEZ and COTERELLUS.

COTARINGEN, a town of the iſland of Borneo, on the ſouth coaſt; 100 miles W. of Banjar-Maſſin.

COTATE, a town of India, in the province of Travancore: 14 miles S.E. of Travancore.

COTA-TENGA, a town of the iſland of Borneo; 30 miles N. of Banjar-Maſſin.

COTATUA, in *Ornithology*. See CALANGAY.

COTBUS and PEITZ, *the Circle of*, in *Geography*, in Lower Luſatia, anciently belonged to the kingdom of Bohemia, of which it was received as a fief by Frederick II. elector of Brandenburg, in 1641, and held as ſuch till 1742, when Frederick the Great obtained its full and independent ſovereignty and annexed it to the new mark of Brandenburg. But through the treaty of peace ſigned at Tilſit on the 7th of July, 1807, between France and Pruſſia, the circle of Cotbus was ceded to the new kingdom of Saxony by whoſe territory it had always been encloſed.

The extent of the circle of Cotbus is 17⅓ German ſquare miles. It is irrigated by the river Spree, which yields abundance of good fiſh and eſpecially very fine carps. Its ſoil is generally light and ſandy, but in ſome parts extremely fertile; it abounds in iron ore, particularly near the villages of Burg and Werben. There are 2 towns and 116 villages, containing altogether 33,260 inhabitants, moſt of whom are the lineal deſcendants of the Vandals, and have retained the *Wendiſh* language.

The town of Cotbus on the Spree, 72 miles S. of Berlin, contains 800 well built houſes and 5000 inhabitants. It has ſtill conſiderable breweries, and its beer, known by the name of *cotbus*, or *cotwitz*, had formerly a very extenſive ſale all over Germany. Cotbus has alſo a good linen trade and excellent woollen manufactures which were brought hither by proteſtant French refugees at the revocation of the edict of Nantes. The cloth that was made here in 1802, whilſt it was a Pruſſian town, amounted to 368,000 Pruſſian dollars, or about 62,000*l*. ſterling in value.

COTE, a term uſed in courſing, to expreſs the advantage one greyhound has over another, when he runs by the ſide of it, and, putting before it, gives the hare a turn. See COURSING.

COTE-*gare*, a kind of refuſe wool, ſo clung or clotted together, that it cannot be pulled aſunder. By 13 Rich. II. ſtat. 1. c. 9. it is provided, that neither denizen nor foreigner make any other refuſe of wools but cote-gare and *villein*. So the printed ſtatute has it: but in the parliament-roll of that year, it is *cod land* and *villein*. *Cot*, or *cote*, ſignifies as much as cottage in many places, and was ſo uſed by the Saxons, according to Verſtegan.

COTE, *La*, in *Geography*, a rich, populous, and beautiful diſtrict of Swiſſerland, in the Pays de Vaud; about 5 leagues in length, at a little diſtance from the lake of Geneva; celebrated for its wine, which bears the name of the diſtrict.—Alſo, an eminence of Mont Blanc, which overhangs the upper part of the glacier of Boſſon.

COTE, *St. André*, a town of France, in the department of Iſere, with 3617 inhabitants. It is the chief place of a canton, which counts a population of 11,560 individuals in thirteen communes, on a territorial extent of 137 kiliometres and a half. La Côte St. André is ſituated about 21 miles weſt of Grenoble. It was formerly famous for its excellent cordials, known by the name of *Eaux de la Côte*.

COTE *d'Or*, *the Department of the*, is the firſt department of the fourth or eaſtern region of France. It conſiſts of thoſe parts of Burgundy, which, before the French revolution of 1789, were called *le Pays de la Montagne*, *l'Auxois*, and *le Dijonnais*. Its chief place is Dijon. It derives its name from a chain of hills extending ſouth-eaſtwards from Dijon beyond Châlons ſur Saône as far as Macon, called the *Golden Coaſt*, becauſe it yields that excellent wine, known by the general appellation of Burgundy, the production of which is more profitable to France than the richeſt wine. In 1806 the Côte d'Or produced 322,842 pipes of wine, of which the diſtrict of Beaune alone furniſhed almoſt half, *viz.* 143,243 pipes.

The department of the Côte d'Or is bounded to the north by the department of Aube; to the N. E. by that of the Upper Marne; to the S. E. by the departments of the Upper Saône and of the Jura; to the ſouth by that of Saône and Loire; and to the weſt by the departments of the Niévre and of the Yonne. Its principal rivers are the Seine, which has its ſource here; the Saône, Ouche, Tille, &c. The ſoil, in general, is bad and overgrown with weeds; there are however ſome fertile plains, eſpecially in the diſtrict of Dijon, which yield abundant crops of corn and hay. Yet its wine and iron-mines conſtitute its principal riches. The climate is temperate and the air ſalubrious.

The whole department is divided into four diſtricts, 36 cantons, and 733 communes. Its principal towns are Dijon, Chatillon, Semur, Beaune, Auxonne, and Nuits. The territorial extent is 8769½ kiliometres, or 876,956 hectares, 207,600 of which are foreſts. It has a population of 347,842 individuals, or 781 inhabitants to the ſquare league. Their annual contribution in taxes amount to 3.905,657 French livres, or nearly 10*s*. ſterling for each individual.

COTE *d'Or*, *the Canal of the*, formerly known by the name of *Canal of Burgundy* in France, is 250 kiliometres long, and forms a communication between the rivers Saône and Yonne. It had been projected by Hen. IV. of France. See CANAL.

COTE *rotie* is the name given to a chain of hills in France, in the department of Rhône, formerly part of the Lyonnais, which produces excellent wine.

COTES *du Nord*, *the Department of the*, is the eighth department of the ninth or north-weſt region of France, and compriſes part of the province, which, before the French revolution of 1789, was called Upper Britanny. It derives its name from the whole of its northern frontier being waſhed by the Britiſh channel. Its chief place is Saint Brieuc. It is bounded to the north by the Britiſh Channel; to the eaſt by the department of Ille and Vilaine; to the ſouth by that of Morbihan, and to the weſt by that of Finiſtere.

The principal rivers which irrigate this department are the Guet, Treguier, Trieux, Argueron, Ranxe, Lie, Ouſt, Blavet, &c. It has large tracts of heaths. The ſoil is not very fertile; yet it produces corn, eſpecially Indian or Turkey corn, hemp, and flax. The orchards abound with apples, which are converted into cyder. The paſtures are very good; the cattle and the horſes in particular are much eſteemed for their ſtrength. There are alſo ſome iron and lead mines.

The department of the Côtes du Nord is divided into five diſtricts, 47 cantons, and 376 communes. Its principal towns are St. Brieuc, Loudéac, Dinan, Guingamp, Lannion, Pleſtin, Plouaret.

The territorial extent is 7367 kiliometres or 736,720 hectares, (23,876 of which are foreſts,) with a population of about 1416 inhabitants for each ſquare league, or 499,927 individuals for the whole department, whoſe annual contribution in taxes amounts to 2,549,791 French livres, or about 5*s.* ſterling a head.

COTEA, in *Ancient Geography*, a country of Aſia, in Greater Armenia, according to Ptolemy, who placed it to the eaſt of the ſources of the Tigris.

COTEAUX, Les, in *Geography*, a town on the road from Tiburon to port Salut, on the S. ſide of the S. peninſula of the iſland of St. Domingo; 13½ leagues E. by S. of the former, ard 4 N.W. of the latter. N. lat. 18° 12′.

COTECHNEY, a river of America, in the ſtate of North Carolina, which runs into the Nuſe; 20 miles W. of Newbern.

COTELERIUS, John Baptist, in *Biography*, a learned French author, born at Niſmes, in Languedoc, in the year 1628. By 12 years of age he had made great progreſs in the learned languages, and in mathematical ſtudies. He became a ſtudent in the college of Sorbonne, where he took his degrees, and, in 1649, he was elected fellow. In this ſituation his application to ſtudy was almoſt inceſſant: the turn of his mind was to eccleſiaſtical antiquities, and the works of the Greek fathers. As a writer he was firſt known as the editor of ſome of the Homilies of St. Chryſoſtom, and of his Commentary on Daniel. In 1667, he was aſſociated with M. du Cange, by order of the celebrated Colbert, in the taſk of examining and forming a catalogue and ſummary of the Greek MSS. in the king's library. In 1672, he publiſhed an edition of the Fathers, with notes, in 2 vols. folio, which was reprinted, in 1698, by Le Clerc; and has ſince been republiſhed in Holland. In 1676 he was appointed profeſſor of the Greek language in the Royal College of France; and about the ſame time was publiſhed the firſt volume of a work, entitled "Eccleſiæ Græcæ Monumenta" Gr. et Lat. 4to. Two other volumes were publiſhed in 1681 and 1686. To this great labour he fell a ſacrifice, and died ſoon after the publication of the third volume. He left behind him 9 volumes of MSS. which were depoſited in the king's library. Cotelerius was highly eſteemed by his contemporaries: he was a man of great learning: his integrity was as great as his learning was extenſive; and his manners were ſimple and unaffected. Moreri.

COTEMUL, in *Geography*, a town of the iſland of Ceylon; 20 miles S. of Candy.

COTENOPOLIS, in *Ancient Geography*, an epiſcopal town of Egypt.

COTENORUM, an epiſcopal ſee of Aſia, in Pamphylia.

COTENSII, a people of Dacia. Ptolemy.

CONTENTIN, Le, in *Geography*, was formerly a ſubdiviſion of Lower Normandy, in France, whoſe inhabitants were advantageouſly known by their ingenuity and induſtry. Coutances was its chief place. It now forms part of the department of the Manche, has excellent paſtures, and produces the beſt horſes in Normandy.

COTERELLUS, Cotarius, and *Coterellus*, according to Spelman and Du Freſne, are ſervile tenants: but in Domeſday, and other ancient MSS., there appears a diſtinction, as well in their tenure and quality, as in their name. For the *cotarius* hath a free ſocage tenure, and paid a ſtated firm or rent in proviſions or money, with ſome occaſional cuſtomary ſervices: whereas the *coterellus* ſeems to have held in mere villenage, and his perſon, iſſue, and goods, were diſpoſable at the pleaſure of the lord. See Coscez.

COTERIE, a term adopted from the French trading aſſociations or partnerſhips, where each perſon advances his quota of ſtock, and receives his proportion of gain; and which retains its original meaning when applied to little aſſemblies or companies aſſociated for mirth and good humour; where each one furniſhes his quota of pleaſantry. Here they coin new words not underſtood elſewhere, but which it becomes faſhionable for others to uſe; and they are thought ridiculous who are ignorant of them. It has been uſed of late to ſignify a club of ladies.

COTES, Roger, in *Biography*, the ſon of the reverend Mr. Robert Cotes, rector of Burbage, in Leiceſterſhire, was born there July 10th, 1682, and received the early parts of his education at Leiceſter ſchool, where, when he was but eleven years of age, he ſhewed a ſtrong inclination to the mathematics, which was encouraged by his uncle Dr. John Smith, who took him to his own houſe, and ſuperintended his ſtudies. Here he acquired the elementary part of thoſe ſtudies, for which he was afterwards ſo highly celebrated. From thence he removed to London, and was ſent to St. Paul's ſchool, where he made a very unuſual progreſs in claſſical learning, though he never abandoned his favourite purſuits in mathematics. He ſeems alſo to have paid ſome attention to metaphyſics, moral philoſophy, and theology. In April 1699, when he was ſeventeen years of age, he was admitted penſioner of Trinity-college, Cambridge, and in 1705 was choſen fellow of that college; at this time he was private tutor to the earl of Harold and his brother, the ſons of the then marquis, after duke of Kent. In the following January he was appointed profeſſor of aſtronomy, and experimental philoſophy upon the foundation made by Dr. Plume. For this office Mr. Cotes was not the only candidate, yet the votes were unanimouſly in his behalf. At the election, Mr. Whiſton, who had conſiderable influence, on the occaſion, ſaid, that he pretended himſelf to be not much inferior to Dr. Harris, the other candidate's maſter, but he confeſſed that he was but a child to Mr. Cotes, who, it muſt be remembered, was then only in his 24th year. In 1706 he took his degree of maſter of arts, and in 1713 he entered into holy orders, and almoſt immediately, at the deſire of Dr. Bentley, publiſhed a new edition of ſir Iſaac Newton's Principia, to which he prefixed a preface. This added not a little to the high reputation that he had already obtained, and he was now regarded as one of the firſt characters of the age. In the Philoſophical Tranſactions, he gave a deſcription of the meteor that was ſeen March 6th, 1715-6. Theſe were the only works that he publiſhed during his life, but after his death ſome other tracts of great merit were preſented to the world by his relation, Dr. Robert Smith: theſe were (1.) the "Harmonia Menſurarum, ſive analyſis et ſyntheſis per rationum angulorum menſuras promotæ: accedunt alia opuſcula mathematica: per Rogerum Coteſium. Edidit et auxit Robertus Smith, &c." (2.) "Hydroſtatical and Pneumatical Lectures," a work of great merit, and which has been much read and highly approved. Mr. Cotes died June 5, 1716, to the great regret of his friends, and to the mathematical world in particular, in the prime of life, or indeed before he had reached that period, being only in his 33d year. He was interred in the chapel of Trinity-college, Cambridge, and to his memory Dr. Bentley wrote an excellent inſcription in Latin. Mr. Whiſton joined Mr Cotes in giving a courſe of lectures on experimental philoſophy, among theſe were 24 on hydroſtatics and pneumatics, of which each took 12. Mr Whiſton eſteemed his own to be ſo far inferior to thoſe of Mr. Cotes, that he could not be prevailed on to publiſh them. The early death of Mr Cotes has ever been eſteemed by mathematicians a public calamity: Newton himſelf aſſerted, that had he been ſpared, he would have proved one of the greateſt men that ever lived. Biog. Brit.

COTESIAN Theorem, in *Geometry*, an appellation uſed for an elegant property of the circle diſcovered by Mr. Cotes. The theorem is:

If the factors of the binomial $a^{\lambda} \underset{\backsim}{+} x^{\lambda}$ be required, the index λ being any integer: let the circumference A B C D, (*Plate* II. *Analyſis*, *fig.* 21 and 22.) the centre of which is O, be divided into as many equal parts as there are units in 2λ: and from all the diviſions let there be drawn to any Point P in the radius OA, produced if neceſſary, the right lines AP, B P, C P, D P, E P, F P, &c. then ſuppoſing $OA = a$, $OP = x$, the product of all the lines A P, C P, E P, &c. taken from the alternate diviſions throughout the whole circumference, will be equal to $a^{\lambda} - x^{\lambda}$, or $x^{\lambda} - a^{\lambda}$, according as the point P is within or without the circle; and the product of the reſt of the lines B P, D P, F P, in the remaining alternate places, will be equal to $a^{\lambda} + x^{\lambda}$.

For inſtance, if $\lambda = 5$, let the circumference be divided into 10 equal parts, and the point P be within the circle, then will $AP \times CP \times EP \times GP \times IP$ be equal to $\overline{OA}^5 - \overline{OP}^5$, and $BP \times DP \times FP \times HP \times KP = \overline{OA}^5 + \overline{OP}^5$. In like manner if λ be $= 6$, having divided the circumference into twelve equal parts, $AP \times CP \times EP \times GP \times IP \times LP$ will be equal to $\overline{OA}^6 - \overline{OP}^6$, and $BP \times DP \times FP \times HP \times KP \times MP = \overline{OA}^6 + \overline{OP}^6$.

The demonſtration of this theorem may be ſeen in Dr. Pemberton's Epiſt. de Coteſii inventis.

By means of this theorem, the acute and elegant author was enabled to make a farther progreſs in the inverſe method of fluxions than had been done before. But in the application of his diſcovery, there ſtill remained a limitation, which was removed by Mr. De Moivre. See Dr. Smith's Theoremata Logometrica and Trigonometrica, added to Cotes's Harmonia Menſurarum, p. 114, 115. De Moivre, Miſcel. Analyt. p. 17.

COTESWOLD, ſeveral ſheep-cotes, and ſheep feeding on hills. It comes from the Saxon *cote*, i. e. *caſa*, a *cottage*, and *wold*, a place where there is no wood.

Coteswold *hills*, in *Geography*, hills of England, in Glouceſterſhire, remarkable for the number of ſheep fed there, and the good quality of the wool, a few miles S.E. of the city of Glouceſter. See Sheep and Wool.

COTHEN, or Coethen, a town of Germany, in the principality of Anhalt Cöthen, of which it is the chief place. There is an old and a new palace. The latter is the reſidence of the reigning Prince. The Wallſtraiſſe is a very handſome ſtreet, planted with trees; it reaches in a ſtraight line, from one end of the town to the other. It contains two churches, two ſchools, and an orphan-houſe for Calviniſts and Lutherans. N. lat. 51° 44′ E. long. 11° 52′

COTHELSTONE, a village on the Quartock-hill, in Somerſetſhire: the lodge in this pariſh is a building in a very elevated ſituation, the place of which was determined in 1795, by a trigonometrical obſervation from Dumpdon ſtation, diſtant 64,521 feet, bearing 2° 29′ 45″ S. W. from the parallel to the meridian of Black-Down; and from Pilſden ſtation diſtant 104,901 feet, whence is deduced its latitude 51° 0′ 23″.9 N. and its longitude 3° 8′ 59″ or 12′ 35″.59 W. of Greenwich.

COTHIBELE, a town of Africa, in the kingdom of Morocco, and province of Tedla.

COTHON, in *Ancient Geography*, a ſmall round iſland before the city of Carthage, mentioned by Strabo, who adds, that it was ſurrounded by the ſea. Appian ſays that it was the name of a port, ſquare on the one ſide, round on the other, and encompaſſed by a wall. Cothon was alſo the name of an artificial port, the term being of original extraction, and having this ſignification. Accordingly, this ſeems not to have been a proper and a common name amongſt the Carthaginians, who pronounced it "Kathum," or "Kathom." The Carthaginians were ſo extremely active and indefatigable, that when Scipio had blockaded up the old port, or Cothon, they, in a very ſhort time, built a new haven, the traces of which, ſcarcely 100 yards ſquare, are ſtill to be ſeen. See Carthage.

Cothon, an iſland of Greece, on the ſouthern coaſt of the Peloponneſus, in the gulf of Laconia.—Alſo, the port of Carthage; and the port of the town of Adramittium, in Africa.

COTHURNUS, Buskin, a very high ſhoe, or patten, raiſed on ſoals of cork; worn by the ancient actors in tragedy, to make them appear taller, and more like the heroes they repreſented; moſt of them were ſuppoſed to be giants. See Buskin.

COTHY, in *Geography*, a river of South Wales, in the county of Carmarthen, which runs into the Towey; three miles E.N.E. of Carmarthen.

COTIARI, a ſmall iſland near the eaſt coaſt of the iſland of Ceylon; 20 miles E.S.E. of Trincamaly.

COTIARIS, in *Ancient Geography*, a river of India, in the country of the Sines. Ptolemy ſays, that it joined the Senus at a great diſtance from their mouths. M. d'Anville ſuppoſes that this geographer refers to the different branches of the river of Camboja, which was divided into many parts at the diſtance of 100 leagues from the ſea.

COTICE, or Cotise, in *Heraldry*, is a term uſed to expreſs an eſcutcheon divided bendways into many equal parts, as in the coat of arms which they blazoned thus, "*Coticé d'argent et azure de dix pieces;*" yet if the coat be divided into ſix equal parts only, they blazon it *bendy of ſix*, in the ſame manner as we do.

COTICULA, in the *Natural Hiſtory of the Ancients*, the word by which the Romans expreſſed the ακονη of the Greeks; a ſtone of very great hardneſs, brought from Armenia, and uſed on many occaſions; one of which was the working on ſuch of the harder ſtones as iron inſtruments would not touch.

Many of the ancient Greeks, who had this ſtone from the iſland of Cyprus, called it, from its hardneſs, by the ſame name with the diamond, as they ſometimes did iron alſo; which manner of writing has much miſled thoſe who have copied too careleſsly from them; and even Pliny, who after having in one part of his book given a right account of this ſtone, and called it *cos*, in another gives a different hiſtory of it, miſtaking it for a diamond.

This coticula was long in great eſteem with the ancient artificers on gems, and ſerved not only to work upon ſuch of the gems as iron could not touch, but was uſed to bore holes through ſuch as they ſtrung on threads, and hung in rows in their ornaments of the bracelet-kind. And Pliny's account of the other gems being bored with Cyprian diamonds, means no more, than that they were worked with this coticula, which was anciently had from the iſland of Cyprus, and afterwards from Armenia, and was called by ſome, in a metaphorical ſenſe, *adamas*, from its great hardneſs.

Coticula is alſo a name given by many to the touchſtone; not from its being of the nature of the coticula of the Romans, but from its being, for the convenience of carriage and uſe, frequently found in the ſhape of a whetſtone.

COTICULARIS Schistus. See Hone.

COTIEL, in *Geography*, a town of the iſland of Borneo; 140 miles N. of Banjar-Maſſin.

COTIERI, in *Ancient Geography*, a people mentioned by Pliny, as forming a part of the nation of Scythians.

COTIGNAC, in *Geography*, a ſmall town of France, on the river Argens, in the department of the Var, 6 miles eaſt of Barjoles; famous for its confectionary and preſerved fruits, which are reckoned a delicacy all over France, Italy, and Germany. It has 3250 inhabitants; and is the chief place of a canton, which contains 6 communes, and 10,147 inhabitants, upon a territorial extent of 210 kiliometres.

COTIGNOLA, a town of Italy, in the Ferrareſe, ſurrounded with walls and ditches. This town is 25 miles S.S.E. of Ferrara.

COTILLON, *Fr.* a well known dance for eight perſons, who ſettle the figure previous to ſtarting. The word literally means a petticoat; but perhaps became a technical term in muſic, from the old French ſong:

" Mon cotillon va t'il bien."

COTINGA, in *Ornithology*, a genus of birds in the ſyſtem of Buffon, diſtinguiſhed by their beautiful plumage, all the ſpecies of which belong to the new continent. As they delight in warm countries, they ſeldom occur ſouth of Brazil, or even north of Mexico. Their journies are confined within a narrow circle; they appear twice a year in the plantations, but are never obſerved in flocks. They generally haunt the ſides of creeks in ſwampy ground; whence ſome have called them water-fowls. They live upon inſects. The Creoles hunt them, partly on account of the beauty of their plumage, and partly on account of the delicacy of their fleſh. Their ſize is from that of a ſmall pigeon to that of a red-wing; the edges of the upper mandible, and frequently thoſe of the lower, are ſcolloped near the tip; the firſt phalanx of the outer toe is joined to that of the middle toe; and, in moſt of them, the tail is a little forked or notched, and conſiſts of twelve quills. To this genus Buffon refers the Ampelis *Cotinga* of Gmelin, his own *Cordon bleu* or blue Kirband, or the purple-breaſted *Chatterer* and *Manakin* of Pennant, Edwards, and Latham. It is alſo called the "thruſh of Rio Janeiro;" and by the Creoles, "hen of the woods." Gmelin characterizes it as of a very bright blue, below purple, and wings and tail black. It is found in Brazil. *Cotinga Cayanenſis* is the Ampelis *Cayana* of Gmelin, the *quareiva* of Buffon, and purple-throated *chatterer* of Latham. Its ſpecific character is bright-blue, with its neck violet-blue. It is found in Cayenne. The *Cotinga Mayanenſis* of Briſſon is the Ampelis *Mayanna* of Linnæus and Gmelin, and ſilky *chatterer* of Latham. Its ſpecific character is bright-blue and violet throat. The *Cotinga purpurea* of Briſſon is the Ampelis *pompadora* of Linnæus and Gmelin, the *pocapac* or *pompadora* of Buffon. Its ſpecific character is, that it is purple; the neareſt coverts of its wings are ſword-ſhaped, elongated, boat-ſhaped, and ſtiff. Of this there are ſeveral varieties; found in Guiana. The *Cotinga rubra* of Briſſon is *l'ouette* of Buffon, and Ampelis *Carnifex* of Gmelin, the red *chatterer* of Latham, and red bird from Surinam of Edwards. Its ſpecific character is, that it is red; the ſtripe at its eye, and the tips of the quills of the wings and tail, are black. Migrating, but common in the interior parts of Guiana. The *Cotinga alba* of Briſſon is the *Guira panga* of Buffon, Ampelis *Carunculata* of Gmelin, and carunculated *chatterer* of Latham. Its ſpecific character is, that it has a pendulous, expanſible, and moveable caruncle at the baſe of the bill; found in Cayenne and Brazil. The *Cotinga Nævia* of Briſſon is the *Averano* of Buffon, the *Guira-punga* of Ray and Willughby, and the Ampelis *Variegata* of Gmelin. Its ſpecific character is, that it is cinereous, and that to its throat are attached two lance-ſhaped caruncles; found in Brazil. The *Cotinga Mexicana* of Briſſon is the Sturnus *Mexicanus* of Gmelin, which ſee. The *Cotinga cinerea* is the Lanius *Nengata* of Gmelin, which ſee.

COTINUS, in *Botany*, *coriaria;* Dod. Du Ham. See Rhus *Cotinus*. The κοτινος of the Greeks is the oleaſter or wild olive.

COTLAND and Cotschland, land held by a cottager, either in ſocage or villenage. Paroch. Antiq. 532.

COTO. See Koto.

COTOMANA, in *Ancient Geography*, a town of Aſia, placed by Ptolemy in Greater Armenia.

COTONASTER, in *Botany*, Cluſ. C. Bauh. See Mespilus.

COTONEA, and Cotonea *Malus*, Lob. and C. Bauh. See Pyrus *Cydonia*.

COTONIS *Inſula*, in *Ancient Geography*, an iſland of the Mediterranean ſea, and one of the Echiades. It was ſituated on the coaſt of Etolia, according to Pliny.

COTOPAXI, in *Geography*, a mountain of S. America, in Peru, ſituated about 25 miles to the S E. of Quito, and eſtimated at about 18,600 feet in height, with a volcano famous for its frequent and violent eruptions. M. Bouguer obſerved ſtones of eight or nine feet diameter ejected from this volcano to the diſtance of more than nine miles.

COTORSE', in *Heraldry*, is the French heraldic term for cottiſed.

COTPUTLY, in *Geography*, a town of Hindooſtan, in the country of Meurat; eight miles S.S.W. of Delhi, and 90 N.N.W. of Agra. N. lat. 27° 35'. E. long. 76° 50'.

COTRODES, in *Ancient Geography*, an epiſcopal town of Aſia, in Iſauria. Steph. Byz.

COTRONA, in *Geography*, a town of Naples, in the province of Principato Citra; 14 miles W. of Cangiano.

COTRONE, a town of Italy, in the province of Calabria Ultra; 12 miles S.E. of St. Severino. This town ſucceeded to the Greek city of Croton, though it does not occupy the ſame extent of ground. The climate is ſaid to be now unhealthy in ſummer, on account of ſome local cauſes; but the ſalubrity of Croton was among the ancients proverbially ſalubrious. The river Eſaro, which flowed through the centre of the old town, now runs in a ſhallow ſtony bed, at a conſiderable diſtance N. of the gates. A new harbour has ſome years ago been formed by great works for this town. But in the conſtruction of it, due attention has not been paid to the ſafety of veſſels riding before the town. The entrance of the town is open to the N. and N.E. winds; points of the compaſs, from which very boiſterous blaſts ruſh down the Adriatic, acroſs the Tarentine gulf, though perhaps leſs tremendous than the Sirocco and ſoutherly winds, whereas, if the mouth of the haven had been more eaſterly, the entrance would have been more eaſy, and the veſſels leſs diſturbed while in port.

This harbour is capable of containing a conſiderable number of merchant-ſhips, but none above the tonnage of a polacca. The mouth of the port is marked by two lighthouſes. Cotrone is fortified with ſingle walls, and a caſtle, erected by Charles V. The private buildings are poor and ſordid; the ſtreets diſmal and narrow; and ill-humour, miſery, and deſpondency, ſays Swinburne, were depicted on every countenance. The town has little commerce; its chief commodities are cheeſe made of goat's milk, and corn; for the latter there are granaries in the ſuburbs, and the annual export is about 200,000 tomoli, two of which are equal to three Engliſh buſhels. See CROTON.

COTRONGIANO, a town of the iſland of Sardinia; 10 miles E. of Saſſari.

COTSATHLA, or COTSETLE, the little hut or manſion belonging to a ſmall farm. Cartul. Malmb. MS.

COTSATHUS, a cottage-holder, who, by ſervile tenure, was bound to work for the lord. Cowel.

COTSETS, are the meaneſt ſort of men, now denominated cottagers.

COTSJOPIRI, in *Botany*, Rumph. See GARDENIA *florida*.

COTT, in *Sea Language*, a ſort of bed-frame, ſuſpended from the beams of a ſhip, in which the officers ſleep between the decks. It is about ſix feet long, one foot deep, and between two and three feet wide. See HAMMOCK.

COTTA, JOHN, in *Biography*, an elegant Italian ſcholar, was born near Verona about 1483, and became very celebrated for his attainments in claſſical and mathematical knowledge. He went through various important ſcenes, and travelled for ſome time in order that he might improve his mind; he then kept a ſchool at Lodi, and at length attached himſelf to Alvino, a Venetian commander. Under him he was taken priſoner by the French in 1509, and loſt part of his writings. He died in 1510, in his 28th year, by which time he had acquired a very high reputation by his poems, which have been publiſhed at various times, particularly in the "Carmina quinque Poetarum." Moreri.

COTTA, COTES, or COTTES, in *Ancient Geography*, a town of Africa, placed by Pliny in Mauritania Tingitana, near the columns of Hercules. He elſewhere ſays, that it was a place not far from the river Lixus. *Cotta* was alſo a mountain, nor far from the Lixus, in which was a cavern conſecrated to Hercules. Cotta, Cotes, or Cottes, was alſo a port or bay, mentioned by Scylax, which was probably in the neighbourhood of Cape Cotta; but if that be the caſe, it is erroneouſly placed between Cape Mercury and the ſtraits of Hercules. See COTTES.

COTTA, in *Geography*, a town of Germany, in the circle of Upper Saxony, and Margravate of Meiſſen; 10 miles S. of Pirna.

COTTÆOBRIGA, in *Geography*, a town of Spain, in Luſitania; placed by Ptolemy in the country of the Vettones.

COTTAGE, in *Rural Economy*, a name moſtly applied to a ſmall houſe uſually erected for the uſe and accommodation of either the farm labourer, or thoſe engaged in ſome other buſineſs or occupation; but chiefly ſuch as are connected with that of agriculture. They were formerly in moſt caſes conſtructed of rude materials of ſuch kinds as could be the moſt readily procured or provided, frequently of earthy ſubſtances, blended with others of a very periſhable nature, ſuch as ſtraw, having the denomination of *mud* cottages in ſome diſtricts, and *cab dab* in others; but which have lately given way, in ſome meaſure, to thoſe of a more durable and laſting kind, which, in the end, are probably by much the cheapeſt even in this ſort of buildings. The practice of connecting cottages with farm lands, was heretofore much more common than it is at preſent, but however greatly it may have declined within theſe late years, there can be no doubt, but that it was a ſyſtem which was highly advantageous to the intereſt and convenience of the farmer, as well as the land proprietor. It has indeed been obſerved by the author of "Practical Agriculture," with regard to the beneficial conſequences reſulting to the former from the cottage plan, that, "though he may have a certain number of labouring people conſtantly about him, they will not be able, on every occaſion, and in every place, to perform all the buſineſs that is neceſſary on his farm." He muſt therefore either be under the neceſſity of keeping more ſervants than are abſolutely requiſite, at great expence, or he muſt have recourſe to the aid of the cottage labourer; which, he thinks, proves the utility and importance of the cottage ſyſtem, as connected with the labour of farms. But, he conceives, that this is far from being the only point of view in which it is of conſequence. "It is moſtly, he adds, from amongſt this claſs of men, that the beſt and moſt expert labourers in the buſineſs of huſbandry are procured; being, in general, inured from their infancy to ſuch labours, and accuſtomed to perform the different operations of farming, they are enabled to manage the practical part of agriculture with much eaſe and readineſs, which is far from being the caſe with the common labourer, who, for the moſt part, has been brought up to ſome other occupation or employment. Beſides, on ſuch farms as are at the greateſt diſtance from towns and villages, theſe accommodations for labourers ſeem indiſpenſably neceſſary, as without them much time muſt, of courſe, be loſt in going backwards and forwards to their different meals, and the places in which they lodge; and from the unavoidable fatigue that attends this mode, they are little diſpoſed to procure work at a diſtance, if they can poſſibly get it at the places where they reſide, which, in many ſituations, often reduces the farmer to much inconvenience, if not actual loſs." He conſequently ſuppoſes that, where the ſyſtem of cottages "can be introduced with convenience, and a mutual intereſt be eſtabliſhed between the farmer and the labourer, it will be to the advantage of the former to have as many cottages on his farm as poſſible; and under ſome circumſtances, as in caſe of a long leaſe, it may even be advantageous for him to build them, or, at leaſt, aſſiſt the proprietor in doing it, by the conveyance of materials, and other ſuch means as are in his power. And in order that an object of ſuch importance to huſbandry may be accompliſhed more readily, and with greater facility, all thoſe legal and parochial obſtructions ſhould be removed, which have any tendency to impede the erection of ſuch ſort of buildings. There are likewiſe various difficulties of a local nature, which not unfrequently throw obſtructions in the way of providing this kind of accommodations, whether for the farmer or the manufacturing labourer.

In the ſeventh volume of the "Letters and Papers of the Bath and Weſt of England Agricultural Society," it has been uſefully remarked on this ſubject that, as "manual labour is and always muſt be neceſſary for the cultivation of land, it follows, of courſe, that houſes for the habitation of thoſe who are to perform that labour are indiſpenſable;" and that "if the inhabitants of theſe houſes are in health and able to work, they will be able to ſupport themſelves by the hire of their labour. If they are not, they become a burden to the pariſhes to which they belong, and the laws will oblige the landholders to maintain them. To preſerve the health and ſtrength of theſe poor but neceſſary fellow-creatures, is therefore," he adds, "not only the duty but the intereſt of the landholders. Men of feeling will endeavour to do this from principle. Men without feeling, if ſuch men there are, will find it their intereſt to do it."

And, "the firſt ſtep towards this neceſſary purpoſe is, that of providing proper habitations for them. Humanity ſhudders at the idea of an induſtrious labourer, with a wife, and perhaps five or ſix children, being obliged to live, or rather to exiſt, in a wretched, damp. gloomy room, of ten or twelve feet ſquare, and that room without a floor; but common decency muſt revolt at conſidering, that over this wretched apartment there is only one chamber, to hold all the miſerable beds of this miſerable family. And yet inſtances of this kind, to our ſhame be it ſpoken, occur in every country village. How can we expect our labourers or their families to be healthy, or that their daughters, from whom we are to take our future female domeſtics, ſhould be cleanly, modeſt, or even decent, in ſuch wretched habitations? In order to remedy this ſerious grievance, more convenient and more numerous cottages ſhould, he contends, be built for the habitation of the labouring poor."

And it has been juſtly remarked by Mr. Rudge, the intelligent author of the "General View of the Agriculture of the County of Glouceſter," that "cottages are equally neceſſary with manſions and farm houſes, though it appears by the face of the country, that this evident truth is not always recollected. In general, through the kingdom it is to be feared," he thinks, "that the popular complaint againſt the dilapidation of cottages is but too well founded. In the Vale, as well as other parts of this county, there are numerous inſtances of this miſtaken policy; and under all the circumſtances of the increaſed coſt of materials, and builder's wages, it is ſcarcely to be ſuppoſed that the evil ſo far gone will find a ſpeedy remedy. Landlords generally deem building cottages an unprofitable way of expending money; yet a land owner ſhould recollect, that he cannot expect tenants for his lands, if proper places are not provided for the reſidence of the labourers. A tenant, indeed, taking a farm, either not foreſeeing the ſpeedy operation of the evil, or looking up to the landlord for redreſs when it ſhall happen, ſeldom if ever troubles himſelf about the number of cottages annexed to it. Overſeers are not often aware of the power the law gives them of erecting cottages on the waſte; and hence it follows that more families are crowded together than is either conſiſtent with comfort, health, or decency; or a remedy is applied worſe poſſibly than the diſeaſe, which is, to build a workhouſe, into which every perſon wanting relief is crammed without diſtinction of age, ſex, or cauſe of diſtreſs.

"A cottage which merely protects the inhabitants from the inclemency of the weather is an incomplete proviſion; ſound policy, he thinks, requires ſome concomitant advantages to attach him to his dwelling."

Mr. Holland, in his "View of the Agriculture of the County of Cheſter," makes an obſervation which is confirmed by moſt of the other Surveys which have been drawn up for the conſideration of the Board of Agriculture, that "on long experience it has been invariably found that the attachment of a ſmall portion of land to the cottage of the labourer has been the direct means of rendering his ſituation in life more comfortable and eaſy, and of inducing thoſe habits of honeſt independence, of temperance, and of induſtry, which are moſt efficacious in promoting the happineſs of individuals, and conſequently the general intereſts of ſociety." Mr. Rudge does not, however, think that "a cow is one of the neceſſary appendages to a cottage, or generally productive of good. In particular caſes the experiment has ſucceeded well, as reported by Lord Winchelſea on his eſtates, and it will perhaps ſucceed in others, where the influence of a great land proprietor extends over the whole pariſh or diſtrict; but property in few inſtances is thus conſolidated. Beſides, the management of a cow is attended with conſiderable trouble, requires more utenſils than the earnings of a day-labourer can well ſupply, and more conveniences of building than are uſually attached to a cottage. Capital is," ſays he, "the ſinew of huſbandry, and unleſs it be proportioned to the undertaking, the efforts will be weak, and the ſucceſs uncertain." See COTTAGE *Farm*.

And he thinks there is reaſon to doubt whether the labourer or his wife will be able to ſpare the time from their reſpective employments, and ſhould it ſo happen, the evil will overbalance the good. It is pleaſing to ſee a good garden and a pig attached to the cottage; but neither of theſe interfere with the daily ſervices of the labourer, or withdraw him from the neceſſary attention to the buſineſs of the farmer.

He concludes that the greateſt of evils to agriculture would be to place the labourer in a ſtate of independence, and thus deſtroy the indiſpenſable gradations of ſociety. The great body of mankind, being obliged to live with and by each other, muſt neceſſarily conſiſt of proprietors and workmen; and if it be allowed that the dependence of a regular ſupply of crops reſts, among other things, on the regular ſervices of the latter, it is ſurely an experiment not altogether without danger to place them in ſuch a ſituation as will cauſe them to remit a portion of their labour, at a time when it is moſt wanted.

"Would you," ſays he, "then, it may be aſked by the philanthropiſt, confine the labourer to his ſituation, and prevent his riſe in the ſcale of ſociety? No; but I would wiſh it to be left to his own induſtry and exertion: he ſhould have more land than is uſually held with cottages. The great object is to enable him to ſubſiſt without parochial relief, and this is eſſentially to increaſe his comforts. What more is done, ſhould be the reſult of a conduct peculiarly frugal and induſtrious. I would, "ſays he," always wiſh to infer from neatneſs in the cottage, the pig in the ſtye, and ſtore of vegetables in the garden, that the occupier has neither been inattentive to his own, or the general intereſts of agriculture: and ſuch a man will feel an attachment to his poſſeſſions, from the conſciouſneſs of having brought them to their preſent ſtate of improvement by his own care. His deſire to protect and improve his property will alſo be increaſed by the recollection of the labour he has beſtowed upon it; and when ſurrounded by his family he can with truth admoniſh them to be attentive to their duties, in order to better their condition, not only by pointing out the evils of idleneſs and vice, but by ſhewing, in his own inſtance, the good effects of induſtry and prudence, cleanlineſs and virtue.

"Influenced by theſe conſiderations, the writer wiſhes that every induſtrious labourer poſſeſſed a legal right, under certain reſtrictions, to build a cottage for himſelf with his own ſavings, and the voluntary aſſiſtance of his neighbours, and to incloſe a garden of a limited extent from the waſte; or that in any way he might have a permanent ſecurity in the premiſes he occupies, till by idleneſs and vice he ſhould become unworthy of encouragement."

It is the practice with lord Rolle, on the borders of the waſtes of Woodbury and other commons connected with it, as ſtated by the writer of the "Agricultural Survey of Devonſhire," to encourage "the peaſantry to build and make ſmall improvements. The inducing of the labourer thus to leave the village, and ſettle upon the borders of the commons, is conſidered by far the moſt likely means of promoting the comfort, and improving the morals of theſe people. The quantity of land firſt permitted to be incloſed is about an acre. This improvement conducted to his lordſhip's ſatisfaction, a farther incloſure is ſuffered to be made, to the extent of three, four, or five acres, and which, in ſome caſes, have led to the cottager's obtaining a long leaſe of his improvements at a very moderate rent, and with the farther privilege of incloſing more of the waſte, when his ſtrength and ability will enable him to render it equal juſtice with that he may have already improved. In thus withdrawing the cottager from his former haunts in the village, the time that would otherwiſe be ſpent at the alehouſe, or in frivolous converſation with his neighbours, is now employed to the immediate benefit of himſelf and family, and ultimately to the increaſe of the national ſtock."

And in the ſame diſtrict lord Clifford is ſaid to attach to his cottages a ſmall piece of garden ground, with the privilege of cultivating as many potatoes as their induſtry may prompt, or leiſure admit of, in the young plantations; a ſmall orchard ſufficient to produce from one to two hogſheads of cyder, with a ſufficiency of good hoarding or winter apples, is alſo granted to each peaſant's family, in lieu of the grazing of a cow, which they were formerly indulged with. The cow being ſubject to accident, places this munificence on a more permanent footing.

It appears at preſent an opinion pretty generally adopted, that, wherever it can be done, ſome limited portion of ground ſhould conſtantly be attached to a cottage; but the mode of attaching it, and the quantity which is requiſite in different caſes, are matters of conſiderable difficulty, and which muſt, probably, depend on various local circumſtances, ſuch as the abundance or ſcarcity of land, the manner in which it is cultivated, and the diſpoſitions of the occupiers. In every ſituation, perhaps, a ſufficient quantity for the growing of proper vegetables for the cottager and his family may be ſpared, as for this purpoſe not more than twenty or thirty perches of ground will be required.

Mr. Rudge contends that "it ought not to be extended ſo far as to occupy too great a portion of the labourer's time; nor, however beautiful it may be in theory to raiſe the lower orders to a ſituation of comparative independence, ought the line to be faintly marked between the proprietor and labourer, as without this diſtinction neither agriculture nor commerce can flouriſh."

This has been obſerved to be a ſyſtem which tends not only to benefit the cottagers, but which, at the ſame time, muſt greatly contribute to the intereſt of the owners of land, and the community in general. Such a plan cannot, indeed, from various local cauſes, be generally introduced; but it may be rendered much more common and extenſive than it is at preſent, ſince the narrow, confined, and illiberal notions which have ſo long retarded its execution have now been fully ſhewn to be erroneous and ill-founded. The advantages of gardens are great, in reſpect to the labourers themſelves, as the attention they require prevents them from viſiting the ale-houſes; and it has been well remarked, that there is a ſtriking difference between the cottagers who have a garden adjoining their habitation, and thoſe who have no garden; the former being generally ſober, induſtrious, and healthy, while the latter are too often drunken, lazy, vicious, and frequently diſeaſed. See COTTAGE *Farm*, and COTTAGE *Garden*.

Mr. London, in his valuable "Treatiſe on forming, improving, and managing Country Reſidences," after noticing the great advantages of improving the comforts of the labourer, by rendering his dwelling more commodious, and ſuggeſting that from the ſimplicity of his eſtabliſhment, but few and ſmall apartments are required, the whole being conſtructed with the greateſt attention to uſe and economy, remarks, that though from the great diverſity of materials ſupplied for this purpoſe in different countries, as well as the difference of climate, there may be much variety in the buildings of this nature in them, the cottages of Great Britain may be conſidered under two diſtinct claſſes, namely, the ENGLISH and the SCOTCH; from which he conceives all the other varieties have proceeded.

COTTAGE, *Engliſh*. It is ſuppoſed from the mild ſtate of the climate, the evenneſs, and freedom from rocky inequalities in this part of the kingdom, that "the walls of the more ancient erections of this ſort were conſtituted of clay, turf, and other ſimilar materials, ſtrengthened and ſupported by poſts and croſs pieces of wood, which was ſo predominant at the time in the country. The roof was conſiderably elevated, as the higher it was, the preſſure upon the ſide walls was more perpendicular, and conſequently leſs liable to derange the materials than if it had been more lateral, which is the neceſſary conſequence of a flatter roof. This roof was alſo made to project conſiderably over the wall, that the rain might be entirely thrown off; for it is evident that it would have otherwiſe ſoon deſtroyed the adheſive qualities of ſuch crude materials. This projection was likewiſe uſeful in keeping off the rain from the windows and doors; ſo that in general it ſerved a double purpoſe. Often, however, windows were made in the lower part of the gable; and though the projection extended over that part alſo, yet from the height of the eaves of the roof, the rain in falling, particularly in times of wind, might be thrown inwards upon the window. To prevent this, a projection was made over it for the expreſs purpoſe of keeping off the ſame; and as it was known to be alſo advantageous in preſerving the wall, it was ſometimes carried acroſs the whole end or gable, as we ſee ſtill practiſed in ſeveral places." And he adds, "that the chimnies in this ſtyle of cottages were generally carried up ſingly at one or both ends of the building, commonly in the outſide of the wall, and generally of a roundiſh ſhape, and terminated with a projecting coping to keep off the rain. The materials of the roof were principally wood, covered with ſtraw, reeds, or ſlate ſtones. Sometimes garrets were formed under it, and conſequently windows were placed either in the end, in the flank, or ſlope of the roof, or both. The form of the windows was every where much broader than high, both from the lowneſs of the ſide wall, and more ſuitable for giving light. This required a long cover at top; but theſe were frequently ſupported in the middle by upright pieces, which ſerved to divide them into compartments." It is further ſtated, that "to this general form, which includes every thing relating to the perſonal accommodation of the cottager, he frequently, when in poſſeſſion of a cow or a horſe, added a ſmall ſhed and other hovels to one end, or to the ſide; the methods of doing which are too obvious and ſimple to require explanation.

"From circumſtances which it is unneceſſary to recount, this kind of cottage would," he thinks, "in time be made two ſtories in height. In this caſe, if the walls were ſtill made of clay, the projections would be continued, and alſo placed over the lower windows; but as brick or ſtone would be often uſed, when this form was adopted, there would then be leſs reaſon for a projecting roof. But, from the thinneſs of the walls, the windows would neceſſarily be placed nearly even with their ſurface, and conſequently much expoſed to the weather; ſtill," he ſays, "projections over them became neceſſary, as well as over the doors. Theſe projections, as in other caſes, would ſometimes be made of wood, and ſometimes of ſlate or grey ſchiſtus; ſometimes carried acroſs the whole length of the ſide walls, and ſometimes no farther than over the windows."

The able writer obſerves further, that "cottages of both theſe kinds, formed of clay and wood, may be ſeen in many parts of Worceſterſhire, Glouceſterſhire, and Herefordſhire. In other counties the ſame form exiſts, but the materials are either intirely bricks, or bricks with the wood in place of clay, turf, or even ſtone above, as at Ambleſide in Weſtmoreland, and ſeveral parts of Lancaſhire."

Cottage, *Scotch.* It is ſuggeſted by the ſame author, that "the peculiar forms of theſe originated from the abundance of ſtones, the comparative ſcarcity of wood, and the ſeverity of the climate. In them the walls were built thick, in order that they might contribute to warmth, and bear the weight of a flatter roof. The flat roof was preferred, both becauſe leſs of that ſcarce article wood was requiſite, and alſo becauſe this form was leſs liable to be injured by the winds, which always prevail in naked, mountainous countries. The walls in this ſtyle not being ſo liable to decay as in the other, the projection of the roof was comparatively ſmall. This did not give occaſion, however, to projections over the windows, becauſe the walls being thick, the glaſs frame was leſs expoſed to the weather by receding from the outer ſurface of the wall. The form of theſe windows was narrow, in order that a ſtone of no uncommon length might eaſily cover them at top; and this ſhape likewiſe better ſecured them from the weather; ſtill, however, as theſe cottages required as much light as the others, the windows were made proportionally deep; and this gave riſe to a mode of framing and glazing different from the Engliſh; and hence alſo another mode of opening the glaſs frames for admitting air. In theſe long narrow windows it is done by having the glaſs caſes divided horizontally. In the broad low Engliſh windows, it is done by dividing them perpendicularly. In the former caſe, the ſaſhes are placed in grooves, the upper one fixed, and the lower one looſe; in the latter caſe, one or both of the frames have hinges, and open either outwards or inwards." It is added, "that in the Scots cottage windows the glaſs is always in large ſquare pieces, fixed in wood; in the Engliſh, always in ſmall ſquare or rhomboidal lozenges, glazed in lead, and fixed in an iron frame."

It is ſtated, that "the chimnies in this cottage were ſometimes, and moſt generally, carried up in the two end walls or gables; but frequently in the central wall which ſeparated the two apartments. But "there is a ſort of cottage common in ſeveral parts of the north, in which the chimney is a hollow cone, or pyramid, formed of wood and clay, and ſuſpended from the gable; the fire is made in an iron grate with open ribs on all ſides, and, placed under the middle of this projection, diffuſes its heat on every ſide, while the ſmoke aſcends the wide cone or chimney. This plan has the advantage of allowing a numerous family to ſit around it, and originated from the practice of ſmall farmers who formerly uſed to live in their kitchen with their ſervants and the whole family." It is a practice ſtill in uſe in ſeveral parts of England: but it is chiefly given up in Scotland. "In this caſe the roof was ſloped on all ſides in the pavilion manner. The roof here, as in the other kind, was covered with the moſt ready materials, generally thatch and turf; in ſome places heath was uſed, as in many parts of the Highlands; in others blue ſlate, as in Peebleſhire; grey ſtone ſlate, as in Kircudbright; or red flag-ſtones, as in moſt parts of Dumfriesſhire. In every caſe, the roof being flatter, light garrets were inadmiſſible; and, of courſe, windows were made in the gable ends, or in the ſides of the roof."

It is ſuggeſted that from this ſort of cottage being peculiar to poor countries where rocks and ſtones moſt generally abound, "the cottagers were ſeldom bleſſed with a cow, or even pigs, and hence had no occaſion to add appendages as in the other caſe. Fuel and moſt other things were lodged under the principal roof. Happily in all the improving counties of the north, the practice of giving cows to all the farm ſervants is becoming general; and the pleaſing appendage which they occaſion, begins to appear in many of the counties ſouth of Edinburgh. In moſt of the northern and weſtern counties, however, there ſtill exiſts a peculiar formality, or ſenſe of imagined dignity which manifeſts itſelf upon every occaſion, both in the phyſical and moral actions of the inhabitants. They are ſtrict and formal in their religion; and ſo rigid in regard to ſymmetry, which, in a country ſo very irregular, it is natural to imagine will be the moſt ſtriking and generally perceived beauty, that rather than make a cottage irregular by an exterior appendage (neceſſary for a cow) they extend it in length, adding a gable and chimney top: thus making the external appearance of the cow-houſe and the lodging apartments exactly alike. Hence a houſe of this kind preſents a chimney at each end, and two doors placed together in the middle. One of theſe doors is the entrance of the cottager; the other that of his cow." The author "would not have thought this circumſtance worthy of notice were it not that ſome reſpectable improvers near Edinburgh, are building a number of ſtiff unconnected cottages of this kind for their labourers, under the name of ornamental cottages. It muſt be evident to every one that whatever their form may be, they can never be clear, freſh, and wholeſome, as if the cow-houſe was made an appendage, with its door either in the end or at ſome diſtance from the door to the living apartments of the peaſants. The Scots cottage, when increaſed in height, ſo as to contain two ſtories, has ſtill more formality than the low kind from being of greater magnitude."

It is remarked, that "theſe two ſtyles are in general formed pretty diſtinct; but that, as in the borders of Wales, and the north of England, or where the people from one country have migrated to another, they are found mixed or blended in various degrees, as is the caſe in Northumberland, Lancaſhire, and ſome parts of Sterlingſhire, as at Carron."

From the deſcription of theſe ſimple and uſeful forms of cottages, the ſame author proceeds to the addition of ornaments. It is rightly conceived, he ſays, that utility conſtitutes the chief beauty of the cottage, and that it is frequently from ſimply attending to this, that the manner and dreſs of the humbleſt claſs of ſociety become ſo agreeable and pleaſing. But that, in regard to dreſs, we, in general, find that "no ſooner has the pretty milk maid been enabled to cover her boſom with a ſhawl, or her hair with a ſtraw bonnet, than ſhe wiſhes to adorn her neck with beads. So it is with the labourer and his cottage; it is no ſooner erected, and he comfortably lodged, than he thinks of ſomething farther, and begins to add ornaments. Theſe, it is true, are more generally confined to the internal parts of it; but are often applied alſo to the external; and eſpecially when cottages are near the highway, or when they are collected together in villages, through an ambition to excel in neatneſs and decorum.

"It is conceived, that in the Engliſh cottage of the original kind, with the projecting roof, the firſt external ornament would be to take chalk, and whitewaſh the clay walls, which would have a wonderful effect in giving them a gay appearance. The next thing in this ſtyle would be the decorations of their little garden, and the planting of roſes, or ſome of the ſmaller fruits againſt the pales, which encloſe it. And now, proud of this little ſpot, he would erect a ſeat cloſe under the roof, and at the ſide of the door, on which he may ſit with his children after the cloſe of his labour, and enjoy the general effect of the whole."

When this ſort of "cottage was made two ſtories high, the chief difference in the ſtyle of ornament would be, that in place of whitewaſhing the walls, he would plant fruit-trees or ornamental creepers of ſome ſort againſt them, which he could not do in the caſe where projecting roofs were adopted."

But "the inhabitant of the other cottage, the Scotch, naturally of a leſs gay diſpoſition, is not profuſe in whitewaſhing the external part of his houſe; he beſtows a little of it however upon the edges of his windows, to indicate that all is comfortable within. He frequently places a ſeat near the door as in the other ſtyle; though the difference of the climate is adverſe to this luxury, and indeed the nature of the foreground, which would come immediately under his eye, is not of an inviting kind to any of the ſenſes. Scotch cottages in a few ſituations, however, either from their vicinity to another ſtyle, or from accidental circumſtances in the employment of the inhabitant, are decorated with excellent effect; by training honeyſuckles or ivy upon the walls, and alſo by adding another ornament not very general in the other ſtyle. This is a row of houſeleek placed along the ridge of the roof. In a few years it becomes highly ornamental, and the ſtems of its flowers probably, he thinks, gave riſe to a mode of decorating the ſame part in profeſſed ornamental cottages."

It is ſtated, that "cottages decorated in this way may be ſeen in ſeveral villages near Edinburgh; but in their ſtyle there remains ample room for the interference of gentlemen, who, with little or no trouble or expence, might oblige their cottagers to plant trees in their gardens, and train creeping ſhrubs upon their walls; which, with the removal of an appendage in front, *peculiar to that country*, and which ſhall be left unnamed, would contribute much to the beauty of villages, and ultimately tend to increaſe the health and comforts of the peaſantry."

It is conceived, that theſe are the ornaments which "would naturally be added by the inhabitant himſelf, and what would long conſtitute the ſole decorations of cottages." But that "there is another claſs which, in a certain ſtage of the progreſs of ſociety, the builder would introduce: thus, as the houſes of rich individuals, or the churches and cathedrals of rich bodies of men, became common, artiſans to conſtruct them would become more numerous, and as they could not always be employed in theſe great buildings, they would frequently aſſiſt thoſe whoſe occupation was chiefly that of rearing buildings for the lower claſſes of mankind. This, from a principle of vanity inherent in man, would lead them, even in theſe low buildings to imitate, in ſome degree, what they had been accuſtomed to in their greater works. And as the vulgar, in imitating the manners or dreſs of the rich, always attached themſelves to the ornamental parts; ſo thoſe artiſts, diſregarding the proportions of rooms, or the principles of ſtrength in walls or roof, would copy ſuch mouldings and cornices as could be applied over their doors and windows. Hence, in place of mere projections of wood or ſlates placed over theſe parts to keep off the rain, Gothic labels of hewn ſtones would be ſubſtituted. Inſtead of plain round or ſquare chimney tops, they would erect thoſe cluſtered angular ſtalks which have to this day ſuch an excellent effect in many places."

It is added, that "theſe imitations were carried ſo far, that in many places the wood, which ſupported the roof, was carved in all the parts expoſed to view; an exceſs of decoration that would pleaſe all, in the taſteleſs age in which it was executed, which is now pleaſing from its age, but which we need not fear ſeeing ſoon renewed, as men of abilities equal to ſuch work cannot be employed by the inhabitants of theſe buildings. It is thus, that even in matters of taſte every evil works its own remedy. In Scotland the imitation ſeldom went ſuch a length, except in the towns or villages adjoining cathedrals or monaſteries, and even in thoſe places it ſeems, by the fatal influence of general poverty, ſoon to have given way to the common mode. Occaſionally, however, after the introduction of ornament, the gables were finiſhed with hewn ſtone in ſucceſſive pieces like ſteps. A border or frame of ſtone became frequent round the windows, and ſlates were more generally introduced on the roofs.

Further, "when Grecian architecture became faſhionable, a few of its ornaments were introduced into cottages, particularly in towns and cities where ſtone was uſed, as in the ſuburbs of Edinburgh, Glaſgow, &c. But ere this time the great paſſion for fine buildings, that gave riſe to our Gothic cathedrals, was allayed; artiſts expert at carving on wood or ſtone became comparatively rare; and the faſhionable ſtyle of decorating cottages ſeems, the writer thinks, to have been finally ſettled at nearly the ſame as that of the preſent day."

It has been remarked by Mr. Beatſon, in a paper in the firſt volume of Communications to the Board of Agriculture, that there are different ſorts of cottages, which require different conſtructions: cottages of one, two, and three rooms; ſome add, cottages of four rooms: but theſe, he thinks, are ſeldom built, and are more in the ſtyle of houſes of a ſuperior kind. There are alſo cottages for the labourer, and for the mechanic of different trades, as carpenters, ſmiths, weavers, &c.; each of whom would require a dwelling of a different conſtruction. Theſe different kinds of cottages may, he ſays, be divided into two claſſes; the plain and the ornamental: but it is the former only which he means to treat of in this place; the latter being built chiefly as pleaſing objects, in different points of view, from the parks or pleaſure-grounds of noblemen and gentlemen of fortune. On theſe a conſiderable expence is ſometimes beſtowed; and when executed and diſpoſed with taſte and judgment, they afford the moſt pleaſing variety. Of this kind, the completeſt he has ſeen are at lord Penrhyn's, in Cheſhire, whoſe cottages are diſpoſed with great taſte, and adorned with ſurrounding clumps of planting; each having a pretty little plot of garden ground and ſhrubbery in front, and ſome with honeyſuckle and jeſſamine beautifully entwined round the porch and windows. The inſides of theſe are equally delightful with the outſides, being kept ſo exceſſively neat and clean, that it is a pleaſure to view them. Different plans of this ſort may be ſeen in the *Plate* of *cottages* of the ornamental kind.

At the earl of Winchelſea's, in Rutlandſhire, are alſo, he ſays, ſome very neat cottages, kept in excellent order; but his lordſhip has been at a conſiderable expence in erecting them.

But as the plain and ſimple cottage for the labourer is the chief object at preſent under conſideration, he endeavours to point out the moſt convenient, commodious, and beſt conſtruction for that ſort of cottage, and the cheapeſt manner of executing it. It is found, he aſſerts, that an apartment

ment 12 feet ſquare is ſufficiently large for a labourer and his family to eat in, and to hold, beſides, all the furniture and utenſils neceſſary therein. One ſleeping apartment over that, partitioned in ſuch a manner as to be moſt convenient to the family, and leaſt offenſive to decency, at particular times, will conſtitute, he thinks, all the lodging required in a ſimple cottage. Square ſingle cottages of this ſort may be eaſily conceived, without having recourſe to any repreſentation or plan; but when they are formed ſo as to have about four feet more in length than they have breadth, they may be divided to greater advantage in reſpect to convenience, and be rendered more comfortable, while the additional expence is only trifling.

The Rev. Mr. Luxmore of Brideſtow, in Devonſhire, in building cottages in rows, found the following plan perfectly convenient, and at the ſame time economical: the room below 16 feet ſquare, with one door and window in the front; the fire-place, with an oven opening into it by means of a flue; a door opening back into a ſhed or lean-to, for covering fuel, the tools of the labourer, and ſheltering a pig, &c.; and another door from the ſhed opens into a ſmall back yard, fenced off from the ſmall garden attached to the cottage. A pantry fitted up with ſhelves is made under the ſtairs in the front room, which lead up to the bed-room; and oppoſite to the fire-place, over which there is a mantle-piece, a kind of dreſſer is faſtened to the wall, with ſhelves, which conſtitute the fixture of the room below. The ſleeping-room above is the ſame ſize. The walls of the firſt eight feet of theſe cottages are conſtructed with ſtone, the parts above with cob, being covered with a ſlate roof, and coſt from 38*l.* to 40*l.* when finiſhed.

There ought, Mr. Beatſon ſays, always to be at leaſt two cottages built together, from there being, beſides other advantages, conſiderably leſs expence in this way in proportion, than building them ſingly. In this caſe he thinks the ſpace of four feet, noticed above, ought to be taken from the extreme ends, by which the vents would be got in the middle wall, which ſeparates the two cottages. In moſt of the modern cottages he has viſited, (although many of them are perfect in every other reſpect,) the general complaint ſeemed to be, he ſays, that the upper chambers were ſo exceſſively hot in ſummer, and ſo very cold in winter, that they were ſcarcely habitable. This is owing, he conceives, to the thinneſs of a ſlate or tile roof, and to thoſe chambers being ſo far within the roof. A proper thatched roof is therefore, he thinks, the beſt preventative of this evil, where there are upper chambers. If the roof be of tile or ſlate, which is by far the neateſt and moſt durable, the ceiling ſhould be lathed and plaſtered, and air-holes with ſhutters ſo contrived, that they may eaſily be opened or ſhut at pleaſure, to give air to the whole roof in hot weather, which will tend greatly to keep the upper chambers cool in ſummer. Even a white ſheet thrown over that ſide of the roof moſt expoſed to the ſun, or the roof itſelf whitened, will alſo have the ſame effect. It is ſuggeſted that, in winter, if the angle in the roof be filled with ſtraw, it will probably prevent the cold from penetrating ſo eaſily as would otherwiſe be the caſe.

The ſame writer further ſtates, that the ſaving of fuel is certainly a material object to a cottager; and as it would be attended with a conſiderable additional expence to him to keep a fire in the ſleeping-apartment above, as well as below, if a method can be deviſed to give the upper apartment ſome benefit from the fire below, it would ſurely, he ſuppoſes, be of great advantage in cold weather. This might, no doubt, he thinks, be done by a flue; but ſome benefit may be derived from the vent being in the middle of the building, particularly if this vent is made as thin as poſſible where it paſſes through the upper chamber. If that part of it were made of plate iron, or ſuch as is uſed in ſtoves on board of ſhips, it would add, he ſuppoſes, conſiderably to the warmth of the room. There is ſtill another way that occurs to him, that would have a good effect. In all apartments kept warm by a fire, it will be found that the air at the ceiling is conſiderably warmer than the air below. If, therefore, in a cottage, that warm air is permitted to aſcend to the apartment above, it is natural to ſuppoſe it will render this apartment conſiderably warmer. This may be accompliſhed, either by means of ſliding hatches, or by gratings, in the leaſt frequented part of the floor, made ſo as to open or ſhut eaſily when required. Theſe methods of warming and cooling the upper chambers in cottages have probably, he ſays, never been tried, and are perhaps new: they may therefore be improved upon. At all events, they are at leaſt worthy of being mentioned, if they can in any degree contribute to the comfort of the cottager.

With reſpect to the economy of fuel, in ſo far as the conſtruction of the fire-place is concerned, much perhaps ſtill remains to be effected, notwithſtanding what has been long ſince done by Franklin, and lately by count Rumford. From numerous experiments, and much attention to the ſubject, Mr. London, in his "Treatiſe on Country Reſidences," has ſuggeſted a plan for this purpoſe, by which he conceives much more heat will be thrown out from a given quantity of fuel, than by any other which has been hitherto propoſed; and which has the additional advantage of great ſimplicity. It is repreſented in *Plate* IX. *fig.* 1. in which *a* ſhews the ground plan of the gable, or end-wall, in which the fire-place is to be formed; *b* is the fire-place, or chamber for the fuel, which is conſtructed of ſtone or brick on three ſides, but open in the front part; *c* is the aſh-pit, and *d* the floor of the cottage. *Fig.* 2. is a ſection of the ſame gable and chimney; *e*, the grate which contains the fuel, being placed on a level with the ſurface of the floor, which is ſhewn at *f*; *g* is the ſolid wall or gable, projecting wholly over the fire; *h*, the vent or chimney, by which the ſmoke paſſes away.

The object of this contrivance is accompliſhed "1ſt, by the lowneſs of the fire-place; 2dly, by the projection over it, which makes the ſmoke aſcend very ſlowly, and thus gives it time to cool, or give out its heat into the room; 3dly, by having the vent at *h* of proper dimenſions; that is, ſuch as will neither permit more nor leſs than the requiſite quantity of ſmoke and air to eſcape." The ingenious writer has in general found that in ſimilar caſes, its ſuperficial contents ſhould be equal to that of the upper ſurface of the fuel chamber.

There is likewiſe another circumſtance, eſpecially in ſmall cottages, where every little ſpace is of much importance, which is that of conſtructing the ſtair-caſe in ſuch a manner, as that it may take up the leaſt poſſible room within the building. Mr. Beatſon has ſuggeſted the following contrivance as practiſed in Cheſhire, with this intention; by which the ſtair only takes up half the ſpace, in aſcending, that is required in the common way. But it will be better underſtood by the repreſentation as ſeen at *fig.* 3 in *Plate* IX, which is a front view of the ſteps; the width from *a* to *d* is two feet five inches; *a* is the firſt ſtep, ſeven and an half inches high, upon which the left foot is put; *b* is the ſtep for the right foot, ſeven and an half inches higher, but in the ſame line with *a*; the left foot being ſet on *a* and the right on *b* alternately to the top of the ſtair. It is of courſe evident that, as the ſteps for the right and the left foot are in the ſame line, though neither of them riſes more each time than ſeven and an half inches, every time one or the other foot is moved, it muſt riſe 15 inches higher than it was before, as is ſhewn at *fig.* 4. in which the dotted lines repreſent the left foot ſteps, and the whole lines the ſteps for the right foot. In a ſtair of this ſort ſuppoſe that each head or breadth for the foot is nine inches, and that each riſe of one foot above the other is ſeven and an half inches, as ſhewn in the figures, it will follow, that, as each foot riſes the height of two ſteps or 15 inches every time it is moved, it muſt be obvious that ſix ſteps in this way will riſe as high as twelve in the common method, and will ſtand in need of only one half the ſize of a hatchway or opening in the upper floor, that would be neceſſary for the ſame number of ſteps in the uſual mode; a circumſtance of much conſequence where there is little room, and which has the advantage of affording more ſpace for the chambers above.

It is further remarked in the ſame valuable paper, in order to avoid the inconvenience experienced in ſmall cottages in accommodating a large family of children of different ſexes with decency, that much in this view may be effected by a different mode of diſpoſing the beds from that uſually adopted; namely that of having one bed placed over the other; and where it is thought proper to keep the boys and girls ſeparate, it may be completely accompliſhed by having the entrance to the beds of the former on one ſide and that of the latter on the other ſide, by which the advantage of ſeparate aparments will be nearly obtained as is ſhewn at *fig.* 5. in *Plate* IX.

The ſame writer likewiſe ſuggeſts that every cottage ſhould have two apartments, an upper and lower, though this is thought unneceſſary by ſome, but he adviſes it principally on the grounds of upper apartments being more healthy for ſleeping in than thoſe on the ground, and from much of the moſt expenſive part of ſuch buildings, the roofing, being ſaved, as well as ſome of the walling.

In the building of this ſort of cottages, the moſt economical plan the ſame writer ſuppoſes will be that of being directed by the nature of the materials on the ſpot; where ſtone in plenty is at hand, it will in general be the moſt cheap and laſting. Brick is durable but moſtly too expenſive for this purpoſe. Earthy materials may be employed with advantage in this intention where it is properly prepared by the uſe of the rammer; a mode which has been lately practiſed with much ſucceſs in different inſtances in this country, and which has been long employed in France. See PISE' *Buildings*.

Another ſort of earthy material conſtituted of clay, or any ſort of tenacious loam, well trodden and wrought together with good wheat ſtraw, is frequently made uſe of in theſe buildings, in different diſtricts, eſpecially for the upper parts of the external walls, but it is neither a good nor durable ſubſtance, where other matters can be procured.

For the purpoſe of roofing, the cheapeſt material is probably that of thatch, eſpecially where ſeed can be had recourſe to; but it is far from being a durable material, though it has the advantage of preſerving a more equable temperature in the internal apartments, at different ſeaſons, than moſt other ſubſtances that are uſually employed. Heath or what in the northern parts of the kingdom is denominated heather, is not unfrequently made uſe of in the ſame way, and where it abounds may be employed as a cheap material. It is ſaid to be rather durable in this application. The moſt ſafe and laſting ſort of articles for this purpoſe are however, thoſe of the ſlate and tile kind, though a little more expenſive at firſt. Strong brown paper, well pitched, has been propoſed as a light, durable, and very cheap material for this uſe, by Mr. Beatſon, who notices an inſtance of its being employed with ſucceſs in the northern part of the iſland on a building of large dimenſions. Pitch is however a ſubſtance which is ſoon decompoſed by the influence of the atmoſphere, and of courſe this would ſeem to be a material which cannot be much depended upon for the purpoſe of a covering for buildings.

The flooring, in buildings of this ſort, is another material article to be conſidered. Boards have unqueſtionably many advantages over moſt other ſorts of materials for this purpoſe, but the expence is conſiderable. Where they are employed, deal is probably the beſt and moſt reaſonable, but where other ſorts are at hand, they may be made uſe of with great propriety, and at perhaps as cheap, if not cheaper rate. But it is ſuppoſed that in many ſituations a conſiderable ſaving in the expence of floors may be made by having recourſe to plaſter for the purpoſe. It is ſuppoſed that this ſort of floor would be particularly proper for cottages as being more retentive of heat than thoſe formed of deal, by which means the upper chamber might be preſerved in a more warm ſtate during the winter ſeaſon. It is however more than probable that the abſorption of moiſture would more than counterbalance this ſuppoſed advantage, as there can be no doubt that ſuch ſubſtances have ſuch tendency to draw humidity from the ſurrounding atmoſphere. See FLOOR, and ROOF.

The author of the "Survey of the County of Salop," is in general a friend to ſingle cottages, becauſe two families under one roof may have more cauſes of contention ariſe between them; on the other hand, in illneſs, poor perſons have frequently the merit of forgetting their differences, and then the aſſiſtance they are inclined to give each other is made more eaſy by nearneſs of ſituation. It is poſſible, however, where two or even three houſes are joined together, to contrive the gardens in ſuch a manner that there ſhall be little interference, and ſometimes three neighbouring families may do better together than two.

It is ſuggeſted as a convenient plan for this ſort of building to have the door to open oppoſite to the jamb of the chimney, ſo as to ſhelter the kitchen fire-place; with the chimney in the middle, ſo as to keep the two chambers warm; neither of which ſhould be a thoroughfare to the other, as by this means the education of the children may be more decent. The gable ends ſhould be ſo formed as each to admit a ſufficient window for the purpoſes of light and air, which, where the chimney is at the end, cannot be the caſe, and when not in the end a dormant becomes neceſſary in the roof, or the walls muſt be raiſed unneceſſarily high for the purpoſe of getting proper room for the window. In many caſes the room next the kitchen may be conveniently occupied as a work room, and where fire becomes neceſſary for the buſineſs or warmth, that in the kitchen may ſerve both apartments, by having the contrivance of an iron door in the back of the chimney. This is ſuggeſted as an idea of the late Dr. Franklin. A fire place in the larger bed chamber would be convenient in many caſes, as of ſickneſs, &c. The ſize of the two bed rooms ſhould not be too large, as in that caſe inconvenience may be produced from too many of the family being crowded into one of them, health and decency being forgotten, in order to preſerve the other for the accommodation of a lodger, or occaſional mendicant traveller. It is added that in ſome caſes no upper rooms are neceſſary, the ground floor being ſufficient; and that where a ground floor is made perfectly dry there is a convenience in having the bed-room to open out of the kitchen, becauſe the kitchen fire will be ſufficient for the purpoſe of illneſs: and that the bed-room, if dry, will be warmer, as being leſs expoſed to the wind, and leſs liable to be heated from the roof in ſummer or chilled from it in winter. But wherever perſons are to ſleep near a roof, thatch well ceiled is the moſt comfortable, as it preſerves the room in an even temperature. Landlords intent on making comfortable cottages will, he thinks, often find it beſt to build or repair before they engage with a tenant; for men not uſed to improvements, cannot comprehend effects before hand, and they will apprehend want of accommodation without reaſon, or oftentimes if attended to loſe the conveniences they would have wiſhed ; or they will not wiſh for thoſe, in which it is beſt they ſhould be indulged. For inſtance, windows to open will not always be deſired. He thinks it perfectly poſſible to improve men in their turn of mind, by giving them properties in and about their habitations which they may not have thought of or deſired.

In the firſt volume of Communications to the Board of Agriculture it has been remarked by Mr. Holland, that "building cottages muſt be attended with more or leſs expence, according to the facility with which materials can be procured, and the price of labour ; and in ſome meaſure upon the foundation that may be required, and the labour neceſſary to form the level on which they are to ſtand ; but ſuppoſing no extraordinary expence, the eſtimate will ſtand, he thinks, thus :

	l.	*s.*	*d.*
18 yards digging the foundation and levelling the ground, at 3d *per* yard, - -	0	4	6
160 feet of reduced brick, rough ſtone, or flint in the foundation, and one foot above ground, taking an average price, brick will probably be the deareſt. When flint or rough ſtone is to be got, the leaſt expence is to lay it in dry, and run liquid mortar, or, as the workmen call it, *grout*, to fill the interſtices, and cement the work. It was thus the old hard walls, of which great remains are ſtill to be ſeen, were conſtructed ; at 6d. *per* foot, 22 inches thick, - - - -	4	0	0
170 feet of reduced brick work to the chimney and chimney ſhaft, at 8d. *per* foot. -	5	13	4
608 feet ſuperficial of earth or mud-walling, 20 inches thick, at 3d. *per* foot, - -	7	12	1
1 ſquare, 66 feet ſuperficial, of flooring to the kitchen, if of earth, at five ſhillings *per* ſquare,	0	8	3
78 feet of flat brick paving, laid dry in the pantry, at 3d. *per* foot, - - -	0	19	6
11 feet 3 inches of clammy earth paved with brick an edge, in mortar, at 6d. *per* foot, -	0	5	7½
33 feet of brick foundation to the privy, nine inches thick, and two feet deep, open towards the dung hill, at 6d. *per* foot, - -	0	16	6
15 feet cube in a ſmall brick ſink in the pantry, raiſed two feet ſix inches above the floor, the run from it to the yard and privy, at 9d. *per* foot,	0	11	3
16 feet run of brick gutter acroſs the yard, at 3d. *per* foot, - - - - -	0	4	0
46¾ ſquares of the beſt reed-ſtraw thatching on the houſe, including roofing of fir-poles, or rough unſawn timber, prepared for thatching, at 40*s.* *per* ſquare, - - - -	9	10	0
3 ſquares of chamber flooring, timber and boards, at 45*s.* *per* ſquare, - - -	6	15	0
3 ſquares of under-flooring, ſerving as a ſecurity againſt fire, and a ceiling below, at 20*s.* *per* ſquare, - - - - -	3	0	0
Mantle, taſſels, and inſide burn to kitchen chimney, - - - - -	0	8	0
The ſtaircaſe, one ſtory, - -	2	10	0
Three brick ſteps, with wood nettings from the kitchen to the pantry, - - -	0	5	0
The ſtreet ledged door, lintels, locks, latch, hinges, and door caſes, - - -	0	19	6
The inſide linings to ditto. - -	0	4	0
The ledged door, door-caſe, lintel, lock, hinges, bolt, latch, and inſide linings, from the pantry to the yard, - - - -	1	0	0
This door may perhaps be diſpenſed with in cottages of the ſmaller ſize. - - -			
The projection on the outſide of the ſtreet door intended to ſhelter it from wind and rain, of boarding covered with lead, - - -	1	6	0
No. 5. Inſide ledged, deal doors, hinges, latch, and jambs, - - - -	2	10	0
No. 4. Caſement windows, ſolid frames, lintel, lead lights, and inſide window boards, -	4	12	0
Outſide fall-down ſhutter and hinges to one window, faſtened with a pin and key, -	0	6	0
Wood bars to ſecure the pantry window,	0	1	6
Outſide painting to the window frames, doors, and ſhutter, - - - -	1	10	0
Skirting in the kitchen and two lodging rooms,	3	0	0
A dreſſer and two drawers in the kitchen, with a ſhelf over it, - - - -	2	10	0
Small dreſſer and ſhelf in the pantry, -	0	7	6
Cloſet ſhelves, and two cloſet locks, -	0	13	6
Lath and plaſter to the ceilings of the lodging-rooms, and partitions, - -	1	5	0
Rendering againſt the walls in the kitchen only,	0	15	0
The white-waſhing in the inſide, the colouring on the outſide, and forming the ruſtics, -	2	2	0
Completing the privy above the brick foundation, and covering it with thatch, - -	3	0	0
Building the hovel covered with thatch, incloſed three ſides with ſlabs, leaving an opening (for pitching fuel or ſtraw, &c.) next the ſtreet,	8	10	0
Fencing next the ſtreet, and ſmall gate, &c.	2	5	0
Total eſtimate for one cottage, - £	80	0	0½

"The fencing to the garden, as well as making it, are not conſidered, as it muſt vary conſiderably in every ſituation. The ſupply of water is a ſort of general concern, of which it is difficult to ſay how much will attach to a particular cottage.

"This eſtimate is for a cottage of the ſmalleſt ſize. Perhaps buildings in the country may, he ſays, be thus divided, increaſing in ſize and expence according to the order in which they are named.

"Cottage, ſmalleſt ſize, for the labourer."

"Second ſize for the labouring man, who, by his ſkill and working taſk-work, earns more than the common labourer.

"Cottage, third ſize, for the village ſhopkeeper, ſhoemaker, taylor, butcher, and baker.

"Cottage, fourth ſize, for the farmer, maltſter, ſmall farmer, alehouſe, and trades requiring room.

"Cottage, fifth ſize, for the large farmer, generally called a farm-houſe, ſuitable to the moſt improved ſyſtem of farming, but nevertheleſs partaking of the general principles already laid down. The expence of all ſuch buildings will depend not only on the facility of procuring labour and materials, but on the economy and management of thoſe who direct, and thoſe who undertake the conſtruction of them. It is not the leaſt merit of the propoſed plan," he obſerves, "that the cottages of the ſmalleſt may be executed with the refuſe of greater works, the "crumbs from the rich man's table," and that the materials are nearly all neither taxed nor taxable."

Mr. Kent in his "Hints on Landed Property" has likewiſe given many uſeful eſtimates concerning the building of cottages on different plans.

In a ſeries of plans for cottages by Mr. J. Wood, much light has been thrown on the conſtruction of habitations for labourers, and the following ſeven principles laid down, as the means of obviating any inconveniences to which cottages, as uſually built, are liable:

“ 1ſt. The cottage, ſays he, ſhould be dry and healthy; this is effected by keeping the floor 16 or 18 inches above the natural ground; by building it clear of banks, on an open ſpot of ground, that has a declivity or fall from the building; and by having the rooms not leſs than eight feet high, an height that will keep them airy and healthy.

“ 2dly. They ſhould be warm, cheerful, and comfortable. In order to attain theſe points, the walls ſhould be of a ſufficient thickneſs (if of ſtone, not leſs than 16 inches; of brick, at leaſt a brick and a half) to keep out the cold of the winter, or the exceſſive heat of the ſummer. The entrance ſhould be ſkreened, that the room, on opening the door, may not be expoſed to the open air; the rooms ſhould receive their lights from the eaſt or the ſouth, or from any point betwixt the eaſt and the ſouth; for, if they receive their light from the north, they will be cold and cheerleſs; if from the weſt, they will be ſo heated by the ſummer's afternoon ſun, as to become comfortleſs to the poor labourer after a hard day's work; whereas, on the contrary, receiving the light from the eaſt or the ſouth, they will be always warm and cheerful. So like the feelings of men in a higher ſphere, ſays the writer, are thoſe of the poor cottager, that if his habitation be warm, cheerful, and comfortable, he will return to it with gladneſs, and abide in it with pleaſure.

“ 3dly. They ſhould be rendered convenient, by having a porch or ſhed, to ſkreen the entrance, and to hold the labourer's tools; by having a ſhed to ſerve as a pantry, and ſtore place for fuel; by having a privy for cleanlineſs and decency's ſake; by a proper diſpoſition of the windows, doors, and chimneys; by having the ſtairs, where there is an upper floor, not leſs than three feet wide; the riſe or height not more than eight inches, and the tread or breadth not leſs than nine inches; and laſtly, by proportioning the ſize of the cottage to the family that is to inhabit it; there ſhould be one lodging room for the parents, another for the female, and a third for the male children; it is melancholy, he ſays, to ſee a man and his wife, and ſometimes half a dozen children, crowded together in the ſame room, nay, often in the ſame bed; the horror is ſtill heightened, and the inconveniency increaſed, at the time the woman is in childbed, or in caſe of illneſs, or of death: indeed, whilſt the children are young, under nine years of age, there is not that offence to decency, if they ſleep in the ſame room with their parent, or if the boys and girls ſleep together, but after that age they ſhould be kept apart.

“ 4thly. Cottages ſhould not be more than twelve feet wide in the clear, that being the greateſt width that it would be prudent to venture the rafters of the roof with the collar pieces only, without danger of ſpreading the walls; and by uſing collar pieces, there can be 15 inches in height of the roof thrown into the upper chambers, which will render dormer windows uſeleſs.”

“ 5thly, Cottages ſhould be always built in pairs, either at a little diſtance from one another, or cloſe adjoining, ſo as to appear one building, that the inhabitants may be of aſſiſtance to each other, in caſe of ſickneſs, or any other accident.

“ 6thly, As a piece of economy, cottages ſhould be built ſtrong, and with the beſt of materials, and theſe materials well put together; the mortar muſt be well tempered and mixed, and lime not ſpared; hollow walls bring on decay, and harbour vermin; and bad ſappy timber ſoon reduces the cottage to a ruinous ſtate; although he would by no means have the cottage fine, yet he recommends regularity, which is beauty; regularity will render them ornaments to the country, inſtead of their being, as at preſent, diſagreeable objects.

“ 7thly, A piece of ground ſhould be allotted to every cottage, proportionable to its ſize; the cottage ſhould be built in the vicinity of a ſpring of water—a circumſtance to be much attended to; and if there be no ſpring, let there be a well.

“ On the foregoing ſeven principles, Mr. Wood recommends all cottages to be built. They may be divided, he thinks, into four claſſes or degrees; firſt, cottages with one room; ſecondly, cottages with two rooms; thirdly, cottages with three rooms; and, fourthly, cottages with four rooms:” plans of each of which, which have great merit in the form of their diſtribution, may be ſeen in his very able work; and alſo in the annexed plate.

It has been well obſerved by the author of the Shropſhire Report, “ that general rules are to be cautiouſly received, and ſparingly followed; that local ſituation may make this or that place the beſt. For inſtance, many old houſes, eſpecially if framed together with timber, are worth repairing, though the outward appearance may beſpeak a great deal of wretchedneſs or decay, for they can generally be made more comfortable than a new houſe, and at leſs expence. He is much more anxious that houſes of this deſcription ſhould be kept in clean and good repair, than to preſcribe any particular form. He would only ſuggeſt the impropriety of making them, or indeed any other object, bear an outward appearance, intended to contradict their inward uſe. All caſtellated or gothiciſed cottages, all church-like barns, or fort-like pig-ſtyes, he ſhould conceive to be objectionable. They are intended to deceive, and they tell you that they are intended to deceive. It is not pleaſant to encourage any thing like deceit; but in theſe inſtances, impoſition effected is rarely gained; it amounts only to impoſition attempted; and could the deceit ſucceed, would only preſent a proſpect with fewer properties about it, than there really are. Almoſt every ſpecies of country building has a good effect if properly placed, and neatly executed; and what are the leaſt ornamental, or indeed the moſt diſguſting of their appendages, ceaſe to ſhock when ſupported by the relative ſituation they ſtand in, ſhewing their neceſſity and their uſe. A dunghill in a farm-fold, creates no diſagreeable idea; but, connected with a gothic gateway, or embattled tower, it is bad. Cattle protected by the ſide of a barn, form a pictureſque group; but, ſheltering under a Grecian portico, the impropriety is glaring. Linen hanging to dry on the hedges of a cottage garden, may be paſſed without diſpleaſure; but the clothes of men, women, and children, ſurrounding the cell of an anchorite, or the oratory of a monk, have their natural unſeemlineſs increaſed by the contraſt. On the other hand, a fine dreſſed lawn, with miſerable cottages on the outſide, may be compared to the laced cloaths and dirty linen ſome foreigners were accuſed of wearing. The whole of a gentleman's eſtate ſhould be his pleaſure ground; the village ſhould be one object in the ſcene; not ſhut out from it. There may be a little more poliſh about the manſion, but it ſhould not be an unnatural contraſt to the ſurrounding objects. The face of no country is bad, but as it is disfigured by artificial means; and the cheapeſt and beſt improvement is, merely to remove what offends, and to take care that the buildings or fences that are wanted, are neat and appropriate, exhibiting diſtinctly the real intention."

In the following figures are given plans and elevations of ſome of the moſt ſimple kinds of cottages for the labourer, conſtructed on the principles that have been above laid down, as well as others of the moſt approved nature. Their roofs are repreſented as of ſlate, and other materials; the firſt being, however, by far the neateſt. Their external appearance may be varied in different ways, according to the taſte of the builders, and the nature of the ſituation where they are built, which ought always to be well attended to; for what will have a good effect in one place, or point of view, may not be ſo ſtriking or pleaſing in another; but this will depend greatly on the care and good ſenſe of ſuch perſons as are employed in directing the conſtruction of ſuch buildings.

For ſuch ſmall-ſized cottages as may be ſuitable for little eſtates, iſſuing out of the allotments of waſtes, commons, or other lands of a ſimilar kind, ſeveral ground plans and elevations of dwellings, to be built of different ſpecies of materials, have been given in the volume of Communications to the Board mentioned above, by Mr. Crocker, an intelligent land-ſurveyor in Herefordſhire. Some of theſe are built with mud walls, compoſed of ſoft mire and ſtraw, well trodden together, as noticed above, and which, by degrees, is laid on, *ſtratum ſuper ſtratum*, to the height required. This is a ſpecies of building, he ſays, which is not uncommon for cottages, and even for better houſes, barns, &c. in the weſtern, and ſome other parts of the kingdom. It is, he adds, the cheapeſt habitation that can be conſtructed, and is alſo very dry and comfortable. There are others which have generally a footing of ſtone wall, two feet high, on which is placed a ſtrong ſill of timber; to which are ſuperadded uprights of quarterings, two feet apart, into which are inſerted rounds of rough wood, ſomewhat like ladder-work, at ſix or ſeven inches, one above the other, to the height required. The ſpaces between the rounds are well filled with a mixture of the above mire and dry ſtraw, previouſly well trodden together, called *cab dab*; the whole being then plaſtered with good mortar, and rough-caſted. Theſe kinds of buildings are uſed where ſtones are ſcarce, or where cheapneſs is the leading object. There are others built with a ſort of rough ſtone maſonry, and ſometimes ſtuccoed over; and although they are more expenſive than the others, yet they are the ſtrongeſt and moſt deſirable of any, where ſuch materials are to be had without great expence of carriage.

Circular cottages, upon very ſimple, cheap, and economical plans, have likewiſe been lately propoſed by ſir John Sinclair, for the purpoſe of containing farming and manufacturing labourers. Theſe are conſtructed wholly of brick, the walls and roof together. Where this ſort of material can be readily provided, this mode may probably be had recourſe to with advantage, as being convenient and durable, and requiring little repairs.

Elevations of the larger ſorts of cottages on this plan, are given at *figs.* 3 & 6, in *Plate* VIII. of *Agriculture.* Theſe are of different dimenſions, as ſhewn in the plate. At *figs.* 4 & 5 are given plans of the internal parts of the ſmaller, the former repreſenting that of the room above, and the latter the ground plan. And, at *figs.* 7 & 8 are ſhewn the plans of the upper and lower floors of the larger.

Several other plans of large and ſmall cottages, both of the common and ornamental kind, are contained in the ſame plate. At *fig.* 1 is given the elevation of a double cottage, or ſmall farm houſe, which is adapted to numerous caſes, and which is capable of being built of rough maſonry, at the expence of about 96*l.* or 100*l.*

And, at *fig.* 2, is a repreſentation of the ground plan of the ſame.

At *fig.* 9 is ſhewn the elevation of a ſmall neat cottage of the common kind, calculated for the ordinary farm labourer. And, at *fig.* 10 is given the elevation of another ſmall cottage, with two rooms, on a more enlarged and ornamental plan, but ſuited to a variety of caſes.

At *fig.* 11 is the elevation of a cottage, recommended by Mr. Crutchley, with three rooms and a lean-to, and which, from the number of its conveniences, is conſidered by cottagers in general, as well adapted to their purpoſes; but even when built with mud walls, with its various comforts, it cannot be erected for leſs than about forty pounds.

The ground plans of theſe three laſt cottages have not been given, as the internal diviſions may be ſo contrived as to ſuit the particular purpoſes of the builder.

Fig. 12 exhibits the elevation of two cottages built together, the vents being made in the partition wall between them.

And, at *fig.* 13, is ſeen the ground-plan of them; A A, ſtairs to upper-chamber; B B, pantries or milk-houſes; C C, ovens.

This is probably the cheapeſt plan on which ſmall cottages for labourers can be built.

Fig. 14 is the elevation of two cottages built together, on a ſmall ſomewhat ornamental plan, deſigned by Mr. Wyatt for lord Penrhyn, at Winnington in Cheſhire. Cottages erected on this plan have much effect in many ſituations, and are capable of being raiſed at no very great expence.

COTTAGE *Farm*, in *Rural Economy*, a name which has lately been given to the ſmall allotments of land which are frequently attached to the cottages of the better kind. This is a practice which prevails in ſome diſtricts, it is ſaid, with conſiderable advantage to the labourer, in rendering him more comfortable and induſtrious, as well as in facilitating his means of ſupporting his family. It is a ſyſtem of cottage management which the earl of Winchelſea has introduced pretty extenſively in the county of Rutland. And it is remarked on the authority of Mr. Barker of Lyndon, in the ſame diſtrict, in ſupport of the utility of the plan, that "moſt of the poor people of that pariſh keep cows; one or two, or three to a family, which is a great advantage to them; ſo that it can hardly be ſaid there are any induſtrious perſons there who are really poor, as they are in ſome places where they have not that advantage. It has been the practice in that place time out of mind. They have a ground called the Cottager's Cloſe, wherein the poor, for an eaſy rent, keep 18 cows, and Mr. Barker ſuppoſes it was laid out for them at the incloſure of the lordſhip in 1624. On that cloſe, he ſays, the cows go from May-day till St. Andrew's; and in winter, they take them into their home-ſteads; and while ſeveral neighbouring lordſhips were open-field, they could buy hay reaſonably cheap to feed them with at that ſeaſon; and we have ſeveral little takes, of a few pounds a year, rented by the cottagers; and he has made ſome new ones; for, ſince the incloſure of thoſe pariſhes, hay is grown very dear, and is ſcarcely to be had at all. He conceives it always was the cuſtom for every one to keep a milch-cow, who could raiſe money enough to buy one, and could get keeping for it. He ſuppoſes it was ſo in this pariſh long before it was incloſed. He thinks there are cottagers who have a right of common in Hambledon cow-paſture; but ſuppoſes his lordſhip muſt know that matter better than he does. There are little eſtates, and cottagers who have a right of common in North Luffenham cow-paſture. There were perſons at Edith, Weſton, who had ſuch before the incloſure, and he believes it was the ſame in other towns alſo; but he is ſorry to ſay, that he is afraid moſt of thoſe cottages were taken away at the time of the ſeveral incloſures, and the land thrown to the farms; wherein he conceives they did very wrong; but they have, he ſays, an inſtance of a new incloſure where that good old cuſtom is ſtill retained, as ſir John Ruſhout has made a conſiderable number at Ketton: he believes the cow-paſture, and ploughing-land to each cottage, are four acres. He wiſhes that parliament would make it a rule never to grant an incloſure, without a cloſe laid out for the benefit of the poor."

And his lordſhip ſtates, "that upon his own eſtate, the cuſtom is, he believes, of the greateſt antiquity; he has labourers, tenants, in whoſe families the lands they now occupy, have been for near two hundred years; and they have, as far as he can learn, been generally good labourers, and received no relief from the pariſh. He has made ſeveral new takes of that ſort, and has always found them to anſwer. And that, with regard to manuring their meadow-ground, by keeping their cows in hovels during winter, and by keeping a pig or two, which they generally do, they contrive to make manure; their employer generally ſells them, or gives them, a ſmall quantity of ſtraw, and ſometimes they procure fern, or collect weeds."

In fact, it is conceived that "the ſituation of labourers may be claſſed in this way:

"1ſt, Thoſe who have a ſufficient quantity of graſs incloſed land, to enable them to keep one or more cows winter and ſummer, and a garden near their houſe.

"This is, in his opinion, the beſt ſituation for a labourer, as excepting the hay-making, the reſt of the buſineſs is done by himſelf and his labour is not interrupted. Where a graſs field is allotted to a certain number, and each have a field for mowing near their houſe; or where there are two fields, one grazed, and one mown, alternately, and properly ſtinted, it will be as advantageous, or nearly ſo, as having ſmall incloſures to themſelves." But he ſuppoſes it "can only take place in countries where there is abundance of graſs land.

"2dly, Thoſe who have a ſummer paſture for their cow, and ſome arable land upon which they grow the winter proviſions."

He thinks, that "this is not ſo advantageous as No. 1, becauſe more of their time is taken up by the arable land; however as they muſt, in order to make any hay, have part of the land ſown with graſs, the labour is not ſo much as to be hurtful to them. He has ſeveral ſuch upon his eſtate, which anſwer very well. This is adapted to countries where there is a mixture of paſture and arable," he ſuppoſes.

"3dly, Thoſe who have a right of common for the ſummer keep of the cow, and a meadow, or arable ground, or a meadow in common, for the winter proviſion." And, "this would," he thinks, "be like the two former, were it not that nine commons out of ten are ſo much overſtocked, that the ſummer keep is very bad. This is a very great loſs; and if the meadow is in common, it is another diſadvantage. It is certain, that upon an incloſure, if the owners chooſe it, the labourers who keep cows may be placed in a much better ſituation than they were in, as much as incloſed land is more valuable to occupiers of every deſcription, than commons and open fields. Garden ground may alſo be allotted to them, and others, which cannot be done while the land remains unincloſed. He is perſuaded, that where theſe things are attended to, very few objections to an incloſure will ariſe on the part of the labourers, and that the land owners will have the ſatiſfaction of benefiting the poor, and at the ſame time of making their own property more valuable, by adopting what in all probability will be the means of keeping down the poor's rate. He ſuppoſes that gardens near the houſes to all theſe ſhould not be the caſe, as they have land, they may have garden ſtuff; but if their land is at a diſtance from their houſes, it is not ſo advantageous; and if their take is all graſs, they can find no ground to dig, except, perhaps, where a hayſtack has been placed the preceding year.

"4thly, Thoſe who have a right of common, and a garden. This is certainly very beneficial to them; geeſe and pigs may be kept upon the common, and the latter fed with the produce of the garden, and a ſmall quantity of purchaſed food.

"5thly, Thoſe who have a right of common, and no garden." He imagines, that "this, unleſs fuel is obtained, is of no great value to them; if fuel is obtained, it is of great value, and the loſs of it difficult to be made up to them.

"6thly, Thoſe who have ſeveral acres of arable land, and no ſummer paſturage for a cow. This is," he believes, "of no ſort of uſe to the labourer; for though he may cultivate part of it as a garden, the continued labour it would require to ſtall-feed a cow, winter and ſummer, and the quantity of land he muſt till, would occupy ſo much of his time, that the take would, upon the whole, be injurious to him, even ſuppoſing the land incloſed, and contiguous to his houſe; if at a diſtance, or not incloſed, the diſadvantage would be ſtill greater. He is ſorry to differ in opinion upon this ſubject from Mr. Barclay, but perhaps, in other parts of the iſland, his plan of a take entirely arable, might anſwer. He is perſuaded it would not, in the parts he is acquainted with, and that the farmers would not ſell them hay, which is a part of his plan. He believes, that a ſummer paſture for the cows is abſolutely neceſſary to make it of advantage to the labourers who keep them.

"7thly, Thoſe who have a garden near their houſe." He aſſerts, that "this is the beſt thing that can be done for labourers in arable countries, and where there are no other reaſons which prevent them from keeping cows."

It is here remarked, "that as the land cultivated as a garden, will produce a greater quantity of food for man, than in any other way, and as four-fifths of the labour beſtowed upon their gardens, will be done by the labourers at extra hours, and when they and their children would otherwiſe be employed, it may not be too much to ſay, that 100,000 acres allotted to cottages as garden-ground, will give a produce equal to what 150,000 acres cultivated in the ordinary way would give, and that without occupying more of the time they would otherwiſe give the farmers who employ them, than the cultivation of 20,000 acres would require.

"8thly, Thoſe who have no land whatever. This," it is obſerved, "is a very bad ſituation for a labourer to be placed in, both for his comfort and for the education of his children. When a labourer is poſſeſſed of cattle, his children are taught early in life the neceſſity of taking care of them, and acquire ſome knowledge of their treatment;

and if he has a garden, they learn to dig and weed, and their time is employed in uſeful induſtry; by which means, they are more likely to acquire honeſt and induſtrious habits, than thoſe who are bred up in poverty and lazineſs we too often ſee; for he believes it is a certain fact, that extreme poverty begets lazineſs."

On theſe grounds he is "clearly of opinion, that the letting land to labourers is of great utility both to them, to the land-owners, and to the community; for though in every village ſome idle people will be found, who are not fit to be entruſted with, or capable of receiving benefit from land, ſtill the greater number will; and it may have the effect of making thoſe induſtrious who would not otherwiſe have been ſo. When circumſtances will admit of it, their having land enough to enable them to keep a cow is the moſt deſirable thing for them; but a very great part of the iſland will not, in his opinion, allow of that ſyſtem being purſued, where there is hardly any thing but arable land; and alſo in the neighbourhood of large towns, the value of graſs-land is too great, he ſuppoſes, to allow of labourers renting it with advantage. A garden may, however, be allotted them in almoſt every ſituation, and will be found of infinite uſe to them. In countries where it has never been the cuſtom for labourers to keep cows, it would, he believes, be very difficult to introduce it: but where no gardens have been annexed to the cottages, it is ſufficient to give the ground; and the labourer is ſure to know what to do with it, and will reap an immediate benefit from it. Of this he has had experience in ſeveral places, particularly in two pariſhes near Newport Pagnell, Bucks, where there never had been any gardens annexed to the labourers' cottages, and where upon land being allotted to them, they all, without a ſingle exception, cultivated their gardens extremely well, and profeſs receiving the greateſt benefit from them. He begs to obſerve, that when he mentions cowpaſtures he always ſuppoſes there to be a ſufficiency of land to enable the cow to be kept tolerably well, both in ſummer and winter. If this is not the caſe, he believes that the cow is but of little benefit to the owner; and when he mentions gardens, he always means large gardens, from half a rood to a rood, or more, if the land is poor. Thoſe very ſmall ſpots of a few yards ſquare, which are ſometimes ſeen near cottages, he can hardly call gardens. He thinks there ſhould be as much as will produce all the garden ſtuff the family conſumes, and enough for a pig, with the addition of a little meal. He alſo thinks they ought to pay the ſame rent that a farmer would pay for the land, and no more. He is perſuaded, that it frequently happens, that a labourer lives in a houſe at twenty or thirty ſhillings a year rent, which he is unable to pay; to which if a garden of a rood was added, for which he would have to pay five or ten ſhillings a year more, that he would be enabled, from the profit he would derive from the garden, to pay the rent of the houſe, &c. with great advantage to himſelf.

"It is ſuppoſed that not a little difficulty is thrown in the way of the introduction and eſtabliſhment of the cottage-farm plan by the inattention or diſinclination of farmers to countenance ſuch a practice. Under the preſent circumſtances of the increaſing wages and expences of farm ſervants, it is, however, obviouſly their advantage to encourage them as much as poſſible;" as is ſhewn in ſpeaking of cottage and cottager. See COTTAGE and COTTAGER.

It has likewiſe been ſtated by the writer of the "General View of the Agriculture of the County of Salop in reſpect to this practice, that "a labourer's fields ſhould be chiefly confined to paſture, that the care of them may not interfere with his working for hire. The number of acres neceſſary will depend upon the nature of the land. He has not found ſix acres to interfere at all materially with a labourer's work; and if he is fit to be truſted with land at all, he ſhould have at leaſt three acres, where the ſituation of his houſe will admit of ſo much; for unleſs the ground joins the houſe it cannot be looked after without loſs of time; and it will generally prove a nuiſance to the neighbours, or the public. In addition to the ſituation of a cottage, the tenant's character and circumſtances muſt be well conſidered. Where it is convenient or adviſable to let him have land enough for a cow, he may have a larger garden, and the neceſſary and pig-ſtye ſhould be ſo placed, that the ſoak from them may be directed to manure the ſoil. The pig-ſtye ſhould have a ſmall court, to open into the garden only. When a pig is bought it is ſmall, and may be carried to the ſtye, where it may remain. He has found this the only way of preventing the pigs from wandering about the village. If the ſtye opens to a road it will never be ſo well guarded as when the firſt act of treſpaſs muſt be on the owner's garden."

It is however added by the intelligent author that "he is truly anxious, under all proper reſtriction and limitations, of advancing and recommending the practice of ſetting ſome land to labourers and country mechanics. It appears to him important, both in a moral and political point of view. Let us conſider," ſays he, "in the firſt place, the probable effects of ſuch ſituations being more eaſily attained. Would not farming ſervants, both men and women, have an additional motive to be careful, and ſeek after matrimonial, inſtead of illegal, engagements, if they knew that, when they could ſave money enough to buy a bed, a pig, and a cow, they might ſettle and have a houſe and land for which they could afford to pay rent, and from which they could hope to maintain themſelves and rear a family? Or, if they have not money enough to buy all their ſtock at firſt they may raiſe potatoes in one year, ſufficient to increaſe their capital. Let us now conſider them placed in their cottage. The care of the land is not ſufficient to take the labourer off from a ſingle day's work; but when it is ſix o'clock in the evening, he has an intereſt in going directly home, to ſee that his fences are in repair, or to dig a part of his garden, &c. he knows too that when he has done this (or if the weather is too bad for him to remain out of doors, ſtill he knows,) that his houſe is warm, and that his ſupper is preparing; for his wife has been at home the whole day, looking occaſionally after the cow, feeding the pig, weeding in the garden, or ſpinning in the houſe. As her family grows up, ſhe can put the elder children to do ſome of theſe things; but if the woman goes out to work, the children are neglected, and the houſe is cold and comfortleſs; and the huſband has a temptation to go to the ale-houſe (though this evil is much leſſened, from the high price of neceſſaries, and in ſome diſtricts, from the reduced number of public-houſes). Before men can be made good, he obſerves, they muſt be made ſerious, and this is beſt by giving them an idea of propriety. From being ſerious, there is a chance of their becoming good members of ſociety through principle; but if not, they may be harmleſs through intereſt; and we cannot conceive a ſtronger ſupport to the police of any county, than the houſeholders of it having buſineſs of their own to mind, and property of their own to defend. Though the rent of a cottage is generally an inadequate intereſt for the money ſpent in building or repairing it, yet the tenant is frequently willing to pay a higher proportionate rent *per* acre for land than the farmer does, and he is alſo frequently the moſt punctual in the payment of his rent. But, however the balance may be in other reſpects, one conſiderable advantage will," he thinks, "always be derived from the extenſion of this plan, in the reduction of the poors-rates. If, indeed, the 31 Eliz. c. 7. could have been acted upon, or modified, rather than repealed, it may have prevented the expence of poors-rates in the country pariſhes. It prohibited the building of any cottages in the country, unleſs there be ſet four acres of land, lying near the ſame, to be continually occupied therewith, &c. &c."

And in farther proof of the utility of the practice, the ſame writer adduces, on the authority of a letter from the Rev. A. Alliſon, rector of Kenley, the following intereſting facts.

"With regard to the experiment in this pariſh," ſays the rector, "it is much too trifling and too recent to deſerve any attention. Thirty acres were allotted to me in the diviſion of the common, and they were divided into ten ſhares, to accommodate the poor people of the common who had the largeſt families, at the ſame rent that was paid for the other part. It is only three years ſince this took place, and he can ſay little, therefore, with reſpect to the effects he moſt wiſhed to follow from it. That it has added to the comfort of the people in that time he has every reaſon to believe, both from their own acknowledgments, and the anxiety of the reſt to poſſeſs the ſame advantages. He thinks he may ſay alſo, that it has added, in ſome meaſure, to their induſtry. The land in general is in a better ſtate than any of that which was incloſed at the ſame time. The pooreſt amongſt them have all carried lime, collected road-ſtuff, burnt weeds, &c. and ſome of them have certainly manured higher than any of the farmers in our pariſh. Two of them have built cottages at their own expence, and ſhewn a little diſpoſition to ornament, by white-waſhing them, &c. In ſo ſhort a time, theſe are at leaſt not unpromiſing appearances. With regard to the quantity of land which may be allotted to cottagers, without diminiſhing their induſtry as day labourers, it will not be eaſy to determine. If he was to judge from this pariſh, he ſhould be diſpoſed to think that more than three acres might very ſafely be given. The moſt decent, induſtrious, and well-doing of the lower people among us, are four or five families, who have from five to eight, or ten acres a-piece. This does not prevent them from working conſtantly, either as labourers or in their trades. They have brought up families without any pariſh aſſiſtance, and their children are in general better educated, better behaved, and ſet out better in the world, than any others of the ſame rank among us. Theſe little farms, indeed, are always in graſs, as he apprehends they will always naturally be, when not exceeding theſe limits. The ſmaller farmers with us, of from 20 to 30 acres, who are induced to keep ſomething like a team, are much the pooreſt and moſt wretched people among us."

It is added ſtill farther by the author of the report, that "in ſetting theſe allotments at the current price, *viz.* 7*s. per* acre, it was promiſed not to raiſe that rent in conſequence of any improvements the original tenants may make, which would have the operation of a leaſe for the time of his incumbrances. A farther promiſe alſo was holden out, that a jury of farmers ſhould look over the ten allotments annually, and he who had improved the moſt ſhould be excuſed paying rent for that year. It ſhould be noted alſo, that lime is within a few miles of theſe cottages."

And in a farther communication from Mr. Harries, an intelligent and able cultivator of extenſive property, it is obſerved "the building ſhould be of a dimenſion to allow two ſeparate chambers. An acre of ground annexed to it, would admit of half being annually ſown with wheat, the other half with hemp, potatoes, cabbages, and beans; theſe would be a great aſſiſtance to the labourer in ſupport of his family; they would enable him to keep and fat a pig. This ſituation would be ſtill more comfortable if five acres of land were added to it, as he could then keep a cow, and ſomewhat increaſe his quantity of grain. A double cottage he would generally recommend: there is ſome ſaving in the erection, and they may mutually aſſiſt each other, for though violent quarrels ſometimes ariſe between ſuch neighbours, yet reciprocal intereſt ſoon occaſions a forgetfulneſs of paſt offences. He thinks there are more ſmall habitations of this kind in this county, than in any other within his obſervation. There ſhould be at leaſt two cottages to every 100 acres. The ſituation open to a public road, dry, and ſouth, or ſouth-eaſt."

Thoſe who are anxious to have more full information on the advantages of this ſort of ſmall farms, may find much that will intereſt them in an excellent paper on the ſubject in the thirty-ſeventh Volume of Mr. Young's "Annals of Agriculture."

And with the view of rendering the introduction and eſtabliſhment of the cottage farm ſyſtem, more eaſy, as well as removing the different objections which have been urged in oppoſition to it; the plan and arrangement given below have been brought forward by ſir John Sinclair in an intereſting paper inſerted in the fourth volume of "Communications to the Board of Agriculture." In this paper the following principles are chiefly kept in view:

1. "That the cottager ſhall raiſe, by his own labour, ſome of the moſt material articles of ſubſiſtence for himſelf and his family.
2. "That he ſhall be enabled to ſupply the adjoining markets with the ſmaller agricultural productions; and
3. "That both he and his family ſhall have it in their power to aſſiſt the neighbouring farmers at all ſeaſons of the year, almoſt equally as well as if they had no land in their occupation."

The writer ſuppoſes that "it can hardly be queſtioned, that if it were practicable to have a number of cottagers of that deſcription, in every pariſh, it would promote, in various reſpects, the intereſts of the public."

With reſpect to the extent of ground, which is neceſſary, he ſays, "unleſs the experiment were fairly tried, it is impoſſible to ſtate exactly the extent of arable land that may be requiſite, to enable a cottager to raiſe the articles generally neceſſary for the ſuſtenance of himſelf and family, and to keep a cow, ſome pigs, and poultry. Much muſt depend upon the natural richneſs of the ſoil (though under the management about to be propoſed, almoſt any ſoil would, in time, become fertile); on the nature of the climate; on the ſize of the cow; on the induſtry of the cottager; on the age and number of his family, &c. But he ſhould imagine, that three ſtatute acres and a quarter, of good arable land, worth from 20*s.* to 30*s.* per acre, would be ſufficient. It is propoſed, that the three acres ſhall be under a regular courſe of cropping. The quarter of an acre ought, if poſſible, to be converted into an orchard, where the cow might occaſionally paſture, and where a pond ought to be kept in good order, that it may have plenty of water at command. Were the land of a quality fit for lucerne, perhaps two acres and a quarter might be ſufficient."

It is ſtated in regard to the implements, "that, ſo ſmall an extent of land, as either two or three acres, under cultivation, excludes all idea of ploughing; and indeed, unleſs the cottager ſhall manage the whole, in the ſimpleſt and cheapeſt manner, there is an end to the whole ſyſtem. It would require, indeed, four or five acres to keep a ſingle horſe, and the expence of purchaſing horſes, or even oxen, ploughs, and other inſtruments of huſbandry, muſt be far beyond the abilities of a cottager; whereas with a ſpade, a hoe, a rake, a ſcythe, a ſickle, and a flail, (a wheel-barrow omitted) which are all the inſtruments really neceſſary, he is perfectly competent to the management of his little farm." He remarks, that "ploughs might, perhaps, be hired; but, on the whole, the ſpade-culture is infinitely preferable, and he would much rather ſee a cottager hire perſons to trench, than to plough for him."

In what relates to the courſe of crops, or the mode of cropping the ground, "the three acres propoſed to be cultivated, ſhould, he thinks, be divided into four portions, each conſiſting of three roods, under the following ſyſtem of management.

	Roods.
Under potatoes, 2 roods, under turnips, 1	3
Under winter tares, 2 roods, ſpring tares, 1	3
Under barley, wheat, or oats - -	3
Under clover, with a mixture of rye-graſs	3
Total	12 *roods.*

The writer would alſo recommend a ſmall quantity of flax, where the culture and management of the plant were known to employ the females, particularly in winter, and to ſupply the family with linen.

And, it is further added, that "ſome recommend the proportion, per acre, to be at the rate of one buſhel of rye-graſs, to 12℔. of red-clover; others, 14℔. of red-clover, to half a buſhel of rye-graſs.

"Other articles beſides theſe might," he ſays, "be mentioned, but it ſeems to him of particular importance, to reſtrict the attention of the cottager to as few objects of cultivation as poſſible.

"It is propoſed, that the produce of the two roods of potatoes, ſhall go to the maintenance of the cottager and his family; and that the rood of turnips ſhould be given to the cow in winter, and during the ſpring, in addition to its other fare." It is obſerved, in "Sir John Methuen Poore's experiments," it was found, that half a rood, or one-eighth of an acre, produced, for ſeveral years, as great a weight of potatoes, as was ſufficient for a family of four perſons. Four acres anſwered for 131 perſons.

"The ſecond portion, ſown with tares, (the two roods of potatoes of the former year, to be ſucceſſively ſown with winter tares, and the turnip rood with ſpring tares), might partly be cut green, for feeding the cow in ſummer and autumn, but if the ſeaſon will permit, the whole ought to be made into hay for the winter and ſpring feed, and three roods of clover cut green for ſummer feed.

"The third portion may be ſown either with barley, wheat, or oats, according to the ſoil or climate, and the general cuſtom of the country. The ſtraw of any of theſe crops, would be of eſſential ſervice for littering the cow, but would be ſtill more uſeful, if cut into chaff for feeding it.

"The fourth portion, appropriated to clover and rye-graſs, to be cut green, which, with the aſſiſtance of the orchard, will produce on three roods of land, as much food as will maintain a cow and her calf for five months, namely, from the end of May, or beginning of June, when it may be firſt cut, to the firſt of November, beſides ſome food for the pigs. It is ſuppoſed, that an acre of clover and rye-graſs, cut green, will produce 20,000℔. weight of food for cattle. Three roods, therefore, ought to yield 15,000℔ weight. A large cow requires 110℔ weight of green food per day; a middling ſized cow, ſuch as a cottager is likely to purchaſe, not above 90℔, conſequently, in five months, allowing 1320℔ weight for the calf and the pigs, there will remain 13,680℔ for the cow. Were there, however, even a ſmall deficiency, it would be more than compenſated by the rood of land, propoſed to be kept in perpetual paſture, as an orchard."

It is remarked, that the above "calculations are merely given as data for experiment. It muſt depend upon the ſeaſon, whether the tares or the clover ſhould be made into hay."

On the manner of keeping the family, it is, he ſays, "calculated, that three roods and eight perches of potatoes, will maintain a family of ſix perſons, for about nine months in the year; but, according to the preceding plan, it is propoſed to have but two roods under that article, for, however valuable potatoes are juſtly accounted, yet ſome change of food would be acceptable, and the cottager would be enabled, from the produce of the cow, and by the income derived from his own labour, and from that of his family, to purchaſe other wholeſome articles of proviſions."

And, that in regard to the feeding the ſtock, "it appears from the preceding ſyſtem of cropping," he ſays, "that ten roods of land, or two acres and a half, are appropriated to the raiſing of food for the cow in ſummer and winter, beſides the paſture of the orchard; and unleſs the ſeaſon ſhould be extremely unfavourable, the produce will be found not only adequate to that purpoſe, but alſo to maintain the calf for ſome time, till it can be ſold to advantage. It is indeed extremely material, under the propoſed ſyſtem, to make as much profit of the calves as poſſible, as the money thus raiſed, will be a reſource, enabling the cottager to replace his cow, when a new one muſt be purchaſed. And for the winter proviſion of the cow, which is the moſt material, becauſe ſummer food can be more eaſily procured, there is the produce:

1. "Of about three roods of tares made into hay.

2. "Of three roods of ſtraw, deducting what may be neceſſary for litter; and if dry earth be put into the cow's hovel, and removed from time to time to the dunghill, little or no litter will be neceſſary.

3. "Of one rood of turnips.

"The whole being ſufficient for ſeven months in the year, namely, from the 1ſt of November to the 1ſt June; and during the remaining five months, the paſture of the orchard, ſome of the winter tares, and the produce of three roods of clover and rye-graſs, will not only ſuffice, but will furniſh a ſurplus for the calf, if it is kept for any length of time, and ſome clover for the pigs." He obſerves, that in a pamphlet juſt publiſhed on the culture of potatoes, by Richardſon, the following mode of applying the refuſe potatoes, to the feeding of calves, is ſtrongly recommended.

"Take two gallons of ſmall potatoes, waſh them clean, put them into a pot of boiling water ſufficient to cover them, and let them boil till the whole become a pulp; then add more water, and run the whole through a hair ſieve, which will produce a ſtrong nutritive gruel. At firſt, uſe a very ſmall quantity, warmed up with milk, to make it palatable to the calf, and increaſe the quantity daily, till it becomes equal. A quart of potatoe gruel, and a quart of ſcalded ſkimmed milk, will be ſufficient for a good meal, which ſhould be given warm three times a-day."

"The inferior barley, potatoes, &c. will, of courſe, be given to the pigs and the poultry."

On the value of the produce, it is obſerved, that "the land thus managed will certainly produce, by the means of the extra induſtry of the family, and at a ſmall expence, a moſt important addition to the income which the cottager may derive from his ordinary labours. For inſtance,

	£.	s.	d.
1. The orchard (after the trees become fruitful) will probably yield per annum - -	1	10	0
2. Three roods of turnips and potatoes - -	4	0	0
3. Eighteen buſhels of barley, at 4*s*. -	3	12	0
4. The cow and calf - - -	7	0	0
5. Hogs - - - - -	3	0	0
6. Poultry and eggs - - -	2	0	0
Total	21	2	0

He ſays, that "according to Mr. Kent's calculations, a cow ſhould produce ſix quarts of milk per day, worth 1*d* per quart, equal to 3*s*. 6*d*. a-week, or 9*l*. 2*s*. per annum, ſetting the profit of the calf aginſt the loſs ſuſtained when the cow is dry: but it is better to be rather under than over the mark."

And, that "where wheat can be raiſed, inſtead of barley, the profit would be ſtill more conſiderable. Opinions will differ much, regarding the value put on each article, but that is of little conſequence, as the total cannot be accounted too high."

In reſpect to the time required for cultivating the land, it is ſuppoſed, that "the quantity of land intended to be cultivated, will not materially interfere with the uſual labour of the cottager. It will only require to be dug once, and is then fit to be cropped. It is propoſed, that only nine roods ſhould be annually cultivated, (the remaining three roods being under clover and rye-graſs) and nine roods may be dug in the ſpace of about 558 hours, or at the rate of 62 hours per rood. This might be done at bye hours, (more eſpecially when the family of the cottager ſhall be ſomewhat advanced, and conſequently more able to furniſh aſſiſtance), but ſuppoſing that the digging, manuring, harveſting, &c. will require twenty entire days, per annum, in addition to the bye hours, and allowing ſixty days for ſundays and holidays, there will remain 285 days for the ordinary hand labour of the cottager, which, at 1*s*. 6*d*. per day, would amount to 21*l*. 7*s*. 6*d*.; the earnings of the wife and children, may, at an average, be worth, at leaſt, 4*l*. per annum more. This is certainly a low calculation, conſidering how much may be got during the hay and corn harveſts; but even at that moderate eſtimate, the total income of the family will be as follows:

	£.	s.	d.
1. Produce of the farm - - -	21	2	0
2. Labour of the cottager - - -	21	7	6
3. Earnings of the family - - -	4	0	0
Total	46	9	6

With regard to the buildings, "it is impoſſible," he ſays, "to calculate the expence of building a cottage, as ſo much depends upon its ſize, the place where it is to be ſituated, the materials of which it is compoſed, the price of labour in the country, and a variety of other circumſtances. On this important ſubject, much uſeful information is given above in ſpeaking of cottages." See COTTAGE. "But it is proper," he thinks, "to obſerve, that no expenſive additional buildings will be neceſſary, in conſequence of the propoſed ſyſtem. A ſhed or hovel for the cow cannot occaſion any additional charge, and a ſmall barn, of the ſimpleſt and cheapeſt conſtruction, may be of uſe, not only for thraſhing the crop, but alſo for ſecuring the hay, and making it to more advantage, in caſe the ſeaſon ſhould prove unfavourable; if the corn is put up in ſmall ſtacks, the barn may be made of very moderate dimenſions."

In relation to the rent, and balance of income, he remarks, that "the rents of cottages and of land vary ſo much in different parts of the kingdom, that it is difficult to aſcertain an average; but if the cottage ſhall be ſtated at 3*l*. *per annum*, the land at 25*s*. *per* acre, and the orchard at 10*s*. the whole will not exceed 7*l*. 15*s*. The cottager will alſo be liable to the payment of ſome taxes, ſay to the amount of 1*l*. 5*s*. more. Hence the total deductions would be about 9*l*., leaving a balance in favour of the cottager of 37*l*. 9*s*. 6*d*. Conſidering the cheap rate at which he is furniſhed with a quantity of potatoes equal to ſeveral months conſumption, and with milk for his children, ſurely with that balance he can find no difficulty not only in maintaining himſelf and family in a ſtyle of comfort, but alſo in placing out his children properly, and laying up a ſmall annual ſurplus, that will render any pariſh aſſiſtance, whether in ſickneſs, or old age, unneceſſary; and thus he will be enabled to preſerve that manly and independent ſpirit, which it ſo well becomes a Britiſh cottager to poſſeſs." But he here obſerves, "that the different expence of fuel in the various diſtricts, will, it is evident, greatly affect the annual ſurplus."

In regard to the advantages of the propoſed ſyſtem, he concludes, "the advantages which may be looked for with confidence from the propoſed ſyſtem, are that, in the firſt place, the land poſſeſſed by the cottager would be completely cultivated, and rendered as productive as poſſible. The dung produced by the cow, the pigs, &c. would be amply ſufficient for the three roods under turnips and potatoes, which would afterwards produce, 1ſt tares, 2d barley, and 3d clover, with a mixture of rye-graſs in regular ſucceſſion, without any additional manure. The barley ſhould yield at leaſt 18 buſhels, beſides 3 buſhels for ſeed: and, if wheat or oats are cultivated, in the ſame proportion. The milk, deducting what may be neceſſary for the calf, and the cottager's family, might be ſold in its original ſtate, if there ſhould be a market for it, or converted into butter, for the purpoſe of ſupplying the neighbouring towns or villages. Such cottagers alſo, might certaintly ſend to market both eggs and poultry." And that "2. It is hardly poſſible to ſuggeſt a meaſure more likely to promote the benefit of a numerous and valuable body of people. The ſyſtem of keeping cows by cottagers which has been found ſo advantageous in the grazing diſtricts, may thus be extended over the whole kingdom; and indeed, if the above plan is found to anſwer in place of four or five acres employed in feeding a ſingle cow, it would be much better, even in the grazing counties, to reſtrict the land to a ſmaller quantity, under a tillage mode of management; for thus, not only the cow, but alſo the cottager himſelf and his family, would, in a great meaſure, be maintained by a leſs ſurface of ſoil." And, "3. It is ſuppoſed of infinite conſequence to eſtabliſh the practicability of this ſyſtem, as the means of removing a moſt unfortunate obſtacle to the improvement of the country. It is well known to be the only popular objection to the incloſure of our waſtes and commons, that, while unincloſed, a number of cottagers are enabled to keep cows, by the means of their common rights, and that their cows diſappear when the commons are incloſed. But if ſo ſmall a portion of land as 3¼ acres, when improved and properly cultivated, can enable a cottager to keep a cow, even to more advantage than with a common-right, which can hardly be doubted, as he is enabled to provide winter as well as ſummer food, there is an end to that obſtacle to improvement. Indeed, if ſufficient attention be paid to the principles above detailed, the ſituation of the cottager, inſtead

ſtead of being deteriorated would be materially bettered by the incloſure; and his riſing family would be early accuſtomed to habits of induſtry inſtead of idleneſs and vice."

The ingenious author concludes with aſking, "if any one can figure to himſelf a more delightful ſpectacle, than to ſee an induſtrious cottager, his buſy wife, and healthy family, living in a comfortable houſe, rented by himſelf, cultivating their little territory with their own hands, and enjoying the profits ariſing from their own labour and induſtry? or whether it is poſſible for a generous landholder to employ his property with more ſatisfaction, or in a manner more likely to promote, not only his own, but the public intereſt, than by endeavouring to increaſe the number of ſuch cottagers, and encouraging, by every means in his power, the exertions of ſo meritorious, and ſo important a claſs of the community."

This intereſting ſyſtem of cottage-farming has been reduced into a tabular form, in the manner given below:

Plan of Cottage-Farm, ſhewing the Rotation of Crops in the different Lots.

<table>
<tr><td>Cottage.</td><td colspan="2">The orchard, or perpetual paſture. Pond.</td></tr>
<tr><td colspan="2">Lot A,
3 roods.
1 year—2 roods potatoes, 1 rood turnips.</td><td>Lot B,
3 roods.
1 year—2 roods winter tares, 1 rood ſpring tares.</td></tr>
<tr><td colspan="2">Lot C,
3 roods.
1 year barley, wheat, or oats.</td><td>Lot D,
3 roods.
1 year clover and rye graſs.</td></tr>
</table>

The Rotation of Crops for four Years.

Years	Lot A.	Lot B.	Lot C.	Lot D.
1	Potatoes and turnips	Winter and ſpring tares	Barley, wheat, or oats	Clover and rye-graſs
2	Winter and ſpring tares	Barley, wheat, or oats	Clover and rye-graſs	Potatoes and turnips
3	Barley, wheat, or oats	Clover and rye-graſs	Potatoes and turnips	Winter and ſpring tares
4	Clover and rye-graſs.	Potatoes and turnips.	Winter and ſpring tares.	Barley, wheat, or oats.

"The rotation then begins as at firſt, lot A, might continue in natural graſs the firſt ſeaſon, and diminiſh the labour of that year."

It is ſtated, that "the exact period when the different crops ſhould be dug or ſown cannot be aſcertained; becauſe it varies ſo much in different counties, and depends upon the ſeaſons: but according to the above relation, the labour of digging the various crops is diverſified as much as poſſible, ſo as not to interfere materially with the other occupations of the cottager. At no period would it be neceſſary for him to do more than two roods in a month: and both he and his family will labour with much more ſatisfaction and diſpatch, when they work for themſelves than for another. In caſe of neceſſity, the cottager might hire ſome of his neighbours in digging, which would be much better than hiring a plough. If a cottager under this ſyſtem could not work as a common daily labourer, he might, at leaſt, anſwer as a uſeful labourer by the piece."

It is evident, that, ſhould this ſyſtem of cottage-farming be found to anſwer the intention on ſufficient experience, it might, by due regulation in what reſpects ſituation, and the method of culture, be capable of equal application on arable as graſs land, and by that means be rendered general over the kingdom, which is a circumſtance of the utmoſt importance. Its great advantage in promoting the comforts of the cottager, increaſing his happineſs and attachment to his ſituation, and in rendering him more independent and reſpectable, has been long known and acknowledged.

Cottage *Garden*, a term applied to ſuch portions of garden grounds as are attached to cottages in ſome counties. The practice of attaching ſmall portions of land to theſe has been now found by experience to be of conſiderable utility to the labourer, as enabling him to ſupport his family with greater eaſe, and preventing his becoming burthenſome to the pariſh. See Cottage *Farm*.

It is remarked by Mr. Rudge, in his excellent "Survey of the County of Glouceſter," that moſt of the cottages in that diſtrict "poſſeſs, in a greater or leſs degree, this uſeful appendage; few, however, in a quantity ſufficiently large to effect any great advantage. To what ſize, indeed, cottage gardens may be extended, with ſafety to the intereſts of agriculture, can only be aſcertained by long and repeated experiments on a large ſcale. It has been already obſerved, that they ought not to be ſo far extended as to occupy too great a portion of the labourer's time, his attentions being wanted elſewhere. See Cottage.

"The interval between Lady-day and Michaelmas is," he ſays, "the portion of the year in which the labourer will derive ſpare time from the regular engagements of the day; and nine hours for each week are the full average-leiſure that can be admitted on calculation. Of one hundred and eighty-ſix days twenty-ſix will be deducted for the Sundays, and during two months at leaſt every hour will be wanted for the harveſts, ſo that the whole which the labourer will be able to employ in his own land, will amount to about two hundred and ſeventy-three hours, or twenty-two days and three quarters. Suppoſing the garden to comprehend half an acre, or eighty perch, and that a good workman can dig ten perch per day, it will then require eight full days for digging, and another for planting. When the ſeeds are properly got in, the remaining time will not be more than enough for weeding, hoeing, digging, and harveſting, excluſive of the aſſiſtance which may be expected from the family. From the wife, indeed, no great help can be had, as ſhe will find her time fully engaged in domeſtic employments; and from the children not much more, ſince, if they are old enough to undertake any thing of labour, they will be uſeful to the farmer in various ways, and bring home ſome pecuniary aid to the general ſtock: the main dependance therefore is on the labourer himſelf; and he would probably," he thinks, "be equal to the management of a garden of this ſize with eaſe, if he could employ the quantity of time allowed, on the premiſed calculation, to the beſt advantage; but as it conſiſts of fractional parts, and his greateſt leiſure will be when the ſpade is leaſt wanted, there will be ſome difficulty in adapting it to the neceſſities of his garden. Two-thirds of the ſeeds and plants will require an early attention; potatoes will bear later planting, and of courſe ſuit him better. Theſe difficulties are not inſurmountable, and it is probable that half an acre of land may," he ſays, "be cultivated as garden, without improperly interfering with regular labour. He ſhould have conſiderable doubts, as to the practicability of adding an acre more of arable land to the cottage, under any circumſtance, with the proſpect of advantage, if the fact had not been aſcertained from the unqueſtionable authority of Thomas Eſcourt, eſq. in "An Account of the Reſult of an Effort to better the Condition of the Poor, &c." "The ſcale of the experiment is, however," he ſays, "too ſmall to admit a general inference; and the local advantages are ſuch as cannot be preſumed upon in many ſituations. It will, however," he ſuppoſes, "ſtimulate the efforts of other gentlemen, in imitation of a moſt laudable example."

"Rewards, as an encouragement for the beſt managed gardens, have been propoſed. The premium, however, ſhould be given to him who, without diminiſhing the attention due to the farmer, with the leaſt loſs of time, and regular earnings, as well as the leaſt encroachment on Sabbath duties, has cultivated his garden with ſuperior neatneſs and ſucceſs. Loſs of time is a material conſideration, becauſe every day which does not bring in its proper return of money, is really loſt to the family, and muſt occaſion a reduction of ſome articles neceſſary to their comfortable ſubſiſtence.

"The induſtrious cottager, who has an eye to all theſe circumſtances, will," he ſays, "employ in his garden the extra hours, before he begins, and after he leaves off, the regular work of the day. This becomes a real ſaving, being ſo much gained from idleneſs, and ſo much added to the ſtock of comforts, which others, under the influence of a lounging and indolent diſpoſition, throw away."

Therefore, concluding that at preſent half an acre will in few inſtances be exceeded, and that it will be in moſt caſes ſufficient for the labour of one man, without interfering with his uſual engagements, he ſhall draw the plan of a cottager's garden, with the probable method of managing it to advantage.

It is, however, previouſly remarked by the intelligent writer, that "wheat ſhould not be among the productions of ſmall incloſures, becauſe it is a lure to the depredations of ſmall birds; and the trouble of the different proceſſes, before it is ready for the mill, probably overbalances the profit, beſides the difficulty of finding manure ſufficient to keep the land in a good ſtate of cultivation. Plantations of beans and peaſe, cabbages, and potatoes, will aſſiſt the cottager in the keep of a pig more than any other vegetable. In ſummer, the refuſe of the cabbage, with waſh, &c. will be ſufficient for food; the ſtraw of the beans and peaſe, with the haulm of the potatoes, will ſupply litter; while the leſs valuable of the potatoes boiled or ſteamed, the gleanings of the harveſt, and a little additional corn, will fatten him. If field peas or beans be cultivated, a part may be gathered green for eating, and the remainder left to ripen for the uſe of the ſtye. By this management, manure will be made for the land; as almoſt the whole of the produce will be again returned to it in the ſtate of dung.

"The ground is ſuppoſed to be of good quality, well fenced, and adjoining the houſe. A ſmall portion may firſt be allotted to herbs and ſmall ſeeds; then the remainder parted into three diviſions; one for carrots, parſnips, onions, cabbages, borecole, &c.; the ſecond for beans or peaſe, according to the nature of the ſoil; and the third for potatoes. The crops ſhould ſucceed in regular rotation, and the manure always uſed with the potatoes. The occupier ſhould be ſupplied with ſeeds and plants for the firſt year; after which he may contrive, from his own crops, to keep on a ſucceſſion, or ſell enough for neceſſary change.

"One third of the ground may," he ſays, "appear large for what are uſually called culinary productions: but it is of great conſequence that a poor man's family ſhould be well ſupplied with vegetables; and if there be an over-ſtock, nothing will be loſt, as it will afford a preſent ſupply for the ſtye, and will ſave potatoes for winter uſe.

"The produce may be calculated as follows:

Beans, after deducting ſeed for next crop,	4½ buſhels.
Potatoes, ditto, - - -	40 buſhels.
Cabbages and borecole, beſides carrots, &c.	500 plants.

		£.	s.	d.
In money,	Beans worth -	1	7	0
	Potatoes - -	4	0	0
	Cabbages, &c. -	1	10	0
		6	17	0

"Fruit trees may alſo be planted," he ſays, "in the quarters, and gooſeberries and currants on the edges of the borders. Planting fruit trees in the hedges, or even near them, is objectionable, becauſe it furniſhes a temptation to theft and plunder, and alſo the certain cauſe of injury to the fence. The latter is a conſideration of great importance, as a good fence to the cottager is more eſpecially needful, ſince he is obliged to be abſent from home a great part of the day, and ſometimes takes his family with him into the fields. During this abſence, his garden, unleſs well fenced, is ſubject to the inroads of ſheep, and pigs, and geeſe, which are looſe upon the common."

It has likewiſe been ſuggeſted by the writer of the Agricultural Survey of the County of Hereford, " that of late years a valuable addition has been made to the minor objects of agriculture, by the introduction of *ſtrawberries* in cottagers' gardens. On light ſoils, when proper care is taken to keep the roots free from weeds, and the plants well watered at the ſeaſon of bloſſoming, very conſiderable profits are derived from this practice. Parts of the waſte lands on Aconbury and Shucknell hills, in that diſtrict, have been particularly applied to theſe purpoſes, with great ſucceſs, and little trouble. The *red Carolina* or *Bath ſcarlet*, are," he ſays, " generally preferred, and their fruit ſold readily in July, at 10*d. per* full quart, in the Hereford market."

This is unqueſtionably an article of culture that demands attention in ſuch ſituations, as being not only productive, with little labour, but at the ſame time readily and conveniently diſpoſed of, eſpecially in the vicinity of any large town.

Cottage *Piſè*, a name ſometimes applied to the buildings of this ſort, which have been lately conſtructed with materials of the rammed earthy kind; a method which has been long employed in France. This is a mode which, when well executed, ſtands very well, it is ſaid, and is at the ſame time cheap. All ſorts of the ſtronger loams anſwer the purpoſe; and light ſandy earths may be rendered ſuitable, by the addition of a ſmall portion of clay; though perfect clay is not proper for this uſe, from its not ramming ſufficiently hard and compact, and being liable to crack in drying. In this ſort of work the chief circumſtance to be regarded is, to have theſe matters ſubjected to a due degree of compreſſion, either in caſes contrived for the purpoſe, or by means of heavy caſt-iron rammers. See Piſe' *Buildings*.

COTTAGER, a term which is commonly applied to a farming or other kind of labourer, who inhabits a cottage. The inhabitants of this deſcription may in general be conſidered as of four different ſorts: 1. The proprietors of ſmall houſes of the cottage kind, either by purchaſe or inheritance; 2. The proprietors of cottages built by themſelves, or with the partial aid of their neighbours, on waſtes or commons, at their own expence; 3. The renters of cottages in manufacturing diſtricts and ſituations; and, 4. The renters of them in ſmall country towns and villages. They are, however, principally the ſecond and laſt deſcriptions of theſe cottagers who are to be conſidered in this place, as being connected with the proprietors of ground, and the buſineſs of the farmer, or the management of land: the firſt being in ſome meaſure independent, ſo as not to render them objects of parochial attention; while the manufacturing cottagers, from being capable of deriving wages from the different arts in which they are employed, can ſeldom or never be employed in the culture of ground.

It is obvious that labourers of this deſcription are indiſpenſably neceſſary to the farmer, and without them much of his buſineſs muſt remain unperformed, and of courſe much loſs be ſuſtained, not only by him, but the nation at large. The objections which have, therefore, been made to the encouragement of this uſeful claſs of ſociety, which has been emphatically termed the " nerves and ſinews of agriculture," are by no means well founded.

It has been well remarked by Mr. Beatſon, in a paper in the firſt volume of the Communications to the Board of Agriculture, that " nothing is more ruinous to the intereſts of the farmer, than to keep a greater number of ſervants than he really has occaſion for; yet, in all farms, it is neceſſary there ſhould be a fixed eſtabliſhment of ſervants, in proportion to the extent and nature of the farm. Every one above that number may," he ſays, " be conſidered as a ſupernumerary, incurring an unneceſſary expence of at leaſt fifteen or twenty pounds *per annum*, which will fall very heavy on the profits of almoſt any farm. This fixed eſtabliſhment, however, is by no means ſufficient to carry on the whole operations of the farm at all ſeaſons of the year. There are certain times and certain operations," continues he, " that require additional hands; and fortunate is the farmer who can, on every ſuch occaſion, command a ſufficient number of hands to expedite and to accompliſh his labours. It generally happens too, that when one farmer has occaſion for a great many additional hands, all the other farmers in the neighbourhood have the ſame. How then," ſays he, " are his operations, in this caſe, to be carried on? He muſt have hands, otherwiſe he cannot proceed, or, at leaſt, may ſuffer a very material loſs by delay. There are only three ſources," he ſuppoſes, " from whence he can expect aſſiſtance: from town's people (if near a town), from villagers, or from cottagers. The townſman conſiders himſelf totally independent of, and unconnected with, the farmer; conſequently, whoever gives him the beſt price, that is, bribes him higheſt, will purchaſe his labour: but, as it generally happens that thoſe who will accept a bribe are little to be depended on, high wages, a great buſtle, and little work badly executed, are therefore too often the conſequence of applying to that ſource. The villager is alſo," he ſays, " independent of the farmer, although ſomewhat more connected with him than the townſman. His demand, however, may not be ſo exorbitant; yet, being more accuſtomed to country labour, he will, no doubt, be of more utility, if he can be prevailed on to give his aſſiſtance. But the cottager is," he conceives, " the main reſource upon which the farmer can beſt depend: if, therefore, he is fortunate enough to have ſeveral well-peopled cottages upon his farm, he will have little to fear from a want of hands on extraordinary occaſions." But he ſuggeſts, that " a ready ſupply of labourers is not the only advantage a farmer may reap from cottagers. He will have, at an eaſy rate, all the manure they make, except what they themſelves may require for their little gardens; and they will often, perhaps, be the purchaſers of ſeveral commodities he may have to diſpoſe of, and ſave him the trouble to carry them to a more diſtant market. They will alſo ſometimes have occaſion for an additional quantity of ground, beſides their gardens, for which they will perhaps be enabled to give a better rent than even the farmer himſelf can make of it, by keeping it in his own hands, or than can be expected from thoſe at a diſtance; for, in general, land is the more valuable to the poſſeſſor, the nearer it is to his place of reſidence; and particularly ſo to the cottager, who can labour it at his ſpare hours, or when he is not otherwiſe employed."

It is likewiſe further ſtated, " that a nation is ſaid to be rich in proportion to its population: as," he thinks, " it is in a great meaſure with an eſtate, or a farm; for, the more numerous its inhabitants, the more eaſily will it be cultivated and improved."

It is therefore conceived, that " the erection of cottages is an object of great importance to the farmer as well as the proprietor; but it is neceſſary for the mutual advantage of both parties, that the landlord and his cottagers ſhould be on the beſt of terms; that he ſhould regard them as a part of his own family, and that they ſhould look up to him as their beſt and ſureſt friend and protector. Every cottager ſhould therefore," he thinks, " conſider, that in promoting the intereſts of his landlord, whether the proprietor or tenant of the farm, he is, at the ſame time, promoting his own ; for a landlord has it much in his power to ſerve and oblige his cottagers in various ways, as they themſelves muſt be ſenſible of. If, therefore," continues he, " they ſhew that attachment and preference to his intereſt, which he has a right to expect, there is no doubt he will do every thing he can to render their ſituation as comfortable as poſſible : but as it may ſometimes happen that even the favours he may do them are not ſufficiently binding on people of an ungrateful or refractory diſpoſition, perhaps the moſt effectual way to ſecure to himſelf thoſe benefits he is juſtly entitled to expect from their reſidence on his farm, would be, it is ſuggeſted, to make his rents conditional ; that is, in caſe they do not give their aſſiſtance, when wanted in harveſt, or any other preſſing occaſion, they ſhould pay ſo much more, and the farmer or proprietor to have it in his option to remove them at the firſt term of Candlemas, or Whitſunday, at which time the produce of the preceding crop will probably be removed from the ground they occupy, and their ſucceſſor will have time to prepare for the enſuing crop."

If it were " ſettled on ſome ſuch terms as theſe," he conceives, " the farmer would find it greatly to his advantage to have as many cottages on his farm as poſſible ; and if he has a long leaſe, it would even be his intereſt to aſſiſt the proprietor in erecting new ones, either by driving the materials, or otherwiſe, as they can agree. In every ſpare corner, therefore," ſays he, " of a dry ſituation, of eaſy acceſs, well ſheltered, and near good water, a cottage ſhould be built, and every encouragement given that can render the cottager and his family happy and comfortable."

It is added, that " in many parts of the kingdom one great obſtacle, at preſent, in the way of ſettling cottagers, is the poor laws, as they now ſtand ; every cottager and his family being ſuppoſed entitled to certain claims upon the pariſh in which they reſide : but this might perhaps," he thinks, " be obviated by paſſing a law, enacting, that in future, with certain exceptions and proviſions, no cottager, or others, ſhall be entitled to make any ſuch claims ; or it might even, in ſome degree, be fixed by agreement with the cottager, at the time of his taking the cottage, by his entering into an obligation for himſelf and his heirs to renounce all claims whatever upon the pariſh. Such a law, or ſuch an agreement, might, in all probability," he ſuppoſes, " act as a ſort of ſtimulus to induſtry ; and might induce every father of a family to exert himſelf to make ſome kind of proviſion for his children or widow, in caſe of his death. Whereas, at preſent, by far too many take no ſort of pains whatever to do ſo, being prepoſſeſſed with the idea, that, if reduced to beggary, the pariſh will provide for their families at their deceaſe: and, truſting to the poor's funds, when often they have no occaſion to do ſo, they ſquander away their little pittance at the ale-houſe, and diſſipate all they earn as faſt as they receive it."

By ſome ſuch regulations as thoſe ſtated above, he thinks, " this great obſtacle towards erecting cottages might be totally removed ; and beſides, the real neceſſitous objects of charity, if their funds were properly managed, would be more amply and comfortably provided for, and the poor's rates, at the ſame time, might be greatly diminiſhed ; and that heavy and intolerable burden upon the farmer and the community would conſequently be more eaſily ſuſtained. It is further ſuggeſted, that " every cottager ſhould have a ſmall garden annexed to his cottage, ſufficient to raiſe vegetables for the family uſe." It is conceived, that " about twenty-five or thirty perches of ground, properly managed, would anſwer that purpoſe. Whatever more land the cottager may have occaſion for, he ſhould, it is contended, be dependant on the farmer for it."

The ſtriking difference which is diſcoverable in cottagers which have ſuch garden-grounds attached to their cottages, and thoſe which have none, in reſpect to their habits and conduct, has been well noticed by the Rev. Mr. Townſend, who ſays that the former are, in general, found ſober, induſtrious, and healthy, while the latter are too frequently drunken, lazy, vicious, and diſeaſed. And the reaſon, he conceives, to be that, " one fills up all his time with uſeful labour, whilſt the other, for want of occupation, takes refuge in the ale-houſe, where he diſſipates his ſcanty pittance, and deſtroys his health." And another ſtriking difference to be noticed is, he ſays, " between thoſe who have freehold tenements, and their neighbours who are obliged to rent : in the former we commonly obſerve, that openneſs and honeſty which are ſeldom to be ſeen in men who are deſtitute of property. The peaſant, whoſe anceſtors built a cottage on the waſte, with a ſufficient garden, and the right of commonage for his cow, if he retain this little patrimony, brings up a numerous family without being reduced to the neceſſity of aſking aſſiſtance from his pariſh. This man acquires habits of ſobriety and induſtry, and his property is a pledge to the community for his good behaviour. Theſe good qualities are tranſmitted to his offspring ; and when his children go out to ſervices, they, like their parents, are diſtinguiſhed for ingenuous conduct : they reſemble the ſons of freemen, whilſt the immediate deſcendants of thoſe who have no freehold, too frequently have all the diſpoſitions of a ſlave."

There can be little doubt but that great advantage may be derived by cottagers from portions of land being attached to their dwellings in the above points of view, as well as many others. The humanity, policy, and vaſt benefit of this ſyſtem have been ſtrikingly ſhewn in the thirty-ſeventh volume of the Annals of Agriculture by Mr. Robert Gourlay. The intereſts of agriculture indeed imperiouſly demand that every poſſible encouragement ſhould be given to this neceſſary and important claſs of men. See Cottage-*Farm*.

COTTAM, in *Botany*, Rheed. See Mentha *perilloides*.

COTTAN, in *Geography*, a town of Aſia, in Little Bucharia ; a place of conſiderable trade between the Tartars and the Indian merchants.

COTTE, Robert de, in *Biography*, an eminent French architect, was born at Paris in 1656, and made director in the academy of architecture in 1699. In 1708 he was elected vice-protector of the academy of painting, and ſhortly after firſt architect to the king and ſuperintendent of the buildings. The works which owe to Cotte all their elegance are very numerous at Paris, Verſailles, &c. Among theſe were the grand altar of the cathedral at Paris ; the fine Ionic colonade of Trianon, and the new building at the abbey of St. Denis : beſides the many important works which he executed in France, he was employed by ſeveral German princes in the erection of palaces and country ſeats. He died at Paſſy in 1735. He was a man of great ſimplicity of manners, free from all oſtentation, obliging and virtuous. His various works are diſtinguiſhed for elegance, and an exact adherence to the rules laid down by the ancients, whom he ſurpaſſed in ornament, and in the happy diſtribution of his edifices. He introduced the faſhion of mirrors over chimney pieces.

COTTER, in *Rural Economy*, a term often provincially employed, to ſignify a kind of iron key, to be paſſed through the eye of a bolt, when uſed as a faſtening for any purpoſe.

COTTERAL, another term made uſe of in different diſtricts, to ſignify the ſame ſort of faſtening.

COTTES, or Cotes, in *Ancient Geography*, a promontory of Africa, not far from Tingis, and the ſtraits of Hercules, mentioned by Mela, Ptolemy, and Strabo. It is alſo called Ampeluſia by Mela. From Mela and Bochart it appears, that Cotes or Ampeluſia were words of the ſame ſignification in the Phœnician and Greek languages, and that they were deduced from the grapes with which the promontory abounded. It is now called *Cape Spartel.* See Cotta.

COTTI, an ancient warlike people of Germany, who inhabited part of Heſſe and Thuringia, from the Hartz mountains to the Rhine and Weſer. Among them were comprehended the Mattiaci, whoſe capital was called from them Mattiacum, and by others Matticum, by ſome taken to be Marpurgh, and by others Baden, on account of its hot waters.

COTTIÆ, a place of Ciſalpine Gaul, between Laumellum and Carbantia, according to the itinerary of Antonine. It is now a village of the Milaneſe, called Cozzo.

COTTIAN Alps. See Alps.

COTTIARA, a town of India, on the ſea-coaſt, E.S.E. of Elancon. Ptolemy repreſents it as the metropolis of the nation denominated Aii.

COTTILAB, in *Geography*, a town of Hindooſtan, in the country of Mewat; 82 miles S. of Delhi, and 72 W. of Agra. N. lat. 27° 24′. E. long. 77° 7′.

COTTINGHAM, a village in the Eaſt Riding of Yorkſhire, in the hundred of Harthill. In 1802, it was in contemplation to cut a canal from the Humber, at the port of Hull to this place. See Canal.

COTTIS, in *Ancient Geography*, a town of India, on this ſide of the Ganges. Ptolemy.

COTTIUM, a place of Gallia Narbonnenſis, according to Strabo; ſituated towards Piedmont.

COTTIWAR, in *Geography*, a circar of Hindooſtan, in the country of Guzerat.

COTTOBARA, in *Ancient Geography*, a town of Aſia, in Gedroſia. Alſo, a town of India on this ſide of the Ganges. Ptolemy.

COTTON, *Sir* Robert, in *Biography*, an eminent antiquary, born at Denton, Huntingdonſhire, Jan. 22, 1570, was admitted in Trinity College, Cambridge, where he took the degree of Maſter in Arts: but it is not known at what place he laid the foundation of his knowledge either as a ſcholar or an antiquarian. From Cambridge he went to reſide with his father, where he remained but a ſhort time when he came to London, and was admitted a member of the Society of Antiquaries, which had been eſtabliſhed in 1590. He now proſecuted his favourite ſtudy with great diligence and ſucceſs, and began to collect ancient records, charters, and other MSS. which at his death proved to be the choiceſt collection of the kind ever ſeen in this or any nation. About the year 1600, he accompanied the celebrated Camden to Carliſle in order that they might examine more particularly the Picts wall. In the ſame year he wrote "A brief Abſtract of the Queſtion of Precedence between England and Spain," at the deſire of Queen Elizabeth, who was ſending her Ambaſſador to Boulogne to treat for peace with the archduke Albert. Early in the next reign he was on account of his great learning and high merit created a knight, and during the whole of king James's life he was regarded and conſulted as an oracle by the privy counſellors upon every difficult queſtion relating to the conſtitution. In 1608, he was appointed one of the commiſſioners to examine into the ſtate of the navy, which had been neglected ſince the demiſe of the late queen; he drew up a memorial, on this occaſion, of their proceedings, to be preſented to the king. He was employed about the ſame time on other ſubjects relating to the prince Henry; but chiefly upon "The Collections," he was ordered to make relating to the revenue of the crown; and the "manner and means how the kings of England have from time to time ſupported and repaired their eſtates." New means were deviſed to ſupply the wants of the monarch; with none, however, was he ſo much pleaſed, as with that of creating a new order of knights called baronets: Sir Robert, who had been of ſo much ſervice in the affair, was choſen to be one, being the twenty-ninth that was created. He was ſoon after employed by the king to write animadverſions upon Buchanan's and Thuanus's accounts of the behaviour and actions of Mary queen of Scots, and to give a different turn to them from what had been done by thoſe two famous hiſtorians. In this and the next reign he was employed on various other topics, in moſt of which he ſided with the views of the ſovereigns by whom he was employed; but when the project of raiſing the value of the coin was ſubmitted to him, he gave it the moſt ſerious and decided oppoſition, and ſhowed in a ſpeech of great length before the privy council, what a diſhonour ſuch an alteration would be to his Majeſty, and how great a loſs it muſt prove to the ſubject. For this conduct it is probable that he was regarded with a ſuſpicious eye by an arbitrary court, and in the end was impriſoned and ill-treated, becauſe he had ſhown a zealous adherence to ſome of the principles of the conſtitution. In 1629 he was ordered to attend the privy-council, and his library was ſealed. This ill treatment, which no man appears to have leſs deſerved, preyed ſo much upon his ſpirits that he never recovered; on his dying bed he imputed the ſhortening of his life to the loſs of his liberty, and his library; the former indeed was reſtored to him, but it does not appear that he ever obtained the free uſe of the latter: ſuch was the reward which the ill fated Charles reſerved for a tried ſervant and faithful friend. He died at his houſe in Weſtminſter, May 6, 1631, ſoon after he had completed his ſixtieth year. Beſides what he publiſhed during his life, he left a number of treatiſes in MS. which were printed in a collection of pieces written by eminent antiquaries. During his beſt days, this great and worthy man was the generous patron of all the lovers of antiquities, and his houſe and library were open to ingenious and inquiſitive perſons. To him indeed men of learning have been highly indebted ever ſince his time, by the valuable library which has long made one of the nobleſt collections in the Britiſh Muſeum. This library conſiſts wholly of MSS.; many of which being in looſe ſkins, ſmall tracts, or very thin volumes, when they were purchaſed, ſir Robert cauſed ſeveral of them to be bound up in one cover. They related chiefly to the hiſtory and antiquities of Great Britain and Ireland, though the ingenious collector refuſed nothing that was curious or valuable on any point of learning. Biog. Brit.

Cotton, Charles, known as a burleſque poet, was born in 1630. He was educated at Cambridge, after which he travelled into foreign countries. During the life of his father, though married, he lived with him; and at his death ſucceeded to an eſtate, which, on account of the liberality of his diſpoſition, was never equal to his wants. He entered the army, but before that, he had been known as a tranſlator, though probably without much gain as an author. His moſt celebrated work was "Scarronides, or Virgil Traveſtie," and this appeared in 1678. It was extremely popular, and paſſed through fifteen editions. Of his tranſlations, the moſt valuable was one of Montaigne's eſſays. He was married a ſecond time, and by his wife, the counteſs-dowager Ardglas, he came in for a fortune of 1500*l.* *per annum*, which, nevertheleſs, was unable to reſcue him from indigent circumſtances. Beſides the burleſque on Virgil, he attempted the ſame with regard to Lucian's dialogues which was popular, the eighth edition having been publiſhed in 1771. Theſe dialogues, ſays a biographer, may be ranked with his "Virgil Traveſtie; they have the ſame humour, and the ſame licentiouſneſs." He is ſuppoſed to have died in 1687; and about two years after a collection of his poems was publiſhed. He was of a ſociable, open, and generous temper, but imprudent and licentious. He was the friend and aſſociate of Iſaac Walton, the well known angler, and to his treatiſe on "Angling," Cotton added a ſupplementary piece, containing, "Inſtructions how to angle for a Trout or Grayling in a clear Stream." Biog. Brit.

COTTON, or COTON, PETER, a French Jeſuit, born in 1654, at Neronde, near the Loire, after paſſing through the uſual introductory ſtudies, removed to Milan, and thence to Rome, where he went through a theological courſe. On his return to France he became a very popular preacher, diſtinguiſhed by his zeal and ſucceſs in bringing over converts to the Catholic faith: among theſe was M. Leſdigueres, who was afterwards conſtable of France, and through whom he was recommended to Henry IV. who made him his confeſſor. In this ſituation he might have been raiſed to the dignity of cardinal, but he preferred the honourable office of a preacher, with a view of reclaiming his fellow creatures from what he conceived the error of their ways. The monarch was reproached for paying too great a deference to Cotton, and a pun upon his name was the common joke of the times, "Our prince is good but has Cotton in his ears." Henry himſelf aſked the Jeſuit, whether he would reveal the confeſſion of a perſon determined to aſſaſſinate him, to which he replied, "No; but I would place my body between you and him." It is not certain but a confidence in ſuch profeſſions might be the means of putting that excellent monarch too much off his guard, who at length fell a victim to a vile aſſaſſin. After the murder of that unhappy prince, Cotton became confeſſor to the young king, Lewis XIII., in which office he continued ſeven years, when he retired from court to Lyons. In 1626, he was appointed provincial in the Iſle of France; but was ſhortly afterwards ſummoned to appear before the parliament of Paris, who were juſtly alarmed by a publication iſſued from the pen of a brother Jeſuit, in which the power of the popes was exalted above that of kings. His anſwers on this occaſion were ſuch, that the parliament felt themſelves bound to iſſue an edict againſt the whole ſociety. This was not what Cotton had expected: he truſted that his own reputation would have ſanctioned all the principles avowed or concealed by the order. When he found himſelf diſappointed, and the motives of the whole ſociety ſcrutinized and expoſed, he was ſo much hurt that he fell ill and died in a few days, in his ſixty-third year. He wrote ſeveral pieces of a general nature: others on controverſial ſubjects, a volume of ſermons, and a letter to ſhew the conformity of the doctrine maintained by the Jeſuits with the doctrine of the council of Trent. Moreri.

COTTON, in *Commerce*, the ſoft and beautiful vegetable down which forms the covering or envelope of the ſeeds of the goſſypium or cotton plant. It is the ſpontaneous production of three parts of the earth, and is found growing naturally in all the tropical regions of Aſia, Africa, and America, whence it has been tranſplanted and become an object of cultivation in the ſouthern parts of Europe.

It is brought to us from the Weſt India iſlands, the Spaniſh, Dutch, and Portugueſe ſettlements on the coaſt of South America, and the iſles of Bourbon and Mauritius in the Eaſt Indies. Georgia, and the ſouthern ſtates of North America, alſo annually produce great and increaſing quantities. The iſlands and ſhores of the Mediterranean have long ſupplied Europe, and within theſe few years, the privileged merchants of India have brought hither conſiderable quantities from Surat, Madras, and Bengal.

The cotton from theſe different quarters of the globe varies conſiderably in the colour, length, fineneſs, and ſtrength of its fibre. It is the produce of ſeveral ſpecies and varieties of the goſſypium, and without wholly adopting the hypotheſis of Quatremere Disjouval, we may admit, that difference of climate has conſiderable influence on the texture and quality of the cotton.

According to the obſervations of that gentleman, crowned by the Academy of Sciences of Paris, the produce of the countries immediately under, or neareſt the equator, is to be conſidered as the type of excellence, and is diſtinguiſhed by its fine ſilky fibre, the depth and peculiarity of its colour, and the height and permanency of the plant. In proportion as we recede from the equator, ſays our author, theſe ſtrong marked characters diſappear, the fibre becomes coarſe, its colour perfect white, and on the ſhores of the Mediterranean, we behold the lofty and flouriſhing tree of Hindooſtan, dwindled down into a ſtunted annual ſhrub.

The exceptions to this ſyſtem, from a compariſon of the cotton of South America and the Weſt Indies, with that of India and the Levant, are repelled by M. Quatremere Disjouval with ſome ingenuity, but his obſervations and reaſonings are too general; and we ſhall preſently ſee that this ſyſtem of gradation in ſize, colour, and fineneſs, from the equator to the poles, has no exiſtence in nature, and is diſproved by the characters we ſhall adduce of the principal varieties of cotton at preſent known in commerce.

It is true, that the fineſt cotton we have any knowledge of, is the produce of the tropical countries, as well as the deepeſt coloured. The delicate and unrivalled fabrics of the Eaſt, and the genuine nankeens of India and China, afford a proof of this. Yet the cotton from which they are produced, is retained at home to ſupply the native manufactures of the country, and is wholly unknown in commerce. The cotton of Bengal, Madras, and Surat, ſuch as is brought in quantities to Europe, is ſcarcely tinged with yellow; and Siam, famous for its nankeen, is equally ſo for its fine white cotton, which has long been tranſplanted to the Weſt Indies. The ſea-coaſt of Georgia, and its dependant iſles, though ſituated in latitude 33° north, ten degrees beyond the tropic, produces cotton ſuperior in quality to the colonies of Guiana directly under the equator, whilſt the inland diſtricts of that province, and the country ſouth of it, down to the mouth of the Miſſiſſippi, produce a cotton of greater whiteneſs, and far inferior in ſtrength and fineneſs.

Cotton is diſtinguiſhed in commerce by its colour, the length of its fibre, and its ſtrength and fineneſs.

White is in general conſidered as characteriſtic of ſecondary quality. The cotton of Smyrna, Cyprus, Salonica, and all parts of the Levant, is diſtinguiſhed by its want of colour. The chief part of that from North America is alſo white, *viz.* New Orleans, Tenneſſee, and Upland Georgia.

Yellow, when not the effect of accidental wetting, or inclement ſeaſon, is indicative of greater fineneſs. The cotton of the Weſt Indies and of South America is called yellow, but the colour inclines more or leſs to cream colour. That from India has a ſlight tinge of Aurora. The fine Sea Iſland Georgia, though not properly a yellow cotton, has a faint but decided tinge, which diſtinguiſhes it from the white cotton of the ſame country.

In the following liſt are enumerated the chief, and nearly all the varieties of cotton uſed in this kingdom, with ſhort notices of their quality and value.

North American Cotton.

Sea Iſland Georgia—is the produce of the coaſt of Georgia, and the ſmall iſlands contiguous and belonging to it. It has a long and fine ſtaple, but more or leſs ſilky, ſtained or dirty, on which account no other cotton varies ſo much in price. The beſt is preferred now to every other kind, and is often ſold at very high prices to the manufacturers of lace.

Upland, or *Bowed Georgia*—is the produce of the inland diſtricts, and either from the nature of the ſoil, or defective cultivation, is much inferior to the preceding. It is a light flimſy cotton, of weak, and very unequal ſtaple, having long and ſhort fibres intermixed. It is uſed chiefly for inferior goods. It derives its name of Bowed Georgia from an inſtrument like a bow, which the planters uſe in cleaning it.

Tenneſſee—much like Bowed Georgia, but in general cleaner, and ſometimes better ſtaple.

New Orleans—this alſo reſembles Bowed Georgia, but it is generally preferred both to that and Tenneſſee. The fibre of theſe three kinds is weak, compared with that of Weſt India, or Sea Iſland, and goods manufactured from it, are unable to endure the ſame hardſhip.

South American Cotton.

Pernambuca—fine, long ſtaple; clean and pretty uniform in quality; much eſteemed; principally uſed by the hoſiers.

Maranham—rather inferior to Pernambuca; not ſo even in quality, nor ſo clean; much like good Demarara, and uſed for the ſame purpoſes.

Bahia—much like Maranham; ſometimes it has the advantage.

Rio—a very inferior cotton; very brown; much ſhell in it; uſed generally for the ſame purpoſes as low Weſt India.

Surinam—has a long ſtaple; clean; yellow; it is a fine cotton, and much uſed for making ſtockings.

Cayenne—a fine good clean ſtaple, preferable to Surinam.

Demarara—the quality of this cotton has fallen off ſince the colony has been in poſſeſſion of the Engliſh. The beſt has a fine ſilky ſtrong ſtaple, much eſteemed. The inferior ſorts are rather brown, dirty, coarſe, and much mixed.

Berbice—the quality of this has of late years fallen off. The beſt has a good ſtaple, fine, ſilky, and clean; but latterly it is brown, dirty, and mixed.

Carthagena—has a very long ſtaple, but weak; it is very ſtringy, and rather dirty.

Giron—a brown coloured cotton, fair ſtaple, and generally pretty clean.

Cumena—inferior to Giron, and not ſo clean.

Carraccas—inferior to Giron; ſtill more dirty.

Laguira—inferior to Cumena, but preferable to Carracca; not ſo dirty.

Weſt India Cotton.

Bahama—Cotton from the Bahama iſlands is of various qualities. The beſt is grown from Bourbon ſeed, but is much inferior to that kind. The ſtaple is pretty good, fine and ſilky, but it is often dirty. The inferior Bahamas are very brown and dirty. The ſtaple rather ſhort but ſtrong.

Barbadoes—is of fair middle quality, the ſtaple not very long, but generally ſilky, and pretty ſtrong; often a good deal of the ſhell of the ſeed in it, which is a great objection.

Jamaica—very little cotton grown here, and that of very inferior quality; there is the long ſtaple, which is very weak, and often very dirty, and the ſhort, which is alſo very poor and dirty.

St. Kitt's—very little grown; it is in general very brown, dirty, but of fair ſtaple.

St. Lucia—the ſame.

St. Thomas—the ſame.

St. Domingo—ſometimes very clean good cotton, and likewiſe very inferior; not much comes here.

Carriacou—rather a coarſe grain, but in general clean, fair, ſtrong ſtaple, uſed by the hoſiers to mix with fine cotton, ſuch as Pernambuca.

Grenada—a good deal like Carriacou, but not always ſo clean.

St. Vincent's—rather high-coloured; clean, good ſtaple, but not very fine; a good deal cultivated for the ſize of the iſland.

Antigua—very little grown, much like St. Kitt's.

Tortola, Montſerrat, Dominica—the ſame.

Martinique—very little comes here. It is a fair middle quality.

Guadaloupe—much the ſame, ſometimes very good cotton.

Tobago—little grown, ſometimes very fair good cotton.

Trinidad—rather ſhort ſtaple, and in general very dirty.

Eaſt India Cotton.

Bourbon—the moſt even and uniform in quality of any other. It is a fine ſilky ſtaple, and very clean. It is the moſt valuable cotton brought hither, except the beſt Sea Iſland.

Surat—has a fine, but exceedingly ſhort fibre, in general dirty, containing leaf and ſand. It is the loweſt priced cotton in the market, and uſed in the manufacture of low coarſe goods.

Bengal—much like Surat, but ſtill ſhorter ſtaple, in general cleaner, and much about the ſame value.

Madras—not much brought hither. It is moſtly from Bourbon ſeed, and ſometimes not unlike in ſtaple, but in general dirty, and contains much ſhell, which renders it leſs valuable; worth little more than Surat; ſome very good will fetch the price of Weſt India.

Turkey.

Smyrna, &c.—a ſhort moſſy kind, and rather dirty, uſed for making candlewicks; has more ſubſtance than Bowed Georgia.

The preceding obſervations are intended to give general ideas of the comparative value and qualities of the different kinds enumerated, rather than preciſe and accurate deſcriptions, which, from various cauſes, ſuch as unfavourable ſeaſons, exhauſted ſoil, defective management and culture, cannot, as may readily be ſuppoſed, conſtantly and invariably apply.

In eſtimating their commercial value, we may place them in the following order, which compared with the gradation of M. Quatremere Disjonval's ſyſtem, preſents a curious contraſt.

Sea Iſland Georgia, Bourbon—Pernambuca—Cayenne, Bahia, Maranham, Surinam—Demarara, Berbice—Bahama, Grenada, Carriacou, Barbadoes and beſt Weſt India—Giron, and beſt Spaniſh, New Orleans, Smyrna—Jamaica, St. Kitt's, &c. &c., and inferior Weſt India—Bowed Georgia, Carthagena, Carraccas, and inferior Spaniſh—Madras, Bengal, Surat.

The relative value of the cotton in the firſt half of this ſeries, is tolerably permanent, and is here pretty accurately expreſſed. The varieties in the other half vary conſiderably. It is deduced from the average prices of the different kinds, during a period of ſeveral months.

It muſt be obſerved, however, that the low value of Eaſt India cotton from Surat, Bengal, and Madras, ariſes chiefly from the exceſſive ſhortneſs of its fibre, which, though fine and ſilky, unfits it for the manufacture of a fine thread by our mode of ſpinning, though we are aſſured the natives of Hindooſtan employ it in the manufacture of their fineſt muſlins.

The importation of cotton into Great Britain has progreſſively and rapidly increaſed during the laſt twenty-five years, as will appear from the following ſtatements, from which ſome idea may be formed of the aſtoniſhing and unexampled increaſe and proſperity of our cotton manufactures during that period.

Importation of Cotton into Great Britain.

In the year	1781	5,101,920	lbs.
	1782	11,206,810	
	1783	9,546,179	
	1784	11,280,238	
	1785	17,992,888	
	1786	19,151,867	
	1787	22,600,000	
From 1786 to	1790	23,443,670	per an.
In the year	1799	46,000,000	
	1800	56,010,732	
	1802	65,850,395	
	1806	75,000,000 *	

* This year's importation is not given from official documents, and is not therefore to be relied on as ſtrictly accurate.

London and Liverpool are the great marts for cotton, the chief part of which was for a long time imported into London, but the ſituation of Liverpool, in the very heart of the cotton manufactures of the north, has rendered it the principal market in the kingdom, and great part of the cotton belonging to the merchants of London is now conſigned there.

The following is the number of bags, of about 300 lbs. each, imported into London and Liverpool in four different years, from which may be derived a tolerably accurate idea of the relative quantities of different kinds of cotton brought into this kingdom, and of the increaſed cultivation of ſome particular ſorts.

Importation of Cotton into London.

	1798.	1799.	1805.	1806.
Hamburgh, Tonningen, &c.	7327	11208	514	137
Liſbon - -	5661	17818	3020	7281
Oporto - -	1095	2583	1373	1095
Gibraltar and Mediterranean	2748	752	1234	218
Charleſtown and South Carolina - -	3079	3981	2113	3911
Philadelphia, Maryland, New York, &c. - -	2084	5172	469	1035
New Providence -	1489	1911	1712	
Savannah - -	1221	1514		40
Smyrna - -	600	1208	54	1360
Guernſey -	531		162	5
Jamaica - -	612	5003	366	639
Montſerrat, St. Kitt's -	729	838	1735	2325
Bahama - -	405			
Grenada - -	2122	846	1577	2632
St. Domingo - -	690			
Barbadoes - -	1911	686	1362	792
Antigua, St. Vincent's, and Tobago, -	526	381		
Demarara - -	2581	3540	5294	4920
Martinique and Tortola	652	802		
Dominica - -	783			
Surinam - -	72	448	5040	3758
Copenhagen and Baltic		2020	601	
Berbice - -		192	2467	1458
	36918	60903	29093	31606

Importation of Cotton into Liverpool.

	1805.	1806.	1791.	1799.
America -	100,148	100,142	64	13,236
Liſbon - -	36,739	33,646	34,500	25,362
Oporto -	1958	1647		
Demarara -	9495	10981		8102
Berbice - -	6715	5784		
Surinam -	3072	1139		
Barbadoes -	7995	5495		
Bahamas - -	1634	1980	25,777	28,394
Dominica -	775	1491		
St. Thomas -	1170	1743		
Antigua - -	83	278		
Tortola -	1221	1325		
St. Lucia - -	1288	1389		
St. Kitt's -	260	224		
St. Vincent's -	183	189		
Nevis - -	29	72		
Grenada - -	200	384		
Trinidad - -	125	287		
Cuba - -	175			
Montſerrat -	24	10		
Jamaica - -	2483	4011		
Bourbon -	588			
Spain - -	608			
Ireland -	450	546	3871	1690
Tobago - -		5		
Teneriffe -		306		
Holland - -			1950	
Turkey -			2242	
	177,418	173,074	68,404	86,784

From theſe ſtatements it appears, that in 1791, ſixty four bags of cotton only were brought into the port of Liverpool from North America; 25,814 into London and Liverpool in 1799, and in 1806, upwards of one hundred thouſand bags into Liverpool alone; nearly half the quantity imported into the whole kingdom of every deſcription whatever.

The cultivation of cotton is become an object of principal concern, and is rapidly increaſing in the ſouthern ſtates of North America. The produce of ſome parts of Georgia, as we have before obſerved, is of very ſuperior quality; and there is every reaſon to believe, that in a few years, it will rival in quantity, as well as quality, the fine cottons of Brazil and Guiana.

It may not, perhaps, be irrelevant to our ſubject, to remark here, that the colonization of Georgia formed the ſubject of a memorial preſented to the duke of Newcaſtle, then ſecretary of ſtate in the reign of George I., by colonel John Purry, a native of Switzerland. In this memorial, which was afterwards publiſhed, he ſets out with this poſtulate, that "there is a certain latitude on our globe, ſo happily tempered between the extremes of heat and cold, as to be more peculiarly adapted than any other for certain rich productions of the earth," amongſt which he enumerates ſilk, cotton, indigo, &c.; and he fixes on the latitude of 33°, whether north or ſouth, as the identical one for that peculiar character. He ſettled ſome years afterwards, with a colony of his countrymen, on the river Savannah, which parts Carolina from Georgia, where he perpetuated his name by founding the town of Purryſburg; and proved, in ſome degree, the truth of his ſyſtem, by the introduction of thoſe objects of cultivation, which have ſince become ſtaple articles of the country.

The firſt importation of cotton from the Eaſt Indies took place in the year 1798. This cotton is not imported by the India company, but by the privileged merchants; and the firſt cargo brought by the Fame, and valued at 10,000 *l.*, cleared the enormous ſum of 50,000 *l.* The cotton at that time ſold at 2*s.* 2*d.* per pound, the following year it fell to 10*d.*, and is now the loweſt priced cotton in the market.

The following is the amount of importations ſince that time.

Importation of Eaſt India Cotton.

1798	4637	Bales of about 350 lbs.
1799	19714	
1800	19820	
1801	12111	
1802	8900	
1803	10476	
1804	3546	
1805	1842	
1806	8422	

All cotton whatever is ſubject to a duty of 2*d.* per pound, and alſo of 1¼ per cent. on that amount. Calculated at the prices of that article in 1803. The amount of the duty on each particular kind is as follows.

Sea Iſland Georgia	4 per cent. ad valorem
Fine Brazil	8
Britiſh Weſt India	8½
Foreign Weſt India	10
Inferior Brazil	12
Turkey	12
Bowed Georgia	12½
Spaniſh Cotton	15 to 23½

Cotton, as a vegetable ſubſtance, approaches in its nature nearly to the ligneous matter, or woody fibre, and affords, by deſtructive diſtillation, the ſame products, and nearly in the ſame proportions as the hard and heavy woods. It is diſtinguiſhed by its great affinity for earths and metallic oxydes, but more eſpecially for alumine and iron, on which is founded the theory and practice of calico-printing.

It is little alterable, inſoluble in water, and the chief part of the weaker reagents. Nitric acid converts it into various vegetable acids. Vitriolic acid acts upon it as on ligneous fibre, both are decompoſed, charcoal developed, and ſulphureous acid given out. It is alſo diſtinguiſhed by the beauty and permanency of the white which it acquires by alternate expoſure to the action of alkalies and atmoſpheric air, or oxygenated muriatic acid.

The ſtructure of the fibres of cotton has not been well aſcertained. Lewenhoeck, by microſcopical examination, found them to have two ſharp ſides, and it ſeems to be owing to this circumſtance, and to their poſſeſſing ſome aſperities like the filaments of wool, that cotton greatly irritates and inflames wounds and ulcers, if applied to them inſtead of lint.

Cotton, in *Ancient Geography*, a town of Aſia Minor.

Cotton-*graſs*, in *Botany*. See **Eriophorum.**

Cotton *Manufacture*, in *Commerce*, one of the leading and moſt important branches of our national induſtry and commerce.

The hiſtory of its progreſs during the laſt century, affords a ſplendid inſtance of the ſucceſsful application of induſtry and talent to a branch of manufacture, unparalleled in the annals of commerce.

Scarcely fifty years have elapſed ſince it was amongſt the humbleſt of our domeſtic arts, and was confined chiefly to the fire ſide and cottage of the labouring poor of Lancaſhire. Its products were few, and moſtly for home conſumption, though ſome articles from Mancheſter were exported above a century ago. Its proceſſes were ſimple, and the contrivances for accelerating labour, ſuch as had been handed down for ages paſt with little alteration. The population engaged in this manufacture about the year 1750, is ſuppoſed not to have exceeded 20,000, and was little more than doubled in the ſucceeding twenty years.

From this ſtate of comparative inſignificance, it burſt forth at once with a vigour and activity which has no parallel, and from cauſes which we ſhall ſtate hereafter, became in the ſhort period of thirty years, one of the moſt flouriſhing and important branches of our national induſtry.

For our internal conſumption, it affords a variety of fabrics, ſuited not only to the ordinary wants and comforts, but alſo to the elegancies of life; and for exportation, ſuch now is our ſuperiority, that there is ſcarcely a civilized nation on the earth, that is not indebted to us for ſome article of this manufacture, and well authenticated accounts have been publiſhed of their having been found as articles of dreſs amongſt the diſtant tribes of Tartars.

In the following article we ſhall endeavour to trace the progreſs of this manufacture from its origin down to the preſent time, and the cauſes which have contributed ſo powerfully to raiſe it in a few years to a ſtate of importance, little ſhort of that which the great ſtaple manufacture of this country, that of wool, has acquired during the five laſt centuries.

The period of its firſt introduction into this country is not clearly aſcertained, and there are few authentic documents of earlier date than the middle of the ſeventeenth century, before which time, it is probable that the manufacture of cotton was too inconſiderable to deſerve much notice.

The firſt hiſtorical notice we meet with is in the Itinerary of Leland, who viſited Lancaſhire in the reign of Henry VIII. "Bolton-upon-Moore market," ſays he, "ſtondith moſt by *cottons*, divers villages in the moores about Bolton do make cottons." From this an inference has been drawn in favour of the exiſtence of the manufacture of cotton in Lancaſhire at this early period, a ſuppoſition which is however completely overturned by an act paſſed the 5th and 6th of Edward VI. 1552; entitled "for the true making of *woollen* cloth," in which it is ordered "that all the cottons, called Mancheſter, Lancaſhire, and Cheſhire cottons, full wrought to the ſale, ſhall be in length twenty-two yards, and contain in breadth three quarters of a yard in the water, and ſhall weigh *thirty pounds* in the piece at leaſt. Alſo that all other cloths called Mancheſter rugs, otherwiſe named Mancheſter frizes, full wrought for ſale, ſhall contain in length 36 yards, and in breadth three quarters of a yard, coming out of the water, and ſhall not be ſtretched on the tenter, or otherwiſe, above a nail of a yard in breadth, and being ſo fully wrought and well dried, ſhall weigh every piece 48 lbs. at the leaſt." However paradoxical it may appear, it is nevertheleſs clear from this paſſage of the act, that the Mancheſter cottons of that day were a ſpecies of woollen cloth, and that of the coarſeſt and ſtrongeſt kind, as is ſufficiently proved by the weight required by the ſtatute. The teſtimony of Camden alſo to this point is deciſive: when ſpeaking of Mancheſter in 1590, he ſays, "this town excels the towns immediately around it in handſomeneſs, populouſneſs, *woollen manufacture*, market place, church and college, but did much more excel them in the laſt age, as well by the glory of its *woollen* cloths, which they call Mancheſter *cottons*, as by the privilege of ſanctuary, which the authority of parliament under Henry VIII. transferred to Cheſter."

The manufacture of theſe cottons was known alſo in Wales, as appears from the 8th of Elizabeth, 1566; in which we have the following hiſtorical fact. "In the town of Shrewſbury there hath been, time out of mind of man, and yet is, a company, fraternity, or guild, of the art and myſtery of drapers, which ſaid fraternity hath by reaſon of a certain trade and occupation, of buying and ſelling of Welſh cloth and linen, commonly called *Welſh cottons*, frizes and plains, which they have had and uſed amongſt them, been able not only to live thereby, but alſo have, at their common coſt, provided houſes and other neceſſaries for poor people within the ſaid town of Shrewſbury." The diſtinction of the Welſh cottons here into frizes and plains, is another proof of their being made of wool.

It is certainly ſingular, that the term cotton ſhould be applied to goods manufactured wholly of wool, and which from their weight and ſubſtance could not poſſibly be intended as imitations of, or ſubſtitutes for, the cotton goods of any other country.

The fact is however ſufficiently evident from the preceding quotations, and ſtill further from the conſideration that at the preſent day the *Kendal cottons*, a manufacture which has ſubſiſted now near five centuries, are made entirely of wool, and that of the coarſeſt kind.

Like the Welſh cottons they are manufactured both frized and plain; and are uſed chiefly for negro cloathing in America and the Weſt Indies, though ſome are worn at home by the poor or labouring huſbandmen. Various conjectures have been offered reſpecting the origin of the name, but the moſt probable is, that it is a corruption of the word *coating*. However this may be, it is very certain that the Mancheſter, Cheſhire, and Welſh cottons, which in all probability were derived from thoſe of Kendal, were made entirely of wool, and that it is to theſe goods the obſervation of Leland applies in the quotation we have before given.

To whatever purpoſe cotton was applied, it is certain that long before we have any mention of the manufacture the raw material was imported into this kingdom. The earlieſt record we have met with, in a haſty and not very extenſive ſearch, is preſerved by the accurate and indefatigable Hackluyt in the firſt volume of his Collection of Voyages, and is contained in a little work entitled the "Proceſs of Engliſh Policy." The intent of the whole poem (for ſuch it is) is to inculcate the abſolute neceſſity to our commerce and exiſtence as a free ſtate, of England keeping the dominion of the ſeas; but it is chiefly valuable for the liſt which it contains of the different natural productions, as well as manufactures, which were at that time the objects of commercial intercourſe between the European ſtates. After enumerating the various articles which conſtitute the trade of Spain, Flanders, Portugal, Britain, Scotland, Ireland, Pruſſia, Germany, Venice, Florence, Brabant, Holland, &c., he tells us, that "Genoa reſorts to England in her huge ſhips, named Carracks, bringing many commodities, as cloth of gold, ſilk, paper, much woad, wool, oil, cotton, roach alum, and gold coin; and they bring back from us wool and woollen cloth made with our own wool." It is evident from the preceding quotation, that at leaſt as early as 1430, about which time this little work was firſt printed, and probably alſo much earlier, this country was ſupplied by the Genoeſe with cotton from the Levant. The Genoeſe poſſeſſed this trade till the year 1511, when, according to Hackluyt, from that time to 1534, "divers tall ſhips of London and Briſtol had an unuſual trade to Sicily, Candia, and Chios, and ſometimes to Cyprus and to Tripoli, and Baruth in Syria. They exported thither ſundry ſorts of woollen cloths, calf-ſkins, &c., and imported from thence ſilks, camblets, rhubarb, malmſey, muſcadel, and other wines, oils, cotton-wool, Turkey carpets, galls, and India ſpices. The Levant trade was ſoon after engroſſed by the merchants of Antwerp, and till 1575 entirely abandoned by the Engliſh. Wheeler, who wrote in 1601, ſays, that "a little before the troubles in the Low Countries, the Antwerpians were become the greateſt dealers to Italy, in Engliſh and other foreign merchandize, and alſo to Alexandria, Cyprus, and Tripoli in Syria, beating the Italians, Engliſh, and Germans entirely out of the trade, as they alſo ſoon did the Germans at the fairs and marts of their own country." Accordingly we find from the ſame author, that cotton was one of the many articles with which they ſupplied this country at that period, which they brought chiefly from Sicily and the Levant, and ſometimes from Liſbon, along with many other precious articles which the Portugueſe derived at that time from India. After the ſacking of Antwerp the Engliſh trade to the Levant revived, and in 1621 was in a flouriſhing ſtate, as appears from the teſtimony of Mr. Munn, in his treatiſe on the trade of India, in which cotton is enumerated as one of the many articles brought by our merchants from the Mediterranean.

From theſe quotations it is evident, that previous to the diſcovery of America and the Weſt Indies, and for ſome time afterwards, this country, and probably all Europe, was ſupplied with cotton from the Levant.

How far, from this early importation of the raw material, we have a right to infer the exiſtence of a cotton manufacture in this kingdom, may perhaps admit of ſome diſpute, yet it is certainly very probable that, acquainted as we muſt have been in ſome degree with the cotton cloths of the Eaſt, and other countries, and furniſhed with the material for their fabrication, ſome attempts would be made to imitate them. One great uſe of cotton no doubt, at theſe early periods, was for candlewicks; and to whatever purpoſe elſe it was applied, the manufacture had made no great progreſs in this country till the beginning of the ſeventeenth century, nor does it appear that on the continent, from whence, till within theſe few years, almoſt all our manufactures of cloth have been derived, the manufacture of cotton had made any progreſs before the middle of the ſixteenth century.

Fuſtians were firſt made in Flanders, if we may credit Guicciardini, in his hiſtory of the Netherlands, who however aſſigns no date to their firſt introduction. In the little work we have before alluded to, anno 1430, preſerved in "Hackluyt's Collection of Voyages," they are mentioned not only as an article of export from Flanders to Spain, but of import alſo from the Eaſterlings, Pruſſia, and Germany. We are diſpoſed to believe they were firſt manufactured in Italy, where, from its proximity to the countries affording cotton, as well as its earlier communication with thoſe nations which ſupplied Europe with cotton cloths, it was more likely to originate, than in the more remote and northern ſtates of the continent: and we learn alſo from Guicciardini, in another part of his work, that in 1560, Antwerp annually imported from Milan "great quantities of gold and ſilver thread, various wrought ſilks, gold ſtuffs, fuſtians and dimities of many fine ſorts, ſcarlets, tammies, and other fine and curious draperies."

That the manufacture of fuſtian came originally to this country from the Netherlands is highly probable, and it is ſaid to have been eſtabliſhed in the towns of Bolton and Mancheſter by Proteſtant refugees. Fuſtians were manufactured there in the beginning of the ſeventeenth century, and it is probable their firſt introduction was not much earlier. Had the Flemiſh carried this manufacture to any great extent, it would have found its way to this country much earlier, from the vaſt number of weavers and manufacturers of every deſcription that emigrated to England, from the time of Edw. III. down to the troubles in the Low Countries during the reign of Philip II. of Spain.

In one of the ſumptuary laws of James I., paſſed in the parliament of Scotland in 1621, it is enacted, "that ſervants ſhall have no ſilk on their cloaths, except buttons and garters, and ſhall wear only cloth, fuſtians, and canvas of Scotch manufacture." This prohibition would ſeem to imply a very advanced ſtate of the manufacture of theſe articles in Scotland.

The firſt authentic document concerning the cotton manufacture of this kingdom, is contained in Lewis Roberts "Treaſure of Traffic," publiſhed in the year 1641, and is as follows. "The town of Mancheſter buys the linen yarn of the Iriſh in great quantity, and weaving it, returns the ſame again in linen into Ireland to ſell. Neither does her induſtry reſt here, for they buy cotton wool in London that comes from Cyprus and Smyrna, and work the ſame into fuſtians, vermilions, and dimities, which they return to London, where they are ſold, and from thence, not ſeldom, are ſent into ſuch foreign parts where the firſt materials may be more eaſily had for that manufacture."

The manufacture of linen cloth, properly ſo called, never we believe, conſtituted any great part of the trade of Mancheſter, but the fuſtians, and indeed all the cotton goods of that period, were made of linen warp, compoſed of Hamburgh or Iriſh yarn, but chiefly of the latter, and theſe probably formed great part of the linen goods which Mr. Roberts ſays were returned to Ireland.

Soon after this period, fuſtians were manufactured in quantities at Bolton, Leigh, and the places adjacent; but Bolton was the principal market for them where they were bought in the grey by the Mancheſter dealers, who finiſhed and ſold them in the country. The Mancheſter traders went regularly on market days to buy fuſtians of the weavers, each weaver then procuring his own yarn and cotton as he could, which ſubjected the trade to great inconvenience. To remedy this, the chapmen themſelves furniſhed warps and cotton to the weavers, and employed perſons in all the little villages and places adjacent, to deliver out materials, and receive back the manufactured goods when finiſhed. Each weaver's cottage formed at that time a ſeparate and independent little factory, in which the raw material was prepared, carded, and ſpun, by the female part of the family, and ſupplied woof, or weft, for the goods which were wove by the father and his ſons.

The kinds of fuſtian then made were herring-bones, pillows for pockets and outſide wear, ſtrong cotton ribs and barragon, broad-raced linen thickſets and tufts, with whitened diaper, ſtriped dimities and jeans. Theſe were ſucceeded by cotton thickſets, goods figured in the loom, draw boys, and at later periods by cotton velvets, quiltings, counterpanes, corded dimities, velvets, velveteens, and ſtrong and fancy cords. It is ſcarcely poſſible to convey any adequate idea of the varieties of cotton goods that have iſſued from the loom, ſince the firſt dawn of this manufacture to the preſent time. The pattern cards of Mancheſter goods ſent out to the continent by the leading houſes engaged in the foreign trade, have preſented ſpecimens of near two thouſand different kinds, varying in ſtrength and fineneſs, from the coarſe and heavy fabrics to the fineſt and moſt delicate muſlins, and in colour from the richeſt chintz to plain and ſelf-coloured grounds; ſome figured in the loom, ſome checked and others plain, yet all, or the greateſt part of them, compoſed entirely of cotton.

For the introduction or improvement of many of theſe branches, this country is indebted to the late Mr. Wilſon of Ainſworth, near Mancheſter, originally a manufacturer of fuſtian. He early engaged in the manufacture of cotton velvets, which, by unwearied efforts, he brought to the utmoſt degree of perfection, and conſiderably improved the mode of dreſſing, finiſhing, and more particularly of dyeing, which at that time was very imperfect. His goods, eſpecially his velvets, were finiſhed in a ſtyle that acquired a high character, both at home, and in the foreign market, and were readily diſtinguiſhed from thoſe of any other manufacturer. He cleared off the looſe and uneven fibres with razors, and burnt or ſinged them with ſpirits of wine. This mode was ſucceeded by the uſe of hot irons, in form ſomewhat reſembling the weavers' drying iron, but rounder, which were firſt employed by Mr. Witlow: and at a later period by cylinders of caſt iron heated to redneſs, over which the goods were evenly and rapidly drawn, and thus freed from that ſuperfluous down, or pile, which they had acquired in the loom, or in the various operations of waſhing, bleaching, or dyeing.

Towards the middle of the laſt century, or ſoon afterwards, the manufactures above enumerated, or ſuch of them as were then known, had become of great importance to the towns of Mancheſter and Bolton, affording various articles for home conſumption, as well as for an increaſing foreign trade, and giving employment to great part of the population of the ſurrounding country. They had arrived at that ſtate at which a pauſe muſt naturally have enſued, and beyond which they muſt have advanced with the ſlow and gradual increaſe of population; which, aided by every advantage, as well as by emigation from other diſtricts, could never have kept pace with the demand, without the introduction of thoſe improvements to which this country owes the proſperous and unrivalled ſtate of its cotton manufactures, and of which we ſhall now proceed to give ſome account.

The mode of ſpinning in uſe in this country at that period was by the hand; on the well known domeſtic machine called a *one-thread wheel.* A ſingle ſpindle put in motion by a wheel and band turned by the right hand, whilſt the thread was managed by the left, compoſed the whole of this ſimple apparatus, on which one perſon could with difficulty produce a pound of thread, by cloſe and diligent application, the whole day. The goods then manufactured were ſtrong and coarſe, compared with thoſe of the preſent day, and little or no thread finer than from 16 to 20 hanks in the pound, each hank meaſuring 840 yards, was then ſpun. It was ſubject, as may readily be conceived, to great inequalities, its evenneſs depending greatly on the delicacy of touch, which the ſpinner by long habit had acquired, and varied with every little difference in the extenſion of the thread during twiſting, and the revolution of the ſpindle in portions of the ſame length. As the demand for cotton goods increaſed, various contrivances were thought of for expediting this part of the manufacture. A patent was obtained by a perſon named Paul, and ſome others of London, for an engine for a more eaſy and expeditious mode of ſpinning cotton, and ſeveral other attempts were made at ſubſequent periods, but all with equal want of ſucceſs, till the invention of the Jenney, by James Hargreaves, in the year 1767. Hargreaves was a weaver at Stanhill, near Church, a few miles diſtant from Blackburn, in Lancaſhire. He was a plain, induſtrious, but illiterate man, and poſſeſſed little mechanical ſkill or talent. He reſided near the print ground, the firſt and infant eſtabliſhment of the late Robert Peel, eſq. from whoſe hints and converſation he derived much important aſſiſtance, and whoſe ſtrong and active mind was at that time engaged in the promotion of every uſeful improvement connected with that branch of manufacture, in which he was afterwards ſo extenſively concerned. An anecdote is ſtill recorded in the neighbourhood, which aſcribes to accident the parent of ſo many uſeful diſcoveries, the firſt invention of the Jenney. A number of young people were one day aſſembled at play in Hargreaves' houſe, during the hour generally allotted to dinner, and the wheel at which he or ſome of his family were ſpinning, was by accident overturned. The thread ſtill remained in the hand of the ſpinner, and as the arms and periphery of the wheel were prevented by the framing from any contact with the floor, the velocity it had acquired ſtill gave motion to the ſpindle, which continued to revolve as before. Hargreaves ſurveyed this with mingled curioſity and attention. He expreſſed his ſurprize in exclamations which are ſtill remembered, and continued again and again to turn round the wheel as it lay on the floor, with an intereſt which was at that time miſtaken for mere indolence. He had before attempted to ſpin with two or three ſpindles affixed to the ordinary wheel, holding the ſeveral threads between the fingers of his left hand, but the horizontal poſition of the ſpindles rendered this attempt ineffectual; it is not therefore improbable, that he derived from the circumſtance above-mentioned the firſt idea of that machine which paved the way for ſubſequent improvement. It conſiſted at firſt of only 8 ſpindles, turned by bands from an horizontal wheel, in the centre of which was fixed a vertical ſhaft, with a handle at the top for the ſpinner. The threads paſſed between two horizontal pieces of wood, the breadth of the machine, which, when preſſed together, claſped faſt the roving like the finger and thumb of the ſpinner, and were thus extended or drawn out. He had great difficulty in putting up the thread, or winding it on the ſpindle after twiſting, which he at laſt accompliſhed by means of a treadle connected with a wire, and worked by the foot of the ſpinner. The Jenney in its original form was a rude machine. The firſt was made almoſt wholly with a pocket knife; and the claſp, by which the thread was drawn out, was the ſtalk of a briar ſplit in two. It was, as may readily be conceived, defective in the conſtruction of thoſe parts eſſential to the performance of its work, and which an ordinary mechanic would have had no difficulty in contriving; but Hargreaves was obliged to work in ſecret, and poſſeſſing little mechanical ſkill, to avail himſelf of ſuch aſſiſtance as he could procure, without making public the object he had in view.

Popular prejudice was ſoon excited againſt him, and the threats of his neighbours obliged him to conceal his machine for ſome time after it ſupplied the woof or weft for his own looms. It was, however, generally known that he had made a ſpinning machine, and his wife, or ſome of his family, having imprudently boaſted of having ſpun a pound of cotton during a ſhort abſence from the ſick bed of a neighbouring friend, the minds of the ignorant and miſguided multitude became alarmed, and they ſhortly after broke into his houſe, deſtroyed his machine, and alſo part of his furniture. Hargreaves ſoon after removed to Nottingham, whither he was invited by the ſtocking weavers of that place, and where he aſſiſted in the erection and management of a mill, about the time that Mr. Arkwright firſt ſettled there, after being in the ſame manner driven out, or rather deterred from ſettling in Lancaſhire, by the clamour and prejudice of the people. Hargreaves was little qualified, either by education or addreſs, for the ſphere of life into which he was removed, and after having aſſiſted various perſons in the conſtruction of machinery, and communicated to each by turns the whole of what he knew, he died in poverty, ill requited by his employers, and little known to the country, which has ſince reaped ſuch important benefits from his diſcovery. Before he quitted Lancaſhire, he had made one or two wheels of 12 or 16 ſpindles each for ſome of his relations or friends, and as the popular clamour abated, the number of theſe increaſed, till a ſecond mob ſcoured the whole country and deſtroyed every machine, they could meet with. The value of this improvement however was ſo ſtrongly felt, and the meaſures adopted againſt the ringleaders of this outrage ſo vigorous and deciſive, that new wheels were immediately conſtructed, and it was remarked that many of thoſe concerned in oppoſing their firſt introduction, were amongſt the foremoſt to avail themſelves of the advantages they now promiſed. Various alterations were made in the original machine, which from its form was inconvenient and tireſome to grown up perſons, though girls of twelve or fourteen managed it with eaſe. The vertical wheel was ſubſtituted for the horizontal one, which rendered it much eaſier to work, and the treadle, which required an aukward and conſtrained poſture, was rendered unneceſſary by a ſimple contrivance managed by the hand. They were enlarged in their dimenſions from twelve to twenty, and afterwards to thirty, fifty, and even eighty ſpindles, and their uſe rapidly extended over all the country, though their firſt introduction every where met with the moſt determined oppoſition. Even at Nottingham, if our information be correct, a ſerious affray took place on the firſt erection of the new machines, in which Hargreaves himſelf was ſeverely wounded, and a young woman, who had accompanied him from Lancaſhire, and had been accuſtomed to the management of his firſt Jenney, nearly loſt her life.

To Hargreaves alſo is aſcribed an improvement in the mode of carding, which, before his time, had been performed with hand cards, on the knee, a tedious and laborious operation. Theſe were ſucceeded by ſtock cards, in which the lower card was fixed immovable on a ſtool or ſtock, which left both hands at liberty to manage the upper one. Theſe were firſt uſed in the woollen manufacture, and introduced into Hargreaves' neighbourhood from Roſendale. His improvement conſiſted in applying two or three cards to the ſame ſtock, and ſuſpending the upper cards, which from their weight and ſize would otherwiſe have been unmanageable, from the ceiling of the room by a cord paſſed over a pulley, to the other end of which was affixed a weight or counterpoiſe. With theſe, one woman could perform twice as much work, and with greater eaſe than ſhe could do before in the common way.

The ſtock cards were ſucceeded ſoon after by cylinder cards, the invention of which is claimed by ſo many different perſons, that it is impoſſible now to determine to whom the merit is due. Amongſt the firſt who employed them, was the late Mr. Peel, who conſtructed a carding engine with cylinders at Blackburn, as early as the year 1762, in which he was aſſiſted by Hargreaves.

Mr. Peel's engine conſiſted of two or three cylinders, covered with cards, but had no contrivance for ſtripping, or taking off the carded cotton. This was performed by two women with hand cards, who alternately applied them to the laſt, or finiſhing cylinder, and thus took off the carding by turns. This was, in all probability, the firſt carding machine that was made ; but Mr. Peel's other avocations not permitting him to purſue the ſubject at that time, it was laid aſide, and ſome years elapſed before it was improved and perfected by other hands.

Notwithſtanding the ſevere puniſhment of the ringleaders of the laſt outrage, and the friendly means adopted to convince the labouring claſs of the folly and injuſtice of oppoſing theſe improvements, by which not only the country, but themſelves, would in the end be ſo materially benefitted, conſiderable alarm and uneaſineſs were again excited, and though no ſcarcity of work had been experienced, a belief univerſally prevailed, that all manual labour would ſoon be annihilated by the uſe of theſe new machines. A third and more numerous mob therefore aſſembled in the year 1779, by which all the machinery turned by water or horſes, both for carding and ſpinning, and all the Jennies above a certain ſize, that could be found within eight or ten miles of Blackburn, were completely deſtroyed. Jennies of twenty ſpindles, or under, were alone reſpected, every machine turned by water was demoliſhed, and the large Jennies were either cut into two ſmall ones that came within the ſize preſcribed, or if the owner choſe, into one of twenty ſpindles, by ſawing off the extra number which was often conſigned to the flames. Theſe and ſimilar diſturbances in different parts of the country impeded for an inſtant, but could not arreſt the progreſs of this manufacture. Mr. Peel, whoſe machinery at Altham was totally deſtroyed and thrown into the river, and whoſe perſonal ſafety was oftentimes in danger from the fury of a licentious and ungovernable mob, retired in diſguſt from the country, and eſtabliſhed a cotton mill at Burton in Staffordſhire, on the banks of the Trent, where he continued to reſide many years afterwards.

Soon after the invention of the Jenney in 1767, ſir Richard, at that time Mr. Arkwright, brought forward his improvement in ſpinning, on which he had been long and laboriouſly engaged. This diſtinguiſhed character, whoſe perſeverance and invention raiſed him from one of the moſt humble occupations in ſociety to affluence and honour, was the youngeſt of thirteen children, and was born in the year 1732, at Preſton, in Lancaſhire. In this neighbourhood was then carried on a conſiderable manufacture of linen goods, and linen and cotton mixed, the various operations of which he had an opportunity of becoming intimately acquainted with, and being a man of uncommon natural powers, he directed his thoughts to the improvement of the mode of ſpinning, which had probably been conducted for ages by the ſame proceſs. The firſt hint for effecting this improvement, he accidentally received from ſeeing a red-hot iron bar elongated, by being paſſed through iron rollers. Between this operation and that of elongating a thread, as now practiſed in ſpinning, there is no mechanical analogy ; yet this hint being purſued, has produced an invention, which, in its conſequences, has been a ſource of national and individual wealth unparalleled in the annals of the world.

The difficulties which Mr. Arkwright experienced before he could bring his machine into uſe, even after its conſtruction was ſufficiently perfect to demonſtrate its value, would perhaps for ever have retarded its completion, if his genius and application had been leſs ardent.

His circumſtances were by far too unfavourable to enable him to commence buſineſs on his own account, and few were willing to riſk the loſs of capital on a new eſtabliſhment.

Having at length, however, had the good fortune to ſecure the co-operation of ſome perſons who ſaw the merit of the invention, and were willing to aſſiſt his endeavours, he obtained his firſt patent for ſpinning by *means of rollers* in the year 1769, and to avoid the inconvenience of eſtabliſhing a manufacture of this kind in the heart of the cotton manufacture, ſuch as it then exiſted, he removed to Nottingham. Here, in conjunction with his partners, he erected his firſt mill, which was worked by horſes, but this mode of procedure was found to be too expenſive, and another mill on a larger ſcale was erected at Cromford in Derbyſhire in the year 1771, the machinery of which was put in motion by water.

This patent right was conteſted about the year 1772, on the ground that he was not the original inventor. He obtained a verdict however, and enjoyed the patent without further interruption to the end of the term for which it was granted.

As the eſſential part of Mr. Arkwright's machine was entirely new, and was applied with the happieſt ſucceſs in various other forms for *preparing* the raw material for ſpinning, of which we ſhall ſpeak hereafter, we ſhall pauſe a while in the hiſtorical detail of theſe inventions, and explain the general principles of its conſtruction, and the mode in which its operation was performed. Previous to the year 1767, as we have already obſerved, all the ſpinning was performed on the domeſtic one-thread wheel, of which there were two kinds. The firſt, which we have before deſcribed, required the raw material to be previouſly prepared and carded, and was uſed for wool and cotton. The cardings were ſoft and looſe rolls of the thickneſs of a candle, and from eight to twelve inches long, poſſeſſing little ſtrength or tenacity, the ſlighteſt force being ſufficient to break or pull them aſunder. One end of this roll being held between the finger and thumb of the ſpinner, and the other twiſted round the point of the ſpindle, was rapidly drawn out during its revolution, and formed a coarſe ſoft thread called a *roving*. For coarſe woollen goods, this operation was ſufficient,

ficient, and the thread was ready for the loom, but for fine cloth, and more eſpecially for cotton, this operation of *twiſting* and *drawing* was repeated, and the roving was converted into a ſmaller, firmer, and longer thread. To this laſt operation, the term *ſpinning* was more particularly applied, the firſt being conſidered as preparatory, and was generally denominated *roving*. For ſome time after the introduction of the Jenney, this mode of roving on the ſingle ſpindle continued in uſe, the joining of the ſhort rolls or cardings, rendering manual dexterity abſolutely neceſſary.

The ſecond mode of ſpinning was on the flax wheel, and uſed for thoſe ſubſtances, whoſe fibres from their nature, but more particularly from their length, would not admit of the preparatory proceſs of carding. Their fibres were dreſſed and diſpoſed in an even and parallel direction, by an operation reſembling *combing*, and were then coiled round the head of the diſtaff, affixed to a wheel furniſhed with a ſpindle, bobbin, and fly. The fly and ſpindle moved together, and were kept in rapid motion by a wheel and band, worked by the foot of the ſpinner. The bobbin which received the thread, ran looſe upon the ſpindle, and moved only by the friction of its ends, in proportion as the fibres of the flax were diſengaged from the diſtaff, by the finger and thumb of the ſpinner, and were twiſted by the fly. If we ſuppoſe the machine itſelf to be left at liberty, and turned without the aſſiſtance of the ſpinner, the twiſted thread being drawn inwards by the bobbin, would naturally gather more of the material, and form an irregular thread, thicker and thicker, till at length the difficulty of drawing out ſo large a portion of the material as had acquired the twiſt, would become greater than that of ſnapping the thread, which would accordingly break. It is the buſineſs of the ſpinner to prevent this, by holding the material between the finger and thumb, and by ſeparating the hand during the act of pinching, that the intermediate part may be drawn out to the requiſite degree of fineneſs previous to the twiſt.

To accompliſh theſe ends by machinery, the object of Mr. Arkwright's invention, two conditions became indiſpenſably neceſſary. 1ſt. That the raw material ſhould be ſo prepared as to require none of that intellectual ſkill, which is capable of ſeparating the knotty or entangled parts as they offer themſelves. And 2dly. That it ſhould be regularly *drawn out* by certain parts reſembling the finger and thumb of the ſpinner. The firſt of theſe was completely fulfilled by the various machines and contrivances for the preparation of cotton for ſpinning, which ſir Richard afterwards invented and obtained a patent for; the ſecond was accompliſhed in his firſt and capital machine, ſince called the Twiſt, or Water Frame.

The contrivance for *drawing out* the thread conſtituted the great merit of the invention, the fly, bobbin, and ſpindle connected with it, being derived with little alteration from the flax wheel before deſcribed. It conſiſted of a pair of cylinders, ſlowly revolving in contact with each other, at a little diſtance from a ſecond pair revolving with greater velocity, the lower cylinder of each ſet being furrowed, or fluted, in the direction of its length, and the upper ones neatly covered with leather to enable them to hold the thread. If we ſuppoſe the end of a roving, or looſely twiſted thread, to be paſſed through the firſt pair only, it may readily be imagined that it will be gradually drawn off the bobbin, and paſs through the cylinders without ſuffering any other ſenſible change in its form or texture, than a ſlight compreſſion from the weight of the incumbent cylinder. But if from the firſt pair it be ſuffered to paſs immediately to the ſecond, whoſe ſurfaces revolve much quicker, it is evident that the quicker revolution of the ſecond pair, will *draw out* the cotton, rendering it thinner and longer, when it comes to be delivered at the other ſide. This is preciſely the operation which the ſpinner performs with his finger and thumb, and the application of this ſimple and beautiful contrivance to the ſpindle and fly of the common flax wheel produced that machine for which Mr. Arkwright's firſt patent was obtained, and which laid the foundation of all his ſubſequent diſcoveries.

Soon after the erection of his mill at Cromford, Mr. Arkwright made many improvements in the mode of preparing the cotton for ſpinning, and invented a variety of ingenious machines for effecting this purpoſe in the moſt correct and expeditious manner; for all of which he obtained a patent in the year 1775.

The validity of this ſecond patent was tried in the court of King's Bench, in the year 1781, and a verdict was given againſt him on the ground of the inſufficiency of the ſpecification, but on the 17th of February 1785, in the court of Common Pleas, before lord Loughborough, the queſtion was again tried, and he obtained a verdict, having eſtabliſhed by evidence the ſufficiency of the ſpecification.

This verdict, in conſequence of great numbers having engaged in the erection of machines during the interval of four years that had elapſed ſince the former deciſion, occaſioned conſiderable alarm, and raiſed up a hoſt of enemies, from whom a premium on each ſpindle was demanded, under the threat of immediate ſuit An aſſociation was formed of the manufacturers principally concerned in the buſineſs, and another cauſe inſtituted by writ of *ſcire facias*, was tried before judge Buller in the court of King's Bench, on the 15th of June 1785, in which, after a very long trial, he was caſt on the ground of his not being the original inventor.

Conſcious that this was not the caſe, he moved in the court of King's Bench, on the 10th of November 1785, for a new trial; ſtating that, not being aware of the nature of the evidence to be brought forward on this trial for the firſt time after ſo many years had elapſed, he was then unprepared, but was now able to ſubſtantiate by proofs the falſity of great part of the evidence which went to that point. The rule however was refuſed, and on the 14th November 1785, the court of King's Bench gave judgment to cancel the letters patent.

The inventions claimed by Mr. Arkwright, which gave riſe to theſe reiterated conteſts with the rival manufacturers of Lancaſhire, related chiefly to the operation of carding, which was now brought to great perfection. Before we enter however into any account of theſe improvements, it will be neceſſary to take a ſhort view of the nature of this operation, and the mode in which it was performed at the date of Mr. Arkwright's ſecond patent.

The *card* is a kind of bruſh made with wires inſtead of hair, ſtuck through a ſheet of leather; the wires not being perpendicular to the plane, but all inclined one way in a certain angle.

From this deſcription, ſuch as are totally unacquainted with the ſubject, may conceive that cotton, being ſtuck upon one of theſe cards or bruſhes, may be ſcraped with another card in ſuch a direction, that the inclination of the wires may tend to throw the cotton *inwards*, rather than ſuffer it to come out. The conſequence of the repeated ſtrokes of the empty card againſt the full one, muſt be a diſtribution of the cotton more evenly on the ſurface, and if one card be then drawn in the *oppoſite* direction acroſs the other, it will, by virtue of the inclination of its wires, take the whole of the cotton out of that card, whoſe inclination is the contrary way.

In this mode, the operation of carding was formerly performed by hand with ſheets of card nailed upon thin boards, which were drawn and ſcraped againſt each other, till the cotton or wool was evenly diffuſed over the ſurface, and freed from all the knotty or entangled parts. One of the cards being then turned and applied in an inclined poſition, ſo as to ſcrape with one edge over the ſurface of the other card, in the direction of its teeth, the cotton was, by a particular manœuvre, ſtripped off and coiled up into thoſe ſhort ſoft rolls which we have ſpoken of already under the name of *cardings*. Such, in all probability, was the proceſs employed with little alteration, during the five laſt centuries in the woollen manufacture of this kingdom, and applied at ſubſequent periods to the preparation of cotton. The uſe of cards was moſt likely derived from the Netherlands, at or before the time our woollen manufactures were improved by the emigration of Flemiſh weavers to this country, during the reign of Edward III.

They continued to be imported hither till the year 1463, when the tradeſmen and manufacturers of London, and other parts of England, having made heavy complaints to parliament of the obſtruction to their own employment by the introduction of various foreign manufactured wares, an act was paſſed in the third year of Edward IV., prohibiting *wool-cards*, and various other articles of iron, ſteel, copper, &c. from being imported into this kingdom.

The hand-cards were ſucceeded by ſtock-cards, and theſe again by cylinder cards, as we have already obſerved, which were firſt attempted about the year 1763.

This machine conſiſted of two or more large cylinders covered with cards, revolving in oppoſite directions, and nearly in contact with each other, and ſurmounted by other ſmaller cylinders covered in like manner, by whoſe revolutions in various directions, and with different velocities, the cotton was carded and delivered to the laſt or finiſhing cylinder, from which it was ſtripped off by different contrivances. The cards were nailed on in ſtripes, or ſheets of ſix or eight inches broad, and the margin of each ſheet in which the nails were driven, being deſtitute of teeth, formed ſo many intervals or furrows acroſs the ſurface of the cylinder.

The cotton was ſtripped off firſt by hand, as in Mr. Peel's machine, and afterwards by a fluted cylinder, or by a roller armed with ſlips of tin-plate or iron, ſtanding erect like the floats of an underſhot wheel, and which revolving quicker than the card, and in cloſe contact with it, ſcraped off the cotton in diſtinct portions from each ſtripe or ſheet, which fell into a receptacle below. This was a harſh and rude operation, and rubbed and injured not only the carding, but the cards themſelves. Mr. Arkwright ſubſtituted for the fluted cylinder a plate of metal finely toothed at the edge, and moved in a perpendicular direction rapidly up and down by a crank.

The ſlight, but reiterated ſtrokes of this comb, acting on the teeth of the cards, detached the cotton in a fine and uniform fleece. On the finiſhing cylinder alſo, narrow fillet-cards, as they are termed, wound round in a ſpiral form, were ſubſtituted for the ordinary cards nailed acroſs.

The *continuity* of the fleece was thus preſerved, which was deſtroyed before by the intervals or furrows we have alluded to, and being gradually contracted in its ſize, by paſſing through a kind of funnel, and flattened or compreſſed between two rollers, was delivered into a tin can in one *continued, uniform, perpetual carding*, ſo long as the machine continued in motion, and was ſupplied with the raw material.

This is, without exception, one of the moſt ſtriking and beautiful operations in the whole proceſs of ſpinning. Mr. Arkwright's right to the invention of the crank and comb was the diſputed point at the laſt hearing of this cauſe, and the evidence which he was unprepared to meet having proved to the ſatisfaction of the jury, the prior claim of a mechanic, named Heyes, his excluſive right, not only to this improvement, but to all others included in the ſame patent, was cancelled by the judgment of the court. How far Mr. Arkwright would have been able in the event of another hearing to have diſproved the evidence thus unexpectedly brought forward, is not eaſy to determine. That the crank had been applied in ſome way or other, prior to the date of Mr. Arkwright's patent, though in a much leſs efficacious and approved manner, we believe will admit of the fulleſt proof, and this circumſtance, in a caſe in which the intereſt of a great body of manufacturers was deeply concerned, and was oppoſed only by that of a ſingle individual, would, in all probability, have confirmed the former deciſion in a court already weary of the diſcuſſion.

The improvement, as far as Mr. Arkwright was concerned, was original, and undoubtedly his own, and bears evident marks of that genius and happy invention which ſo ſtrongly characterize every part of his machinery. He was anticipated in a ſingle idea before it was matured and brought forth, and in this inſtance loſt the fruits of his induſtry and talents. His claim to the ſpiral cards, which produce the endleſs, or perpetual carding, has however never been diſputed. At the ſame time Mr. Arkwright brought forward other machines peculiarly adapted to the preparation of the materials for his own mode of ſpinning, and founded on the principle of his former invention. The firſt of theſe, in the ſeries of ſucceſſive operations, is the *drawing frame*.

This machine conſiſts of a ſyſtem of rollers ſimilar to thoſe before deſcribed in the twiſt frame, revolving with different velocities, either from the variation of ſize in the pairs of rollers, their performing a different number of revolutions in the ſame ſpace of time, or from both theſe cauſes united. Three or more cardings coiled up in deep tin cans are applied at once to theſe rollers; in their paſſage through which, they not only coaleſce ſo as to form one ſingle *drawing*, but are alſo drawn out or extended in length. This proceſs is ſeveral times repeated; three, four, or more drawings, as they are now termed, being united and paſſed between the rollers; the number introduced being ſo varied, that the laſt drawing may be of a ſize proportioned to the fineneſs of the thread into which it is intended to be ſpun. By this operation, the fibres of the cotton are drawn out longitudinally, and diſpoſed in an uniform and parallel direction, and all inequalities of thickneſs are done away by the frequent doubling or joining of ſo many different lengths.

A third machine was contrived by Mr. Arkwright for giving the neceſſary degree of twiſt to theſe prepared lengths of cotton. In the ſtate in which it comes from the drawing frame, it has little ſtrength or tenacity, and is received into ſimilar deep cans, from whence it was paſſed through the rollers. To enable it to ſupport the operation of winding, it is again paſſed through a ſyſtem of rollers ſimilar to thoſe in the laſt machine, and received in a round conical can revolving with conſiderable ſwiftneſs. This gives the drawing a ſlight twiſting, and converts it into a ſoft and looſe thread, now called a roving, which is wound by the hand upon a bobbin, by the ſmaller children of the mill, and then carried to the ſpinning or twiſt frame, of which we have already ſpoken.

Such are the inventions and improvements for which we are indebted to the genius of Mr. Arkwright, and which compleat a ſeries of machinery, ſo various and complicated, yet ſo admirably combined and well adapted to produce the intended effect in its moſt perfect form, as to excite the admiration of every perſon capable of appreciating the difficulty of ſuch an undertaking. And that all this ſhould have been accompliſhed by the ſingle efforts of a man without education, without mechanical knowledge, or even mechanical experience, is moſt extraordinary, and affords a ſtriking inſtance of the wonderful powers diſplayed by the human mind, when its powers are ſteadily directed to one object.

Yet this was not the only employment of this eminent man, for at the ſame time that he was inventing and improving the machinery, he was alſo engaged in other undertakings, which any perſon, judging from general experience, muſt have pronounced incompatible with ſuch purſuits. He was taking meaſures to ſecure to himſelf a fair proportion of the fruits of his induſtry and ingenuity; he was extending the buſineſs on a large ſcale; he was introducing into every department of the manufacture a ſyſtem of induſtry, order, and cleanlineſs, till then unknown in any manufactory where great numbers were employed together, but which he ſo effectually accompliſhed, that his example may be regarded as the origin of almoſt all ſimilar improvements.

When it is conſidered, that during this entire period he was afflicted with a grievous diſorder (a violent aſthma) which was always extremely oppreſſive, and threatened ſometimes to immediately terminate his exiſtence, his great exertions muſt excite aſtoniſhment. For ſome time previous to his death, he was rendered incapable of continuing his uſual purſuits, by a complication of diſeaſes, which at length deprived him of life, at the Rock Houſe, Cromford, on the 3d of Auguſt 1792, in the 60th year of his age.

The honour of knighthood was conferred on him in December 1786, on the occaſion of preſenting an addreſs to his majeſty.

In the infancy of the invention, ſir R. Arkwright expreſſed ideas of its importance, which to perſons leſs acquainted with its merits appeared ridiculous, but he lived long enough to ſee all his conceptions more than realized in the advantages derived from it, both to himſelf and his country; and the ſtate to which thoſe manufactures dependant on it have been advanced ſince his death, makes all that had been previouſly effected appear comparatively trifling.

The ſyſtem of ſpinning introduced by ſir Richard was found moſt particularly applicable to the production of thread for warp, whilſt the Jenney of Hargreaves was chiefly employed in ſpinning the woof, or weft, for the coarſe kinds of which it was better adapted, indeed, than the more perfect machine of ſir Richard.

On theſe machines were ſpun for ſome years after their introduction all the twiſt and weft in the kingdom; the uſe of the Jenney has, however, ſince been almoſt wholly ſuperſeded by a third machine, called a Mule, for the invention of which we are indebted to the ingenuity of Mr. Samuel Crompton of Bolton.

The mule was invented about the year 1776, during the term of ſir Richard's patent right, and did not on that account come into general uſe till after its expiration. It is a compound of the two machines of Arkwright and Hargreaves, and is conſidered, as its name imports, as the offſpring of the twiſt frame and Jenney. It conſiſts of a ſyſtem of rollers like thoſe of the twiſt frame, through which the roving is drawn and received upon ſpindles, revolving like thoſe of the Jenney, and from which it acquires the twiſt. The carriage on which the ſpindles are diſpoſed is moveable, and receding from the rollers ſomewhat quicker than the thread is delivered, draws or extends it in the ſame manner as is done by the Jenney. See Mule.

This compleats the ſeries of machines now in uſe, and is the only important diſcovery in ſpinning ſince the invention of ſir Richard Arkwright, on which indeed its chief merit is founded.

Of its excellence, and alſo of thoſe other machines employed in the different preparatory proceſſes, ſome idea may perhaps be formed, when it is ſtated that a pound of fine cotton has been ſpun on the mule into 350 hanks, each hank meaſuring 840 yards, and forming together a thread 167 miles in length.

Hitherto we have entered only into ſuch details of the different proceſſes of ſpinning as were neceſſary to elucidate the hiſtory of their invention, and exhibit both the ſources and progreſs of the various improvements.

The operations which cotton undergoes in its paſſage from the raw material to the ſtate of thread, are various and multiplied in proportion to the fineneſs required, and the different uſes to which it is deſtined.

If we analize theſe operations, they reſolve themſelves into the following: Batting, carding, doubling, drawing, and twiſting. The three latter are never performed ſingly, but are variouſly joined in the ſame machine; and the ſame elementary proceſſes are oftentimes repeated in different machines, with various and different effects.

With reference to theſe effects, the operations which cotton undergoes, may be denominated batting, carding, drawing, and doubling, roving, and ſpinning.

Batting, is that operation which prepares the cotton for carding, by opening and diſengaging the hard compreſſed maſſes, in which it comes from the bales.

It is performed by beating the cotton with ſticks on a ſquare frame, acroſs which are ſtretched ſmall cords, about the thickneſs of a gooſe quill, with intervals ſufficient to ſuffer the ſeed, leaves, and other adventitious matter to fall through.

When a hard matted or compreſſed maſs of cotton is ſmartly ſtruck with a ſtick, the natural elaſticity and reſiliency of its fibres, gradually looſen and diſengage them, and the cotton recovers by repeated ſtrokes all its original volume. During this operation the ſeeds, &c. which adhere, are carefully picked out by the hand, and the cotton rendered as clean as poſſible.

Batting is generally and beſt performed by hand, though the ſcarcity of hands and coſt of labour have rendered other contrivances neceſſary. For a deſcription of the batting machine, with other particulars relative to this operation, ſee Machine.

Carding, is that operation in which the firſt rudiments of the thread are formed. It is performed, as we have before ſtated, by cylinders covered with wire cards, revolving with conſiderable ſwiftneſs in oppoſite directions, nearly in contact with each other, or under a kind of dome or covering, the under ſurface of which is covered with ſimilar cards, whoſe teeth are inclined in a direction oppoſite to thoſe of the cylinder.

By this means the ſeparation of almoſt every individual fibre is effected, every little knotty or entangled part diſengaged, and the cotton ſpread lightly and evenly over the whole ſurface of the laſt or finiſhing cylinder, from which it is ſtripped by the contrivance we have already deſcribed.

For Jenney ſpinning, which is ſtill in uſe for the coarſer kinds of thread, the cardings are ſtripped off in ſeparate lengths. The finiſhing cylinder is covered with the ordinary cards nailed on in ſtripes acroſs, and the cotton contained between the margins or intervals of each ſtripe, forms one carding, whoſe length of courſe depends on the width of the engine, or cylinder. When ſtripped off by the crank and comb, it forms a looſe and ſhapeleſs film, which falling on the ſurface of a plain wooden cylinder, the lower half of which revolves within a hollow ſhell or caſing, the cotton in its paſſage is rolled up and delivered at the other ſide in perfect and cylindrical cardings.

For mule or water ſpinning, the finiſhing cylinder is covered with ſpiral or fillet-cards, and the cotton being taken off in one continued fleece, and contracted by paſſing through the funnel and rollers, forms one endleſs and perpetual carding, which is interrupted only, or broken, when the tin can that receives it is compleatly filled.

In the Jenney carding, the fibres of the cotton are diſpoſed acroſs or at right angles to the axis of the carding; in the perpetual carding they are diſpoſed longitudinally, or in the direction of its length, and it is this circumſtance which renders the carding deſtined for mule or water ſpinning, inapplicable to the Jenney, and *vice verſâ*. For further details, and a deſcription of the carding engine, we muſt refer our readers to the article Engine.

Drawing, and *Doubling*, is one of the preparatory proceſſes for which we are indebted wholly to ſir Richard Arkwright, and belongs excluſively to the mule, or water ſpinning.

The doubling, or paſſing three or four cardings at once through a ſyſtem of rollers, by which they are made to coaleſce, is intended to correct any inequalities in the thickneſs of the cardings, and alſo to admit of their being frequently drawn out or extended by paſſing through the rollers. The effect of this frequent drawing is to diſpoſe the fibres of the cotton longitudinally, and in the moſt perfect ſtate of paralleliſm. The operation of carding effects this in a certain degree; yet the fibres, though parrallel, are not ſtraight but doubled, as may eaſily be ſuppoſed from the teeth of the cards catching the fibres ſometimes in the middle, which become hooked or faſtened upon them. Their diſpoſition is alſo farther diſturbed by the taker-off or comb, which ſtrips them from the finiſhing cylinder; and though the general arrangement of the fibres of a carding is longitudinal, yet they are doubled, bent, and interlaced in ſuch a way, as to render the operation we are now ſpeaking of abſolutely neceſſary.

When the cardings have been paſſed four or five times through the drawing frame, every fibre is ſtretched out at full length, and diſpoſed in the moſt even and regular direction; and though the average length of a fibre of cotton is not two inches, yet the finiſhed drawing, as theſe prepared cardings are now termed, has all the appearance of a lock of Jerſey wool, whoſe fibres, ſix or eight times as long as thoſe of cotton, have been carefully and ſmoothly combed.

Roving, is that operation by which the prepared cotton, as it comes from the carding engine, or drawing frame, is *twiſted* into a looſe and thick thread, and wound upon a ſpindle or bobbin.

In Jenney ſpinning, the cardings are roved without any other preparation, by a machine called a roving billy, for a deſcription of which, with other particulars relative to Jenney ſpinning, ſee Jenney.

In mule or twiſt ſpinning, the prepared carding or drawing, as it is termed, is again paſſed through a ſyſtem of rollers, and is twiſted, either by a rapidly revolving can, into which it is delivered from the rollers, or by a fly and ſpindle ſimilar to thoſe of the flax wheel; in the latter caſe it is wound on the bobbin by the machine; in the former it is received in the conical can in which it acquires the twiſt, and is afterwards wound upon bobbins by the ſmaller children of the mill.

Sir Richard Arkwright always employed the revolving can, and it is ſtill employed in many of the firſt mills in the country. The roving frame with fly and ſpindle, which is in fact nothing more than the twiſt frame of ſir Richard, is now however very generally in uſe, eſpecially ſince later improvements have removed objections to the machine, which rendered its uſe heretofore inconvenient. See Frame.

The operations through which the thread paſſes after it has received the firſt twiſt are various, and depend greatly on the uſe it is intended for.

The finer it is required, the oftener it is drawn out and twiſted, till by degrees, as in the proceſs of wire-drawing, it is brought down to the fineneſs required. The rovings are therefore diſtinguiſhed into firſt, ſecond, and third, according to the number of operations they have gone through.

Spinning, is the laſt operation which the thread undergoes in the ſeries of proceſſes employed in converting it into thread, and is that in which it receives the final extenſion and twiſting.

It is performed either on the Jenney, twiſt frame, or mule. Of theſe machines we have already ſpoken generally, and alſo of the nature of their operation; for further and more particular details, we muſt refer our readers to their proper heads.

Such are the operations by which the raw material is brought into the ſtate of thread, and ſuch the improvements by which the cotton manufacture of this kingdom has arrived at its preſent unexampled ſtate of proſperity. We cannot give our readers a better idea of the effects immediately reſulting from theſe various improvements and diſcoveries, than by the following extracts from a pamphlet, publiſhed in the year 1788, intitled, "An important Criſis in the Calico and Muſlin Manufactures of this Country explained;" the purport of which was to warn the nation of the bad conſequences which would reſult from the rivalry of the Eaſt India cotton goods, which then began to be poured into the market in increaſed quantities, and at diminiſhed prices.

The author aſſerts, that, not above 20 years before the time of his writing, the whole cotton trade of Great Britain did not return 200,000*l.* to the country for the raw material, combined with the labour of the people; and at that period, before the introduction of the twiſt frame and Jenney, the power of the ſingle wheel could not exceed 50,000 ſpindles:

In 1787, the number of cotton mills, as near as intelligence could be procured, was as follows:

In Lancaſhire	41	Flintſhire	3
Derbyſhire	22	Pembrokeſhire	1
Nottinghamſhire	17	Lanerkſhire	4
Yorkſhire	11	Renfrewſhire	4
Cheſhire	8	Perthſhire	3
Staffordſhire	7	Edinboroughſhire	2
Weſtmorland	5	Reſt of Scotland	[illegible]
Berkſhire	2	Iſle of Man	1
Reſt of England	6		
	119		24

The whole being 143, the coſt of which was eſtimated at - -	£715,000
There were at the ſame time 550 mules, and 20,700 Jennies, containing, together with the water frames, 1,951,000 ſpindles; the coſt of which, and of the auxiliary machinery, together with that of the buildings, is ſtated to have been at leaſt - - - -	285,000
The total expenditure being	£1,000,000

Theſe eſtabliſhments, when in full employment, were eſtimated to produce as much cotton yarn as could be ſpun on the ſingle ſpindle by a million of perſons; and inſtead of diminiſhing the employment of the people as was apprehended, they called vaſt numbers from idleneſs to comfortable independence. At this time they were ſuppoſed to give employment to 26,000 men, 31,000 women, and 53,000 children in ſpinning alone; and in all the ſubſequent ſtages of the manufacture the number of perſons employed, was eſtimated at 133,000 men, 59,000 women, and 48,000 children, making an aggregate of 159,000 men, 90,000 women, and 101,000 children, in all 350,000 perſons employed in the different branches of the cotton manufacture.

The quantity of the raw material conſumed in this manufacture, which in 1781 did not amount to 6,000,000 lbs., in the year 1787 exceeded 22,000,000. The aſtoniſhing rapidity of this increaſe, which will be more clearly ſhewn by the following ſtatement, is to be in a great meaſure attributed to the extenſion of the manufacture to the goods of India, particularly calicoes and muſlins.

Cotton uſed in the Manufactures of Great Britain.

Years.	Pounds.	Suppoſed value when Manufactured.
1781	5,101,920	£2,000,000
1782	11,206,810	3,900,000
1783	9,546,179	3,200,000
1784	11,280,238	3,950,000
1785	17,992,888	6,000,000
1786	19,151,167	6,500,000
1787	22,600,000	7,500,000

The cotton imported for the manufacture of 1787, was of the following growth:

Britiſh Weſt India, eſtimated at	6,600,000 lbs.
French and Spaniſh ſettlements	6,000,000
Dutch Settlements	1,700,000
Portugueſe ditto	2,500,000
Eaſt India, procured from Oſtend	0,100,000
Smyrna and Turkey	5,700,000
	22,600,000

The application of this cotton to the different branches of manufacture was ſuppoſed, by intelligent perſons, to have been as follows:

Candlewicks - -	1,500,000 lbs.
Hoſiery - -	1,500,000
Silk and Linen mixtures -	2,000,000
Fuſtians - -	6,000,000
Calicoes and Muſlins - -	11,600,000
	22,600,000

In the branches applicable to muſlin and calico alone, it was calculated that employment was given in England and Scotland to 100,000 men and women, and at leaſt 60,000 children.

The progreſs of the Iriſh in the ſame line of induſtry muſt not be overlooked, and the laudable and ſpirited exertions of captain Robert Brooke deſerve to be more particularly noticed. In the year 1780, that gentleman eſtabliſhed a cotton manufactory on his lands ſituated on the great canal about 18 miles W. of Dublin. In 1782, the government of Ireland, underſtanding that ſome of the manufacturers of Mancheſter intended to remove to America, and carry their machinery with them, found means to perſuade them to go to Ireland, and gave captain Brooke about 3000 *l.* for ſettling them in houſes upon his lands, and they afterwards advanced him 32,000 *l.* upon intereſt and ſecurity, that he might give employment to a great number of weavers who were then ſtarving and riotous for want of employment in Dublin. By means of theſe and other acquiſitions of inhabitants, the manufacturing village which was called Proſperous, conſiſted now of ſeveral hundred houſes, erected on a ſpot where, in the year 1780, there ſtood one ſingle hut; and the manufacture gave employment to about three thouſand men, women, and children. Beſides captain Brooke's, which was the principal one, there were at this time ſeveral other manufactures of cotton eſtabliſhed in various parts of Ireland by the ſpirited exertions of individuals, and the liberal encouragement of parliament.

It may be proper here to obſerve, that two ſpinning mills were eſtabliſhed in France, near Rouen, under the direction of Mr. Holker, an Engliſh manufacturer, who, with his partners, was aſſiſted and patronized by the French government: and it was not long before Arkwright's machinery was even tranſported acroſs the Atlantic, and a ſpinning mill erected in Philadelphia.

Calicoes were firſt brought hither from India in the year 1631, and derived their name from the province of Calicut, where they were chiefly made or exported. They were firſt manufactured in this country about the year 1772, or 1773. Various attempts had been made previous to this time to manufacture cloth with cotton warp or web, but owing to the imperfection of the twiſt or yarn, ſpun either on the one thread wheel or Jenney, they all proved unſucceſsful. The warp was too flimſy, and unable to ſupport the ſtretch or tenſion of the loom, or when it did, too ſoft to form a cloth of firm and uſeful texture. The improvements that rapidly followed the introduction of machine ſpinning, and more eſpecially thoſe of ſir Richard Arkwright, ſoon remedied this defect; yet, though moſt excellent yarn or twiſt was produced, the manufacturers could not at firſt be prevailed upon to weave it into calicoes. Mr. Strutt, therefore, of Derby, in conjunction with Mr. Samuel Need, both in partnerſhip with ſir Richard Arkwright, attempted the manufacture of calicoes about the year 1773, and proved ſucceſsful; yet after a large quantity had been made, it was diſcovered that they were ſubject to double the duty (*viz.* 6*d.* per yard) of cottons with linen warp, and when printed were prohibited. They had therefore no other reſource than to aſk relief of the legiſlature, which after great expence and oppoſition, they at length obtained, and thus laid the foundation of a branch of manufacture which has ſince become one of the moſt important in the kingdom.

The manufacture of calicoes was begun at Blackburn, in Lancaſhire, about this period alſo, at firſt, from twiſt ſpun in the neighbourhood upon Jennies, but afterwards principally from the water twiſt. The goods manufactured here before the introduction of calicoes, were *Blackburn greys*, made of cotton woof, but linen warp of Hamburgh or Iriſh yarn, but chiefly of the latter. Theſe goods, which were the calicoes of that day, were manufactured as early as the year 1727, at which period all the cotton goods, ſuch as pillows, jeans, jennets, moſt of the cords and thickſets were made with linen warp, and even the warps for dimities were half linen. The Blackburn greys were ſold in the unbleached ſtate to the calico-printers of London, and afterwards to thoſe of Lancaſhire and Cheſhire, till the introduction of the real calico put a ſtop to this manufacture about the year 1775.

Blackburn has ſince become the great mart for calicoes, and the chief ſource from whence the printers of Lancaſhire, as well as thoſe of London and Scotland, are ſupplied.

The quantity manufactured, or rather ſold there, (for the Blackburn houſes employ weavers in all parts of the ſurrounding country, and even at conſiderable diſtances) amounted a year or two ago to upwards of one million pieces annually. The quantity now made is perhaps leſs than this, but of finer quality, a larger capital is employed, and the manufacture is on the increaſe.

The quantity of calicoes manufactured in the whole kingdom, not twenty years ago, was little more than half what the Blackburn market now affords, and it is probable that this forms but a ſmall part of the quantity annually made in this country. They are chiefly printed into garments, ſhawls, and furnitures, both for home conſumption, and a conſiderable foreign trade. The finer ſorts are worn as dreſſes, white or plain, and large quantities are uſed for linings, and other purpoſes for which the coarſer kinds of linen were formerly employed.

The lightneſs, as well as cheapneſs, of the calicoe, has rendered it a chief article of dreſs amongſt all claſſes of people, and annihilated the manufacture of many of the lighter kinds of woollen and worſted ſtuffs, formerly ſo much in demand. The trade of Halifax, and the ſurrounding country, which conſiſted almoſt wholly in ſuch ſtuffs, has gone entirely to decay, and been replaced by the manufacture of calicoes and other cotton goods: and ſuch are the quantities now manufactured, more eſpecially in the country around Colne, and thence to Bradford, that from 16 to 20,000 pieces are brought weekly to the Mancheſter market; the produce of thoſe diſtricts which adjoin, or are included between theſe two towns.

To the ſame improvements in ſpinning which gave birth to the manufacture of calicoes, we are indebted for that of muſlin, a branch not leſs important to the country than honourable to our pride and induſtry as manufacturers. For this elegant article of dreſs all Europe had long been tributary to India, where the manufacture has, through the long lapſe of ages, arrived at the greateſt perfection. Muſlins were firſt introduced into this country by the Eaſt India company, about the year 1670, before which time cambrics and Sileſia lawns were worn, and ſuch fine linens from Flanders and Germany, as were brought back in exchange for our woollen manufactures of various kinds exported thither in conſiderable quantities. The manufacture was attempted at Paiſley as early as the year 1700. A few looms were employed, but this trade was ſoon annihilated by the introduction of the goods of India. Eighty years afterwards a more ſucceſsful rivalſhip commenced. Britiſh muſlins were firſt ſucceſsfully introduced in the year 1781, but were carried to no great extent till 1785, ſince which period their progreſs has been rapid beyond all example. In the year 1787, it was computed, that not leſs than 500,000 pieces of muſlin, including ſhawls and handkerchiefs, were annually made in Great Britain. The manufacture has, from that time to the preſent, continued progreſſively to increaſe and improve, and bids fair to become the moſt lucrative and extenſive of any in this country. The rapidity with which it approaches to perfection, and its ſurpriſing extent in the ſhort ſpace of twenty years, are amongſt the many important conſequences that have reſulted from the improvements in the art of ſpinning.

By the cheapneſs and ſuperior quality of our yarn, we are enabled to employ thouſands of looms in the production of this elegant and uſeful article of dreſs, to keep in this country millions of ſpecie which was heretofore ſent to the Eaſt to purchaſe this commodity, and to clothe ourſelves with this fabric at one-third of the expence formerly required.

The demand for, and the uſe of this article, are proportionate to its cheapneſs and elegance, and it is not difficult to ſee that it will become a ſtaple manufacture of this country.

Glaſgow and Paiſley in Scotland, and Bolton in Lancaſhire, are the chief ſeats of this manufacture, which is however conſiderably extended over many other parts of the country. India ſtill maintains her ſuperiority in the finer kinds of muſlin, ſome of which of moſt exquiſite beauty and fineneſs are ſold in this country, as high as ten or twelve guineas *per* yard. In productions like theſe, no rivalſhip can exiſt; in India they are looked on as maſter pieces of art, and the time employed by an Indian weaver in their production would ruin an European.

The common kinds, or ſuch as are more adapted to general uſe, are alſo preferred by our Engliſh ladies to thoſe of home manufacture, on the ſcore of their enduring greater hardſhips and retaining their colour, or rather whiteneſs, better. This excellence, which exiſts to a certain degree, is the reſult of no ſuperiority in the manufacturing proceſſes, but in the raw material, of which that of India is the fineſt and beſt in the world.

Muſlins were manufactured at Zurich and St. Gall in Switzerland long before we ſucceeded, yet ſuch were the advantages which the improvements in ſpinning afforded us, that till within theſe few years (during which the unſettled ſtate of the continent has interrupted, and in ſome countries annihilated, all commercial intercourſe) we ſupplied all Europe with muſlins, not only of Indian, but Britiſh manufacture.

Nankeens and ginghams were manufactures, which, without the improvements of the ſpinner, could not poſſibly have ſucceeded.

Theſe articles, like the two preceding, were formerly brought from the Eaſt excluſively. Fuſtians, dimities, jeans, quiltings, velvets, velverets, velvetteens, and a variety of cotton goods, which the limits of our article will not allow us to particularize, have been improved to ſuch a pitch, that Mancheſter has ſupplied all Europe with theſe fabrics.

Cotton hoſiery forms no inconſiderable part of this immenſe manufacture, and it was the demand for cotton thread for the ſtocking weavers, that urged forward the improvements of Mr. Arkwright, and held out ſuch ſtrong inducements to thoſe whoſe aſſiſtance firſt enabled him to give his invention to the world.

Excluſive of theſe various manufactures, great quantities of twiſt were exported to the continent, and a conſiderable part of the yarn ſpun in Mancheſter, before the late diſaſtrous occurrences in Germany, was employed in the foreign loom. It was this demand for twiſt, which our continental rivals were unable to produce of equal quality or price with ours, which raiſed this branch of the cotton manufacture to a ſtate of proſperity, of which ſome idea may be formed, when it is ſtated that the various eſtabliſhments for ſpinning only in this country, when in full activity, give employment to near 180,000 perſons, a number little ſhort of that which is employed in France in all the different branches of the cotton mannfacture together, and which, according to the report of Chaptal, late miniſter of the Interior, amounts to near 200,000

The value of theſe improvements in ſpinning was ſo obvious and ſo important, that it is not ſurpriſing they were ſoon diffuſed over the continent, notwithſtanding every precaution uſed to prevent it. By the emigration of mechanics, and the clandeſtine exportation of machinery conſtructed here, our neighbours ſoon became poſſeſſed of our improvements, and had we pauſed in our exertions, the ſuperiority we had acquired would long ere this have paſſed away. France, as we have juſt obſerved, has a great population employed in the manufacture of cotton. Pruſſia and Germany have many and increaſing eſtabliſhments, and in the two former countries, and in the hereditary dominions of the emperor of Germany, our piece goods have been long prohibited.

Our ſpinners however, by their ingenuity, and the improvement and perfection of their machines, have ſtill kept the lead; and the attention of our manufacturers is now directed to the perfection of thoſe operations more immediately connected with the labours of the loom, in which, till within theſe few years, little has been done. Every day brings forth new diſcoveries, and it is not difficult to ſee that what has already been atchieved, and what, from the general ſpirit of improvement which is now abroad, muſt inevitably follow, will ſoon place us far beyond the reach of competition in the manufacture of cotton goods, and give us advantages greater than ever we enjoyed ſince its firſt eſtabliſhment in this country. Before we enter into ſuch a detail of theſe improvements however, as will enable our readers fully to comprehend their nature and extent, it will be proper to take a ſhort view of the different operations and proceſſes through which the thread paſſes in its progreſs from the hands of the ſpinner to the loom.

The thread is of two kinds, viz. *twiſt*, ſo called from its being harder twiſted than the other, forming a ſtouter thread, and uſed for the web or warp of piece goods, and *weft*, which is a looſer, ſofter thread, and uſed for the woof. The *weft* is delivered to the weaver in ſmall oblong rolls called *cops;* in the ſtate they are ſtripped off the ſpindles of the mule or Jenney. When theſe are uſed, a ſmall pointed piece of wood or ſkewer is carefully paſſed through the axis of the cop into the place formerly occupied by the ſpindle, and one end of it being held between the teeth, the thread is wound off the cop upon the weaver's bobbin by a wheel ſomewhat ſmaller in ſize, but the ſame in principle as the common one thread wheel on which all the ſpinning was formerly performed.

This is generally done by children, and the bobbins are then ready for the ſhuttle. Twiſt undergoes ſeveral operations before it is ready for the loom. It is delivered by the ſpinner either in *hank*, or *cop*.

Hank twiſt is that which is ſpun on the water frame, from the bobbins of which it is *reeled* into hanks of a determinate length, each meaſuring 840 yards. The value and fineneſs of the thread are proportionate to the number of hanks in a pound, and they are denominated by numbers, as Nos. 20, 50, 100, &c. which expreſs the hanks which a pound of twiſt contains. In this ſtate it is generally *ſized*, an operation which is intended to give additional ſtrength and tenacity to the thread, and enable it to ſupport the different operations in its paſſage to the loom. It conſiſts in impregnating the thread fully with thin ſize, chiefly formed of wheat flour boiled in water, with the addition of a little glue. The twiſt is carefully worked in this and afterwards wrung and dryed. The thread acquires conſiderable ſtrength by this operation, and the looſe fibres are all firmly attached or glued to its ſurface. It is then delivered to the winder.

Winding is that operation by which the thread is tranſferred to the warping bobbin, either from the cop, hank, or twiſt frame bobbin.

Formerly this was chiefly done by females, and the work was carried home and performed by any of the family not engaged in domeſtic concerns, on a ſmall wheel that turned two bobbins at a time.

This mode is ſtill in uſe, but the work has been greatly abridged and facilitated by the uſe of machines of various conſtructions, for a deſcription of which, ſee MACHINE.

Cop twiſt is that which is ſpun on the mule or Jenney. It is reeled only occaſionally to aſcertain its value and fineneſs, and is delivered in cops to the winder.

The next operation is that of *warping*, or the formation of the web. The machine on which this is performed is an octagonal priſm five or ſix feet high, and ſomewhat leſs in diameter, revolving vertically, and put in motion by a band and pulley placed under the ſeat of the warper. The bobbins which furniſh the thread are ſuſpended horizontally in a frame on one ſide. Twenty-eight or thirty threads, forming together a ſyſtem called a *half beer*, are wound round the priſm in a ſpiral form from top to bottom. The machine is then turned the contrary way, and the thread wound round the priſm upwards from bottom to top, and this is repeated backwards and forwards till a ſufficient number of *half beers* have been wound to form a web of the breadth required.

When finiſhed, and the ends properly ſecured, the whole is wound off and coiled upon the hand into a round ball called the *warp*. For further particulars of this operation, and a deſcription of the machine, ſee MILL.

If the thread has been previouſly ſized in the hank, it is now ready for the loom, but if the warp is made of cop twiſt, that operation is next performed.

The warps are boiled ſeveral hours in water till they are thoroughly penetrated and ſoftened; after draining ſome time they are then uncoiled and worked in the ſize till fully impregnated, after which the ſuperfluous ſize is ſqueezed out, and they are ſuſpended on poles to dry: the warp is then ready for the loom.

Without this operation of ſizing, which, as we have before obſerved, gives ſtrength and tenacity to the thread, it would not ſupport the friction of the loom. Two threads are paſſed between each dent of the reed, and at each ſtroke of the treadle one aſcends whilſt the other deſcends. There is therefore a conſtant friction of the threads upon each other, as well as againſt the teeth of the reed. The motion of the reed itſelf alſo backwards and forwards, and of the healds up and down, is very ſevere upon the warp, and unleſs it has been well penetrated by the ſize, and its fibres well cemented or glued together, this continual rubbing is ſufficient to deſtroy its texture.

Good ſizing prevents this, but it is ſtill further aided by another operation called *dreſſing*, which is performed by the weaver himſelf after the warp is got into the loom. This conſiſts firſt in applying with a bruſh a kind of paſte made of wheat flour well boiled, to which is often added a ſmall portion of common ſalt; ſometimes of potaſh, and ſometimes even a little tallow.

It is in fact a repetition of the operation of ſizing, with this difference, that the dreſſing is applied chiefly to the ſurface of the thread, which is ſlightly ſmeared with the paſte, and bruſhed uniformly in one direction from the healds to the beam, by which means the looſe fibres are all diſpoſed evenly one way, and firmly glued faſt to the thread.

In ſummer the warp is dried ſimply by fanning it, but in winter, and in damp cold weather, a hot iron is lightly paſſed over it. It is then dreſſed again with a bruſh dipped in tallow or butter, with which it is ſlightly greaſed. This gives ſuppleneſs and ſmoothneſs to the thread, and greatly diminiſhes the friction of the healds and reed. As ſuch a portion of the warp as is extended between the healds and beam can alone be dreſſed at one time, this is woven, and the dreſſing repeated again upon another portion, and ſo on alternately dreſſing and weaving till the whole of the web is finiſhed.

Various improvements on theſe different proceſſes have taken place during the laſt ſix or eight years, which have made greater or leſs progreſs in proportion to their importance. We ſhall enumerate, therefore, not only thoſe of recent date, but ſuch as, though known ſome time, have not been generally adopted.

The weaver's bobbin is ſtill wound by hand in the manner already deſcribed, though the uſe of a ſmall machine, by which twenty bobbins or upwards are wound at once, is daily gaining ground. They are to be ſeen now in almoſt every weaver's cottage where ſeveral looms are employed. This labour is further abridged by a very ingenious contrivance for which a patent has been obtained. The cops, inſtead of being wound, are compreſſed or ſqueezed till they are ſmall enough to enter the ſhuttle. The winding here is done away, and the cops thus compreſſed are preferred, by the weavers to the common bobbin. In thoſe large eſtabliſhments where the different proceſſes, ſuch as ſpinning and weaving, are carried on together, the cops are ſpun ſmall enough to enter the ſhuttle without compreſſion. The weft is transferred at once from the ſpindle of the mule to the weaver's ſhuttle, and the time and waſte of winding, and even of compreſſing, ſaved entirely.

On the ſame principle alſo, a conſiderable reduction has been made in the labour of reeling and winding twiſt. Till within a late period, the practice has uniformly been to reel it into hanks from the bobbin it was ſpun on, to ſize it in the hank, and then wind it for warping. An obvious reduction of this labour is to warp it directly from the bobbin it is ſpun on, and ſize it in the warp like cop twiſt. For reaſons, however, which it will not be neceſſary here to enter into, this has been found impracticable. It is, however, transferred to the warping bobbin without the intermediate labour and waſte of reeling, and the ſizing is done in the warp.

Conſiderable improvements in the mode of ſizing have been made within theſe few years, eſpecially in the ſizing of warps.

Formerly, the practice was to work the warp in the warm ſize by the hand, the heat of which was of courſe limited to that degree which could be readily borne by the workman. Experience having proved that the hotter the ſize, the more evenly and perfectly was the warp penetrated, various contrivances were adopted for applying it at a high temperature. Amongſt others are oblong troughs furniſhed with ſeveral pairs of rollers, through which the warp paſſes, and is ſtrongly compreſſed whilſt immerſed in the hot ſize. Mr. Marſland's idea of placing the twiſt in an exhauſted receiver, and admitting the hot ſize, promiſes conſiderable advantages in ſome caſes, and when the plan has been matured, will no doubt be ſuſceptible of many applications.

But the greateſt improvement that has been made in theſe different proceſſes, and one that muſt eventually effect a compleat revolution in the whole ſyſtem, is Meſſrs. Ratcliffe and Roſs's mode of dreſſing. Hitherto this operation has been performed by the weaver in the manner we have already deſcribed, at the expence of one-third of his time and labour. As it is only poſſible for him to dreſs at once as much of the work as is contained between the healds and beam, he is ſcarcely got ſettled to his work, after each operation, before he is again called off to dreſs another portion. By this continual interruption of one ſpecies of labour by another totally different, it muſt be obvious to every one, that not only much time is loſt, but that the labour itſelf cannot be equally well performed.

There is a delicacy and certainty of touch in weaving, dependant on long habit and experience, and on which the evenneſs and goodneſs of the cloth depends.

If the force with which the woof or weft is driven up by the reed, be not always alike, if it is greater at one time and leſs at another, the cloth will be thicker and thinner at thoſe places, and ſuch is the nicety on which this depends, that the moſt experienced weaver, after an interruption of ſome hours, cannot at once regain it.

Meſſrs. Ratcliffe and Roſs dreſs the whole of the warp before it is wound upon the beam, the labour of the weaver is therefore uninterrupted, and his attention directed ſolely to one object. This alone is a great point gained, but it is attended alſo by other, not leſs important, advantages. Great part of the intellectual ſkill required in weaving is in the dreſſing and beaming of the warp; the mere mechanical part of throwing the ſhuttle, &c. is ſoon acquired, even by a boy. A more accurate diviſion of labour, by reducing the beaming and dreſſing to a ſyſtem by which they are better, more economically, and more expeditiouſly performed than before, has removed the great difficulty in the art of weaving, and rendered it in a great meaſure the employment of children.

From what we have already ſaid, it will appear that the object in dreſſing and ſizing is nearly the ſame, and Meſſrs. Ratcliffe and Roſs, by this improved mode of dreſſing, have ſucceeded in reducing theſe operations to one. They have gone ſtill further; they have done away the neceſſity of warping, by forming the web at once from the bobbin, and thus reduced the warping, ſizing, dreſſing, and beaming, to one operation. A thouſand bobbins and upwards ſupply the materials for the warp, which in its progreſs is properly diſpoſed and arranged, ſized, dreſſed, and finally wound upon the beam. This improvement, which may juſtly be regarded as the moſt important that has taken place in weaving ſince the invention of the fly ſhuttle fifty years ago, muſt in the end effect a compleat change in the ſyſtem of labour. Great however as its advanatges are, ſome time muſt neceſſarily elapſe before it can be accommodated to general uſe. In large eſtabliſhments, where the different proceſſes of the manufacture are carried on together, ſuch as ſpinning, weaving, and the labour immediately connected with them, it has been adopted with the happieſt ſucceſs, but the weaving in this country is chiefly done in the cottages of the poor, and to their uſe the coſtly and bulky apparatus of Meſſrs. Ratcliffe and Roſs is not adapted.

To derive all the advantages poſſible from this improvement, therefore, it will be neceſſary either that the weaving be done in large ſhops, to each of which a dreſſing machine may be attached, or that the warps be delivered to the country weavers ready dreſſed and wound upon the beam. The former plan is daily gaining ground, and perhaps it is not difficult to foreſee, that at no very diſtant period all the weaving of the country will ſhare the fate of the ſpinning, and quit the cottage for thoſe larger eſtabliſhments in which it will be ſuſceptible of better management, and more accurate diviſion of labour.

The laſt improvement, which we ſhall notice in the manufacture of cotton, and which, when once eſtabliſhed, will compleat what Arkwright has ſo happily begun, is that of weaving by machinery. Various attempts have been made of late years to apply the great moving powers, ſteam, and water, to the common loom. Mr. Dolignon, many years ago, conſtructed a loom adapted, as we are told, to the manufacture of all kinds of cloth. It might be wrought by the power of wind, water, ſteam, or animal ſtrength, and poſſeſſed an inſtinctive capacity (if we may be allowed the phraſe) of knowing when any thread of the weft or warp was broken, in which caſe the loom ceaſed its motion, thus calling on the attendant to repair the damage, which being done, it immediately went on as before; ſix of theſe looms might be attended with eaſe by a girl of ſixteen, or an aged or infirm perſon of either ſex. The inventor did not live to reap the fruit of his labour, nor to introduce his machine properly to the world. He died ſoon after its completion, when he had brought it to a ſtate of perfection ſatisfactory to himſelf, and with him periſhed the reſult of his induſtry and talent. Such is the account which the friends of Mr. Dolignon give of this invention: ſince that time ſeveral other looms of ſimilar conſtruction have been invented.

Mr. Auſtin of Glaſgow has produced one, a model of which is depoſited at the houſe of the Society of Arts in the Adelphi, in favour of which numerous teſtimonies were tranſmitted to the ſecretary. In the year 1798, a loom on this conſtruction was ſet to work at Mr. Monteith's ſpinning works near Glaſgow, which anſwered the purpoſe ſo well, that a building was erected by Mr. Monteith for containing thirty looms, and afterwards another to hold about 200.

The model depoſited in the Adelphi is an improvement on thoſe firſt made for Mr. Monteith, whoſe name we do not however ſee amongſt the liſt of thoſe who bear teſtimony to its value. A loom of this kind, ſays the inventor, occupies only the ſame ſpace as a common loom. The expence is about one-half more. The reeling, winding, warping, beaming, looming, combing, dreſſing, fanning, greaſing, drawing bores, ſhifting heddles, rods, and temples, which is nearly one half of the weaver's work, together with the general waſte accompanying them; all which occur in the operation of the common loom, do not happen in this, which by its ſingle motion, without trouble, performs every operation after the ſpinning, till the making of the cloth is accompliſhed. One weaver and a boy are ſufficient to manage five looms of coarſe work, and three or four of fine work. The conſtruction of this loom is ſo complicated, that the ſociety have not, in their Tranſactions, given the public a drawing of it, conceiving that a model only could render it intelligible.

Other looms of a more ſimple, and conſequently of more uſeful conſtruction, have been invented by Meſſrs. Horrocks and Marſland of Stockport near Mancheſter, which, combined with the dreſſing machine of Meſſrs. Ratcliffe and Roſs, promiſe to be of conſiderable utility, and have already been tried on a ſufficiently extenſive ſcale by the inventors. The dreſſing machine, indeed, has removed the great difficulties in machine weaving, and without it nothing important or advantageous could have been accompliſhed. It has alſo rendered the machine loom itſelf of leſs importance, by ſimplifying the art of weaving ſo much as to render that the employment of boys, which was formerly entruſted only to experienced weavers. To the rapid extenſion of this improvement, however, there are objections at the preſent moment ariſing from moral as well as political conſiderations which muſt greatly retard its progreſs, and we muſt look to happier times for the proof of its general utility, and its final adoption or rejection.

The preceding ſketch, ſhort and imperfect as it is, will ſerve to convey ſome idea of this immenſe and important manufacture. Of the population at preſent engaged in it, and of its annual value, we have only ſuch conjectures to offer as are founded on thoſe materials which are within the reach of individuals, and unleſs government order ſuch an enquiry, it can only be eſtimated by the importation of cotton, which is for the moſt part manufactured at home.

Perhaps the manufacture of Scotland, as being in a narrow field, is more within the reach of obſervation than that of England; we therefore venture to lay before our readers, as being apparently an approximation to the truth, the following,

Eſtimate of the ſtate of the cotton manufacture in Scotland, made up in the year 1796 at Glaſgow, the centre of the principal commerce and manufactures of that kingdom.

39 water mills, which coſt for machinery and buildings 10,000 *l.* each - -		£ 390,000
and work	124,800 ſpindles	
1200 Jennies 84 ſp. each	100,800 at 6*l.* each	7,200
600 mules 144 ſp. each	86,400 at 30*l.* each	18,000
Total, working by day and night	312,000 ſpindles.	
Building for the Jennies coſt - -		75,000
Capital veſted in machinery and buildings		£ 490,200
The yarn annually ſpun is valued at		£ 1,256,412
The cotton 4,629,043 lbs, average valuc 2*s.*		462,904
The people employed are eſtimated at 25,000 of both ſexes, young and old, but the greater part under 15 years of age, whoſe labour, aided by machinery, thus improves the value of the raw material in the firſt ſtage of manufacture. - - -		793,508
From which deduct wages eſtimated at		500,000
Remains for coſt, and wear and tear of machinery, and proprietors profits, the ſum of - - -		293,508
The annual value of calicoes and muſlins, now deſervedly eſteemed the ſtaple of Scotland, when finiſhed, including the exciſe duty on a part of them which are printed, and the coſt of tambouring and needle work on about a third part of them, was then eſtimated at		£ 3,108,549
Value of the cotton yarn as above -	£ 1,256,412	
Yarn got from England	520,000	
		£ 1,776,412

The wages of weavers, tambourers, needle-workers, the charges, the profits of the manufacturers, and the revenue paid to government, thus amounted to £1,332,137

Which great ſum is produced by capital, ingenuity, management, and labour in the ſubſequent ſtages of the buſineſs.

The cotton manufacture in Scotland employs - -	38,815 weavers.
For winding warp and weft	12,938 women.
And ſuppoſing $\frac{1}{3}$ of the muſlin adorned with needle work -	105,000 women.
and girls moſt children.	
Beſides thoſe employed in the ſpinning branch	25,000
Hence it appears that - -	181,753 perſons

derive their immediate ſubſiſtence from the cotton manufacture in Scotland, and alſo a proportional number in England, employed in producing yarn to the value of 520,000 *l.*; beſides the innumerable people of all claſſes concerned in providing neceſſaries and accommodations of every kind for that great multitude, and in conſtructing and repairing the machinery and buildings; and the cultivators of the cotton in the Eaſt and Weſt Indies, ſeamen, merchants, &c. who are all wholly or partly ſupported by this moſt beneficial manufacture, by which the cotton is raiſed, taking the whole manufacture together, to about ſeven times the value it was of when imported.

The cotton manufacture has increaſed very much in Scotland ſince the year 1796. The imports of cotton into the kingdom in the year 1800, were nearly treble thoſe of the year 1796. The printing buſineſs however appears to have declined a little, as may be inferred from the following

Account of the Calicoes, Muſlins, Linens, and Stuffs, printed in Scotland in the years 1796 and 1800.

	1796.					1800.			
	Rate of Duty.	Yards.	Amount of Duty.			Yards.	Amount of Duty.		
	d.		£.	*s.*	*d.*		£.	*s.*	*d.*
Foreign Calicoes and Muſlins - -	7	141,403	4,124	5	1	78,868	2,300	6	4
Britiſh Calicoes and Muſlins - -	3½	4,258,567	62,103	19	1½	4,176,939	60,913	13	10½
Linens and Stuffs - - -	3½	1,185,500	17,288	10	10	1,220,714	17,802	1	7

In England and Wales, on the contrary, the printing buſineſs has increaſed during the above period, as will appear from the following

Account of the Calicoes, Muſlins, Linens, and Stuffs, printed in England and Wales in the years 1796 and 1800.

	1796.					1800.			
	Rate of Duty.	Yards.	Amount of Duty.			Yards.	Amount of Duty.		
	d.		£.	*s.*	*d.*		£.	*s.*	*d.*
Foreign Calicoes and Muſlins - -	7	1,750,270	51,049	10	10	1,577,536	46,011	9	4
Britiſh Calicoes and Muſlins - -	3½	24,363,240	355,297	5	0	28,692,790	418,436	10	5
Linens and Stuffs - - -	3½	3,464,862	50,529	4	11	3,232,073	47,134	7	11

If we follow the calculation aſſumed in an eſtimate laid before a committee of the houſe of commons, that the duty is one tenth of the value, we may eſtimate the value of the Britiſh calicoes and muſlins printed in England and Wales in 1796, at - - £ 3,552,972 0
And thoſe in 1800 at - - 4,184,365 0

From theſe ſtatements, which are official, it appears that in 1800 there were printed about a million and a half of calicoes and muſlins in Great Britain, excluſive of linens, ſtuffs, and foreign calicoes. From that time, to the year 1806, the buſineſs has continued progreſſively to increaſe, the amount of duties on printed goods for that year being upwards of 600,000*l.*, which will bring the number of pieces printed nearly to two millions.

The quantity of white calicoes and muſlins made in England and Wales, is certainly much greater than that of the printed; probably not leſs than three million pieces annually.

From the ſignatures to the petition of the journeymen calico-printers to the houſe of commons in the year 1806, it would appear that, in Great Britain and Ireland, the number is 7000; we ſuſpect however that this number includes apprentices, and that the liſt alſo has been ſwelled, as is uſual in ſuch caſes, by unfair means.

During the progreſs of the work we ſhall have frequent opportunities of reverting again to the ſubject of the cotton manufacture, and of ſupplying thoſe omiſſions which, in a buſineſs of ſuch magnitude and extent, when ſubmitted to individual inveſtigation, muſt unavoidably occur. We ſhall conclude therefore with obſerving that, from the beſt information we have been able to collect, and from calculations founded on the quantity of the raw material imported into the country and of goods exported, it appears that the cotton manufacture of theſe realms gives employment to 800,000 perſons, and that its annual value is upwards of 30 millions.

Cotton *Paper.* See Paper.

Cotton, *Philoſophic,* a name given by ſome chemical writers to the flowers of zinc, from their whiteneſs, and ſilky or cottony appearance.

Cotton *Silk.* See Bombax.

Cotton *Thiſtle.* See Onopordum.

Cotton *Tree.* See Gossypium.

Cotton-*Weed.* See Athanasia, and Gnaphalium.

COTTONARA, Le Canara, in *Ancient Geography,* an extenſive country of the peninſula of India, on this ſide the Ganges. Pliny ſays, that pepper was exported from it in canoes to Barace, a ſea-port ſituated at the mouth of the river Baris. It produced an excellent pepper, called *cottonaricum.* This maritime country was ſituated between the mountains and the ſea, and was about four or five leagues in breadth.

COTTONIAN *Library,* conſiſting of curious manuſcripts, &c. was founded by ſir Robert Cotton, who was forty years in collecting it; and at his death, in 1631, left the property of it to his family, though deſigned for public uſe. A large acceſſion was made to this library by private benefactions before the death of the founder, and afterwards by the purchaſes of his heirs, and donations of others, who added to it a great number of books, chiefly relating to the hiſtory and antiquities of our own nation. An act of parliament was obtained, at the requeſt of ſir John Cotton, in 1700, for preſerving it after his deceaſe, under the above denomination, for public uſe. It is now fixed in the Britiſh Muſeum. For ſtatutes relating to it, ſee 12 and 13 W. III. c. 5, and 5 Anne, cap. 30.

COTTONIANUS *Codex,* in *Biblical Hiſtory,* a manuſcript of part of the New Teſtament, containing the portions of the Acts of the Apoſtles, and of the Epiſtles appointed to be read throughout the whole year; and repoſited in the Cottonian library. It is ſaid to have been written in the 11th century. Caſley collated it in 1735, and Wetſtein has inſerted his extracts. In the ſame library is another MS. containing only the following fragments: Matth. xxvi. 57—65. xxvii. 26—34. John, xiv. 2—10. xv. 15—22; and having in ſeveral places corrections. Wetſtein collated it in 1715. This MS. is written on paper, though with uncial letters. Both Le Long and Wetſtein call it "Charta Egyptiaca purpurei coloris."

COTTS, in *Rural Economy,* a wood often provincially employed to ſignify ſuch tame lambs as have been brought up by the hand, in conſequence of the mother having died. See Cade *Lamb.*

COTTUS, in *Ichthyology,* a genus of fiſhes in the thoracic order. The head is broader than the body, and ſpinous; the eyes placed vertically, and furniſhed with a nictitant membrane; the gill membrane, with ſix rays; body round, without ſcales, and tapering towards the tail; dorſal fins one, ſometimes two. Linn. Gmel. &c. La Cepede divides the Linnæan genus *Cottus* into three diſtinct genera, the firſt of which he retains under the Linnæan name, the two others are his *Aſpidophore,* and *Aſpidophoroide.* This arrangement is approved by the later French writers, and by this means the cottus tribe is reduced to nine ſpecies. The cottus (cotte) of the French are diſtinguiſhed by having the head larger, or more bulky than the body, and in general of a ſomewhat conic form; the dorſal fins two; the head, or gill-covers, armed either with ſpines or tubercles, and more than three rays in the thoracic fin.

Three ſpecies of the cottus genus are found in Britain, two of the marine kind, and the other an inhabitant of our freſh water ſtreams; theſe are the *cataphractus* or pogge, the father-laſher, C. *ſcorpius;* and the C. *gobio,* or river bull-head. One or two other kinds inhabit the European ſeas, and the reſt are chiefly natives of India.

Species.

Cataphractus. Body octangular, mailed; upper jaw armed with two upright bifid ſpines; throat fringed with numerous cirri. Gmel. Armed bull-head. Penn. Donov. Brit. Fiſhes, &c.

The head of this fiſh is large, bony, and rugged, the mouth placed beneath and lunated; the body covered with ſtrong bony cruſts, divided into ſeveral compartments, the ends of which project into a ſharp point, forming an echinated appearance along the back and ſides from the head to the tail; and the back and ſides, which are of a brown colour, as well as the head, are uſually marked with three or four large duſky ſpaces; the body beneath white. The armed bull-head grows to the length of four or five inches, or rarely exceeds ſix inches, and is found on the ſea-coaſts.

Quadricornis. Four bony protuberances in the middle of the head. Linn. Four-horned bull-head.

A figure of this ſpecies is given in the Muſ. Adolp. Fred. pl. 32, and alſo in the work of Bloch. Its general appearance bears a ſtrong reſemblance to the common father-laſher of our own coaſts, but differs ſpecifically in having the four bony protuberances on the head as before mentioned, two of which are ſituated towards the middle of the head, and two behind. The prevailing colour is olivaceous, marbled with brown; beneath whitiſh; pectoral fins very large and rounded. It is found in the Baltic and Mediterranean ſea, near the entrance of rivers, and ſometimes wanders into the freſh waters. In the ſpring ſeaſon it is taken in great plenty in the Düno in Livonia, and near Dalerow in Sweden. This fiſh grows to the length of ten or twelve inches, and is obſerved by the aſſiſtance of its pectoral fins, which are of very conſiderable ſize, to ſwim with great rapidity.

Scorpius. Head armed with numerous large ſpines; upper jaw rather longer than the lower. Linn. Father-laſher, or ſea-ſcorpion. Donov. Brit. Fiſhes, &c.

Inhabits the ſhores of Europe, Newfoundland, and Greenland, and rarely attains to a large ſize, being uſually found about ſix or eight inches in length; thoſe of twelve or fourteen inches long are very uncommon, except in the northern ſeas. It is a fierce and active fiſh, and will defend its haunts againſt the attack of ſharks, and other large predacious creatures, which it annoys by means of its ſpines. The body is compreſſed, tapering towards the tail, and of a brown colour, variegated, dotted, and lineated with white. The fleſh is eaten in Greenland, and alſo in various parts of Europe, but the vulgar have a ſuperſtitious idea that the head is poiſon, and therefore cut off that part before they dreſs it.

Grunniens. Body ſmooth; throat with numerous cirri. Gmel. Grunting bull-head.

A ſpecies found in the Eaſt and Weſt Indies. Nieuhoff ſaw it in the Eaſt, and Marcgrave in Braſil: it was firſt deſcribed by the laſt mentioned author, and it is ſuppoſed the fiſh he mentions under the name of *pacam* is ſtill a variety only of the ſame fiſh. In Braſil it is called *niqui*.

The length of this fiſh is from ſix to eight inches; the colour brown, varied with white on the ſides; the fins pale ſpotted with brown, and the whole ſurface marked with numerous pores, through which a mucous fluid exudes with which the fleſh is impregnated, and which renders the fiſh unwholeſome, if not dangerous, as an article of food, notwithſtanding the fleſh itſelf is of an agreeable flavour. The head is large; the eyes ſmall; mouth very wide; tongue and palate ſmooth; lips ſtrong; teeth ſharp, diſtinct, recurved, and placed in ſeveral rows; the gill-covers conſiſt of a ſingle piece, and are armed with three or four ſpines; the opening of the gills is very wide. It is called the grunting bull-head, becauſe, when firſt taken, it makes a peculiar kind of noiſe, not much unlike the grunting of a pig, occaſioned, as it is concluded, by the ſudden expulſion of the air from the internal cavities through the gill-covers and mouth.

SCABER. Head and lines down the body covered with ſerrated ſcales; lateral line aculeated. Linn. Rough bull-head.

A native of the Indian ſeas. The head is oblong and flattiſh; the body rather compreſſed, blue on the back, with the reſt ſilvery, tinged with blue, and marked with ſix or ſeven moderately broad and diſtant rufous bands. Its fins are blueiſh, ſpotted on the rays, and variegated on the membranes with brown. The ſpecies feeds on teſtaceous animals, and crabs. In the "Syſtem of Ichthyology," publiſhed by Bloch, it conſtitutes, with another analogous fiſh, a new and diſtinct genus under the name of *platycephalus*; this genus is diſtinguiſhed by having the body very flat, and the ventral fins placed at a conſiderable diſtance from each other. The rough bull-head is the *cotte raboteux* of French writers.

INSIDIATOR. Head with acute lines above, and two ſpines each ſide. Gmel. Forſkal. Inſidious bull-head.

Larger than the common European bull-head, but in other reſpects much reſembling it. The ſpecies was diſcovered by Forſkal in the Red Sea, where it grows to the length of nearly two feet. It is of the littoral kind, frequenting the coaſts, and concealing itſelf under the ſand, from whence it ſprings on ſuch of the ſmaller fiſhes as happen to approach its haunts. The body is depreſſed, and of a tapering form; the colour of the upper part grey, with brown points and ſpots, beneath white. The tail is whitiſh, with a yellow bifid ſpot in the middle, and two unequal black, linear ones placed obliquely.

GOBIO. Smooth; gill-covers armed with a crooked ſpine turning inwards. Gmel. Linn. Miller's thumb, or river bull-head. Donov. Brit. Fiſhes, &c.

This ſpecies inhabits clear waters in moſt parts of Europe. Its uſual length is from ſix to ſeven inches. The general colour yellowiſh-olive, darkeſt, and more clouded on the back and head; the lower part white. This fiſh ſwims with great ſwiftneſs when in ſearch of prey, and is like the reſt of its tribe, eſteemed of the voracious kind. The river bull head often lays concealed either among the gravel, or under ſtones at the bottom of the water, where it finds abundant ſupply of food in the larvæ of aquatic inſects, and the ſpawn or young fry of other fiſhes.

JAPONICUS. Body octangular, mailed with prickly bony ſcales; no cirri. Gmel. Pallas, Japaneſe bull-head.

Firſt deſcribed by profeſſor Pallas, who informs us it is a native of the ſeas about the Kurile iſlands, and grows to the length of about a foot. The colour is yellowiſh-white with the back duſky or browniſh, and rough beneath. Like the armed bull-head the body is protected by a bony rugged covering or cruſts diſpoſed into eight prominent lines along the body. The head is elongated and compreſſed, the upper part rather flattened, and marked with a longitudinal channel. The ſnout is obtuſe and divided into two lobes; the jaws armed with a great number of teeth of ſmall ſize; the eyes are ſituated towards the end of the ſnout, and over each is a ſmall protuberance; the gill-covers are denticulated at the edges; the fins marked with duſky ſtreaks, and having the rays very rough.

MASSILIENSIS. Head armed with numerous ſpines; dorſal fins united. Gmel. Linn. Marſeilles bull-head.

Nearly allied to the cottus ſcorpio. It is a native of the Mediterranean ſea, and is ſaid to occur about the coaſts of Marſeilles. The firſt twelve rays of the dorſal fin are ſpinous, as are likewiſe the three anterior ones of the anal fin.

MADAGASCARIENSIS. Scaly, with two curved ſpines on each ſide the head, and a longitudinal middle furrow between the eyes. *Le Cotte Madegaſſe*, La Cepede. Madagaſcar bull-head.

Deſcribed and figured in the third volume of La Cepede's work from the manuſcripts of Commerſon, who diſcovered the ſpecies on the coaſt of Madagaſcar. It is ſaid to be allied in ſome degree to the river bull-head, but is longer in proportion, and of ſuperior ſize. The head is depreſſed, and the eyes are ſituated very near each other on the upper part of the head; the pectoral fins of moderate ſize, and rounded form; the body covered with large ſcales. La Cepede obſerves on the authority of Commerſon's drawing, that the tail is divided by two indentations into three diſtinct rounded lobes, and hence this writer was almoſt induced to conſtitute a new genus of this fiſh. It appears, however, very doubtful from the appearance of this drawing whether the tail be really ſo divided or not; from it may be, with equal propriety, inferred by conſulting the drawing that the artiſt intended only to repreſent two duſky marks or ſpots inſtead of indentations; and it muſt therefore remain with future obſervers to determine whether this rare and curious fiſh exhibits ſuch a peculiar and very ſtriking character. From its general aſpect we can ſcarcely think it fairly entitled to a place in the cottus genus.

NIGER. Black or blackiſh, with a ſingle ſpine each ſide of the head; lower jaw longer; body covered with hard ſcales. *Le cotte noir*, La Cepede. Black bull-head.

This alſo is a native of the African ſeas, where it was found by Commerſon, and is deſcribed in the work of La Cepede. In ſize and habit it reſembles the black Goby. The ſecond dorſal fin, as well as the ventral fin, is ſpeckled and bordered with deep black; the anterior fin marked by two longitudinal blackiſh bands, and clouded with yellow. The head is thick, and largeſt at the poſterior part, where it is armed on each ſide by a ſmall ſpine, and appears ſomewhat ſwelled or inflated. The mouth is very wide; and both jaws are armed with a row of ſmall, ſhort, cloſe-ſet teeth reſembling thoſe on the bony protuberances near its throat. The body is black or blackiſh, and is covered with very rough ſcales.

MONOPTERYGIUS. Head unarmed; dorſal fin ſingle. Gmel. Single-finned bull-head.

Found in the Indian ſeas about the coaſts of Tranquebar. The body is ſlender, and covered by an octangular bony mail, which towards the tail becomes hexagonal. The eyes are ſituated near the top of the head; they are of a large ſize, the form oblong, colour ſilvery with the pupil black. The upper jaw is longer than the lower, and is furniſhed with two recurved ſpines; the gill-covers conſiſt of a ſingle plate. On the upper parts the colour of this fiſh is brown, becoming whitiſh on the ſides, and marked with a few tranſverſe reddiſh-brown bands and ſpots. The abdomen is white. In general all the fins are cinereous, and have the rays ſplit; the pectoral fin is long and broad, and is, as well as the tail-fin, ſpotted with brown.

Australis. Whitiſh, with the head aculeated, and body marked with tranſverſe livid bands. Shaw. Gen. Zool. Southern Cottus. White journ. Bot. Bay.

Deſcribed by Dr. Shaw as a doubtful ſpecies in Mr. White's voyage to Botany bay. The length is ſtated at about three inches and a half; the colour yellowiſh-white, tinged with brown on the upper parts, and variegated by three or four tranſverſe blackiſh bands; the head armed with pretty numerous ſtrong ſpines both in front and on the gill-covers; eyes large, and body covered with minute ſcales.

Cottus is alſo a name given by ſome writers to the Callionymus *Lyra* of Gmelin, or dracunculus, yellow gurnard, or gemmeous dragonet of other writers; and alſo to the Callionymus *Dracunculus*, or ſordid dragonet of Pennant.

COTUENTII, in *Ancient Geography*, a people of Rhœtia, according to Strabo.

COTULA, in *Botany*, (from κοτυλη, a *cavity*, ſome of the ſpecies having a hollow ſpace under the receptacle; or, according to Ventenat, the diminutive of Cota, a name given by the older botaniſts to a ſpecies of anthemis.) Linn. Gen. 968. Schreb. 1310. Willd. 1515. Gært. 946. Juſſ. 184. Vent. 2. 549. Claſs and order, *ſyngeneſia polygamia ſuperflua*. Nat. Ord. *Compoſitæ diſcoideæ*, Linn. *Corymbiferæ*, Juſſ.

Gen. Ch. *Calyx* common, either many-leaved, or divided into many ſegments. *Cor.* Florets in the diſk numerous, hermaphrodite; tubular, four-cleft, unequal, in the circumferences, females either forming a ray, or more frequently little conſpicuous. *Stam.* Filaments in the hermaphrodites four; anthers united in a hollow cylinder, the length of the floret. *Piſt.* Germ inverſely egg-ſhaped; ſtyle filiform; ſtigmas two. *Peric.* the permanent common calyx. *Seeds* differing in form; thoſe of the diſk ovate-triquetrous, the interior or angle obſcure; thoſe of the circumference larger, emarginate, flattiſh on one ſide, gibbous on the other, generally crowned with a border. *Receptacle* generally naked.

Eſſ. Ch. Florets of the diſk four-cleft. Seeds differing in form.

* *Without a ray.*

Sp. 1. C. *filifolia*. Willd. 1. Thunb. Prod. 161. "Leaves half-ſheathing, filiform." *Root* annual. A native of the Cape of Good Hope. 2. C. *anthemoides*. Linn. Sp. Pl. 1. Mart. 1. Lam. Enc. 1. Illuſt. Pl. 700. fig. 3. Willd. 1. (Ananthocyclus chamæmeli folio; Vaill. Act. Par. 1719. p. 381. Dill. Elt. 26. tab. 23. fig. 25. Chryſanthemum foliis coronopi; Pluk. Alm. 101. tab. 274. fig. 6. Tanacetum humile; Forſk Ægyp. 148.) "Flowers pinnate-multifid, dilated." β. Artemiſia nilotica. Linn. Sp. Pl. p. 1188. So nearly allied to this ſpecies that it may be doubted to which genus it properly belongs. *Root* annual, ſtem from three to five inches high, firſt erect, then procumbent, tender, pubeſcent; branches alternate incurved, ſpreading. *Leaves* alternate, ſeſſile, green, ſmooth; ſegments diſtant, toothed, or entire. *Flowers* yellow, drooping; peduncles ſolitary, filiform, one-flowered; calyx-leaves in two or three ranks, oblong, obtuſe, with a white membranous edge; florets of the circumference without a corolla, conſiſting of naked piſtils concealed within the calyx. *Receptacle* naked. A native of Spain, and the iſland of St. Helena. β. of Ægypt. 3. C. *aurea*. Linn. Sp. 4. Mart. 2. Lam. 2. Willd. 2. Loefl. It. 163. 221. Fl. Arrag. 124. "Leaves pinnate-ſetaceous, multifid; flowers drooping." *Root* annual. *Stem* partly procumbent. *Flowers* yellow. *Receptacle* naked. A native of the ſouth of Europe. It has a pleaſant aromatic ſmell. 4. C. *coronopifolia*. Linn. Sp. 3. Mart. 4. Lam. Encyc. 3. Ill. Pl. 700. fig. 1. Willd. 8. Gært. tab. 165. fig. 10. Flor. Dan. tab. 341. (Ananthocycius coronopi folio; Vaill. Act. 1719. Dill. Elt. 27. tab. 23. fig. 26. Chryſanthemum; Breyn. Cent. 156. tab. 7. fig. ult. Bellis; Moris. Hiſt. 3. 30. tab. 6.) "Leaves lanceolate-linear, embracing the ſtem, pinnatifid-toothed; ſtem procumbent; branches one-flowered." Whole plant ſmooth. *Root* annual. *Stem* from four to ſix inches long, cylindrical, tender. *Leaves* alternate, ſhining, ſomewhat fleſhy, embracing the ſtem with a compleat ſheath one or two lines long. *Flowers* ſulphur-coloured; female florets pedicelled. *Receptacle* conical, depreſſed, tubercled, naked, radiate with the pedicels of the female florets and ſeeds. *Seeds* not crowned with a border. A native of Africa, but now ſaid to be naturalized in Eaſt Frieſland, near Embden. 5. C. *pubeſcens*. Willd. 4. Desf. Alt. 2. 284. "Stem proſtrate; leaves pinnated, pubeſcent; peduncles filiform, naked, one-flowered; calyx-ſcales ſcarious at the edge." *Root* annual. *Stems* ſeveral, ſmooth. *Leaves* with unequal, narrow, linear, acute pinnæ. *Flowers* the ſize of thoſe of C. anthemoides; peduncles ſolitary. A native of cultivated fields in Barbary. 6. C. *puſilla*. Willd. 5. Thunb. Prod 162. "Leaves pinnated, ſmooth; calyx-ſcales egg-ſhaped, obtuſe." A native of the Cape of Good Hope. 7. C. *nudicaulis*. Willd. 6. Thunb. 162. "Leaves pinnated, hairy; calyx-ſcales egg-ſhaped, obtuſe." A native of the Cape of Good Hope. 8. C. *abrotanifolia*. Willd. 7. (C. cretica montana; Tour. Cor. 37.) "Leaves pinnate, villous; pinnæ linear, quite entire or bifid; ſtem branched at the baſe." *Root* perennial, woody, branched. *Leaves* petioled. *Flowers* on long, terminal, one-flowered peduncles. A native of Crete. 9. C. *bipinnata*. Willd. 10. Thunb. Prod. 162. "Leaves ſeſſile, bipinnated, ſmooth; ſtem ſmooth." *Root* annual. A native of the Cape of Good Hope. 10. C. *globifera*. Willd. 11. Thunb. Prod. 162. (C. pilulifera; Mart. 11. Lam. 7. Linn. jun. Supp. 378.) "Leaves bipinnated, ſmooth; ſtem pubeſcent." *Root* annual. *Stem* erect. *Flowers* globular. A native of the Cape of Good Hope. 11. C. *tanacetifolia*. Linn. Syſt. Nat. 10. Mart. 9. Lam. Encyc. 4. Ill. Pl. 700. tab. 1. Willd. 12. (C. tripinnata; Thunb. Prod. 162. Tanacetum ſuffruticoſum; Linn. Sp. Pl. p. 1183. Millefolium; Pluk. Mant. 130. Amalth. 147. tab. 430. fig. 7.) "Leaves thrice pinnated; the ſmall ſegments acute, ſtem erect; flowers in corymbs." *Root* annual. *Stem* more than a foot high, herbaceous, not at all ſhrubby, firm, ſlightly angular, pubeſcent, much branched. *Leaves* glaucous, petioled. *Corymb* terminal, large, compound; female florets ſcarcely any. A native of the Cape of Good Hope. 12. C. *umbellata*. Linn. jun. Supp. 378. Mart. 5. Lam. 5. Willd. 14. "Leaves lanceolate, hirſute; ſtem erect; flowers in an umbel." *Stem* a foot and half high, cylindrical, hirſute. *Leaves* almoſt a finger's length, alternate, crowded, reſembling thoſe of protea. *Umbel* terminal, five-flowered; peduncles hirſute, furniſhed with alternate bractes; calyx-ſcales ſomewhat imbricated, villous; inner ones awl-ſhaped, longer than the diſk, ſmooth and coloured on the inſide; flowers hemiſpherical. *Seeds* crowned with an obſolete border; receptacle naked. A native of the Cape of Good Hope. 13. C. *ſericea*. Linn. jun. Supp. 377. Mart. 12. Lam. 6. Willd. 13. Thunb. 162. "Leaves thrice pinnated, ſilky-tomentous; pinnulæ linear." *Root* perennial. *Stems* herbaceous, ſimple, procumbent, ſhort, tomentous, white.

Leaves petioled, white. *Flowers* yellow; petioles terminal, very long, ſolitary, naked; calyx hemiſpherical; ſcales nearly equal, obtuſe, ſcarious, longer than the florets. A native of the Cape of Good Hope. 14. C. *quinqueſida.* Willd. 15. Thunb. Prod. 161. "Leaves wedge-ſhaped, quinquefid, hoary." A native of the Cape of Good Hope. 15. C. *minuta.* Mart. 14. Willd. 17. Forſt. Prod. 301. "Leaves oblong-wedge-ſhaped, ſerrated, ſeſſile; flowers ſeſſile, oppoſite to the leaves." *Leaves* alternate, ſomewhat embracing the ſtem. *Flowers* ſolitary. A native of New Caledonia. 16. C. *pyrethraria.* Linn Mant. 116. Mart. 13. Willd. 21. "Leaves oppoſite, egg-ſhaped, crenate, petioled; peduncles one-flowered." *Stem* herbaceous. *Leaves* rather obtuſe, ſlender. *Flowers* white; peduncles terminal, from the fork of the ſtem, longer than the leaves. *Receptacle* chaffy; chaff the length of the florets.

** *With a ray.*

17. C. *turbinata.* Linn. Sp. Pl. 6. Mart. 8. Lam. Enc. 8. (C. africana, calyce eleganti cæſio; Tourn. 496. Cenia; Commerſ. Juſſ. Vent. Lidbeckia; Willd. 3. Thunb. Prod. 161. Lanciſia; Gært. Lam. Ill. Pl. 701. fig. 1. Chamæmelum æthiopicum lanuginoſum; Breyn. Cent. 148. tab. 73. Moris. Hiſt. 3. tab. 12. fig. 14.) "Leaves bipinnated, villous; receptacles top-ſhaped, with an empty ſpace underneath." *Root* annual. *Stems* ſeveral, ſlender, clothed with white hairs, four or five inches long, a little branched, procumbent. *Leaves* alternate, finely divided. *Florets* of the diſk yellow; of the ray very ſhort, egg-ſhaped, white above, reddiſh underneath; peduncles two inches long, terminal, ſlender, naked; calyx-ſcales egg-ſhaped, ſmall, nearly equal. A native of Africa. 18. C. *quinqueloba.* Linn. jun. Supp. 377. Mart. 6. Lam. Enc. 12. (Lidbeckia lobata; Willd. 1. Thunb. Prod. 161. Lanciſia; Gært. Lam. Ill. Pl. 701. fig. 3.) "Stems erect; leaves five-lobed, ſomewhat tomentous." *Stems* rather erect, ſimple, ſomewhat pubeſcent. *Leaves* alternate, petioled, hoary underneath; lobes half-egg-ſhaped, nearly equal, mucronate. *Flowers* the ſize of thoſe of matricaria; peduncles one or two, long, one-flowered, erect; bractes one or two, at a diſtance from the flower, lanceolate, ſmall; calyx-ſcales equal. A native of the Cape of Good Hope. 19. C. *capenſis.* Lam. Encyc. 9. (Matricaria capenſis; Linn. Mant. 115. Willd. 3. M. africana; Berg. 296. Lanciſia; Gært. Chamæmelum leucanthemum; Pluk. Mant. 45. Seb. Muſ. 1. tab. 16. fig. 2.) "Leaves pinnated, ſomewhat fleſhy, tending to cylindrical; the lower ones ſometimes bipinnated." In habit reſembling matricaria chamomilla. *Root* annual. *Stems* ſix or ſeven inches long, numerous, much branched, diffuſe. *Leaves* ſmooth, even-ſurfaced, ſlightly flattened at the midrib, edged with brown or purpliſh cylindrical teeth. *Florets* of the diſk ten or twelve, yellow; of the ray white, ligulate, diſtant from each other, ſomewhat pedicelled, barren; peduncles terminal, rather long, ſtriated, one-flowered; calyx ſcales imbricated, ſlightly ſcarious; receptacle half-egg-ſhaped. A native of the Cape of Good Hope. 20. C. *viſcoſa.* Linn. Sp. Pl. 5. Mart. 7. Lam. Encyc. 10. Willd. 9. (Lanciſia; Gært.) "Leaves lyrate-pinnated." *Stems* ſeven or eight inches long, ſomewhat decumbent. *Leaves* pinnatifid-ſinuated, villous, viſcid. *Florets* of the ray very ſhort, white; receptacle naked, conical. A native of La Vera Cruz. 21. C. *ſtricta.* Linn. Mant. 287. Mart. 3. Lam. Enc. 11. (Lanciſia; Gært. Lam. Ill. Pl 701. fig. 2. Lidbeckia pectinata; Willd. 2. Thund. Prod 161. Berg. Cap. 306. tab. 5. fig. 9.) "Leaves pinnatifid, flat, naked, dotted; ſtem erect, ſtiff." *Root* perennial. Whole plant glaucous. *Stems* nearly erect, weak, three feet high or more, almoſt ſmooth, moſt frequently ſimple. *Leaves* alternate, ſeſſile, oblong, ciliated, ſoft; ſegments obtuſe, with a ſmall point. *Flowers* rather large, terminal, ſolitary; calyx-ſcales in two ranks, lanceolate, acute, equal, ſlightly ciliated. A native of the Cape of Good Hope.

Obſ. Pontedera and Adanſon ſeparated the radiate ſpecies from the reſt, under the generic name lanciſia, and have been followed by Gærtner; though he acknowledges that this is the only difference, and that lanciſia is no other than cotula maſked (larvata) with a ray. He recommends it, however, to future obſervers to examine whether the ſeeds in the other ſpecies have a different form in the diſc and the ray, as he has actually found them in turbinata. La Marck, in the Encyclopedie, had retained all the ſpecies under cotula; but, in his ſubſequent illuſtrations he has adopted the new genus lanciſia, and has figured three ſpecies. Willdenow has referred theſe plants to the lidbeckia of Bergius. But as the ſimple preſence or abſence of a ray does not appear to us ſufficient to conſtitute a generic diſtinction, we have continued the original arrangement of Linnæus, only breaking the genus into two ſections. Commerſon and Juſſieu have made a new genus for C. turbinata, with the following character. Flowers radiate; florets of the diſk four-cleft; of the ray about twenty, ligulate, very ſhort. Calyx top-ſhaped, with an empty ſpace under the receptacle, and a ſhort eight-cleft border. Seeds compreſſed. Receptacle convex. But there is nothing in it inconſiſtent with the generic character of cotula given above.

Cotula *alba;* Linn. See Eclipta *erecta.*

Cotula *bicolor;* Willd. See Grangea.

Cotula *cretica minima;* Tourn. See Anacyclus *creticus.*

Cotula *cuneifolia;* Willd. See Grangea.

Cotula *grandis;* Linn. See Chrysanthemum *floſculoſum.*

Cotula *maderaſpatana;* Willd. See Artemisia *maderaſpatana et grangea.*

Cotula *minima;* Willd. See Artemisia *minima.*

Cotula *non fœtida;* J. Bauh. See Anthemis *arvenſis.*

Cotula *ſpilanthus;* Linn. See Spilanthus *urens.*

Cotula *verbeſina;* Linn. See Laveria *decumbens.*

COTURNICES, in *Ornithology.* See Tetrao.

COTURNIX, the *Quail* of Engliſh writers, and *Caille* of Buffon; a ſpecies of *Tetrao,* which ſee.

COTUY, in *Geography,* a canton and town in the Spaniſh part of the iſland of St. Domingo, bounded E. by the bay of Samana, N. by the chain of mountains called Monte-Chriſt, W. by the territory of la Vega, and S. by the chain of mountains, called Sévico. In the year 1505 gold mines were worked here. In the mountain of Meymm, whence iſſues a river of the ſame name, there is a copper-mine ſo rich, that when the copper is refined it will yield eight *per cent.* of gold. Here are alſo found excellent lapis-lazuli, a ſtreaked chalk, preferred by ſome painters to bole, loadſtone, emeralds, and iron of the beſt quality. The ſoil is excellent, and the plantains are highly commended. The people cultivate tobacco, but are chiefly employed in herding ſwine. The town is ſeated half a league from the S.W. bank of the Yuna, which becomes navigable near this place, about 13 leagues from its mouth in the bay of Samana. It contains about 160 ſcattered houſes, in the middle of a little Savannah, and ſurrounded with woods; 30 leagues N.E. of St. Domingo, and 15 S.E. of St. Yago. N. lat. 19° 11′. W. long. 70° 7′.

COTUZA, in *Ancient Geography, Al-Aleah,* a town of Africa,

Africa, which was ſituated on the brow of a hill between Hippo-Zaritus and Rufcinona. This was the moſt northerly town of Zeugitania.

COTYÆUM, a town of Aſia Minor, in the Greater Phrygia, according to Strabo, Ptolemy, and Pliny.

COTYALIUM, a town of Aſia, towards Pamphylia.

COTYLA, or Cotula, a liquid meaſure in uſe among the ancients, equal to the Roman ſemi-ſextary.

Savot adds, that the Roman cotyla contained twelve ounces of any liquor: upon which principle there muſt have been as many cotylæ as there were liquors ordinarily ſold; which is nothing ſtrange, ſince, in ſeveral countries, we ſtill find meaſures of different capacity, called by the ſame name, when they contain the ſame weights, though under different bulks.

Fannius ſays, the cotyla was the ſame thing with the hemina, which was half a ſextary.

> "At *cotylas*, quas, ſi placeat, dixiſſe licebit
> Heminas, recipit geminas ſextarius unus."

Chorier obſerves, that the cotyla was uſed as a dry meaſure, as well as a liquid one; from the authority of Thucydides, who in one place mentions two cotylæ of wine, and in another two cotylæ of bread.

COTYLE, or Cotyloid Cavity, in *Anatomy*, from κοτυλη, *a cup*, or *meaſure*, is the deep excavation in the os innominatum, which receives the head of the thigh bone. See Skeleton.

COTYLEDON, in *Botany*, (κοτυληδων; Dioſc.: the ſame as κοτυλη, *a cavity;* ſo called becauſe the leaves of ſome ſpecies are hollowed into a kind of baſon.) Linn. Gen. 578. Schreb. 788. Willd. 912. Juſſ. 207. Vent. 3. 275. Claſs and order, *decandria pentagynia*. Nat. Ord. *Succulentæ*, Linn. Vent. *Sempervivæ*, Juſſ.

Gen. Ch. *Cal.* Perianth one-leafed, ſhort, with four or five ſegments or teeth. *Cor.* monopetalous, campanulate or funnel-ſhaped, four or five-cleft. *Stam.* Filaments eight or ten, almoſt the length of the corolla, attached to its tube; anthers erect. *Piſt.* Germs four or five, each of them with four or five nectareous ſcales at the outſide of the baſe; ſtyles the length of the ſtamens; ſtigmas ſimple, curved outwards. *Peric.* Capſules four or five, oblong, inflated, acute, one-celled, one-valved, opening longitudinally at the inner ſide. *Seeds* numerous, ſmall.

Eſſ. Ch. Corolla monopetalous, with four or five nectareous ſcales at the baſe of the germ. Capſules four or five.

* *Flowers five-cleft.*

Sp. 1. C. *orbiculata*. Linn. 1. Mart. 1. Lam. 1. Willd. 1. "Leaves orbiculate, fleſhy, flat, quite entire; ſtem ſhrubby." Linn. "Leaves ovate-ſpatulate, obtuſe with a point, even-ſurfaced; flowers panicled." Hort. Kew. α. "Leaves ovate-ſpatulate; ſtem erect." Hort. Kew. Herm. Lugdb. 349. tab. 341. Moris. Hiſt. 3. 474. tab. 7. fig. 39. β. "Leaves oblong-ſpatulate; ſtem erect." Hort. Kew. γ. Leaves ovate-ſpatulate; ſtem much branched, and divaricate. Hort. Kew. (C. paniculata? Will. 2. Linn. Supp. 242. Thunb. Prod. 83. "Shrubby; leaves oblong-egg-ſhaped, ſeſſile; panicle divaricated, branched.") δ. "Leaves orbiculate-ſpatulate; ſtem erect." Hort. Kew. Bot. Mag. 321. *Root* perennial. *Stem* two or three feet high, often ſhrubby, branched, with a whitiſh bark. *Leaves* oppoſite, fleſhy, glaucous, purple at the edges. *Flowers* campanulate, reddiſh; ſcape a foot long, branched at its extremity. A native of the Cape of Good Hope. 2. C. *faſcicularis*. Willd. 3. Mart. 16. Hort. Kew. 2. p. 106. Burm. Afr. 41. tab. 18. "Leaves wedge-ſhaped, faſcicled, terminal; ſtem thickened; branches fleſhy, ſomewhat conical" *Root* perennial. *Leaves* green. *Flowers* drooping, reflexed. A native of the Cape of Good Hope. 3 C. *cuneata*. Willd. 4. Thunb. Prod. 83. "Leaves wedge-ſhaped, fleſhy, hairy; flowers panicled, hirſute." *Root* perennial. A native of the Cape of Good Hope. 4. C. *ſempervivum*. Non biberſtein; Annals of Botany, 2. 444. "Leaves in globular faſcicles, wedge-ſhaped, entire, ciliate-ſcabrous at the edges; ſcapes radical; panicle oblong, looſe." *Root* perennial, throwing out globes of leaves in the manner of a ſempervivum. *Leaves* numerous, denſely imbricated, broad and ſhort, fleſhy, ſcarcely pubeſcent. *Scapes* quite ſimple, about ſeven inches long, ſlender, ſemi-cylindrical, pubeſcent. *Panicle* terminal, oblong; peduncles alternate, ſhort, two or three-flowered, villous-viſcid; bractes minute, lanceolate, rather obtuſe; calyx villous-viſcid; ſegments lanceolate, the length of the tube of the corolla; corolla ſimilar in colour to ſedum telephium, a little larger; tube adpreſſed to the germs; border rather erect, with oblong acute ſegments; anthers ſmall, globular-didymous, purple; ſtigma very ſmall. A native of the higher mountains in Georgia, between the Terek and the Kur. 5. C. *ſpuria*. Linn. Sp. Pl. 2. Mart. 2. Willd. 5. (C. africana fruteſcens, folio longo et anguſto, flore flaveſcente; Comm. Rar. 23. tab. 23. Burm. Afr. 43. tab. 19. fig. 1. and tab. 22. fig. 1. Sedum africanum, flore hemerocallidis; Moris. Hiſt. 3. 474. tab. 7. fig. 40.) "Leaves ſpatulate-lanceolate, fleſhy, quite entire; ſtem ſhrubby." Linn. "Leaves ſpatulate, obtuſe with a point, naked." Hort. Kew. *Stem* very thick, with obtuſe branches, leafy only at the end. *Leaves* naturally oppoſite, (in monſtrous plants, alternate,) petioled. *Scape* terminal, a foot high, ſomewhat umbelled, divaricated. *Flowers* drooping, yellowiſh; border revolute, ſprinkled within with minute red ſpots; ſtamens a little longer than the tube; anthers red. Linn. Mant. Obſ. La Marck ſuppoſes that Linnæus, under this name, has confined two different plants, which he thus diſtinguiſhes. 1. C. *teretifolia*. C. africana, flore pulcherrimo; Tourn. 90. Moriſ. Hiſt. tab. 7. fig. 40. Pluk. tab. 223. fig. 1. Burm. Afr. tab. 19. fig. 1. Pet. Gaz. tab. 89. fig. 2. "Leaves almoſt cylindrical, fleſhy, obtuſe, narrowed at the baſe; ſtem thick, ſhrubby." *Stem* ſcarcely a foot high, a little branched. *Leaves* the length and thickneſs of a finger, without a coloured border. *Scape* terminal, a foot long, branched into a corymb. *Flowers* very handſome, reddiſh within, drooping; border reflexed. A native of Africa, in rocky and ſandy places near the ſea. This, we apprehend, ſhould retain the Linnæan name. 2. C. *ungulata*. Burm. Afr. 54. tab. 22. fig. 1. "Leaves oblong, fleſhy, ſemi-cylindrical, channelled, with a callous purple border near the tip." *Stem* fleſhy, ſhrubby, about a foot long, and the thickneſs of a finger, marked with the ſcars of fallen leaves. *Leaves* oppoſite, a finger's length, channelled on the inner ſide, convex on the back, greeniſh. *Flowers* red, drooping. 6. C. *purpurea*. Willd. 6. Thunb. Prod. 83. "Leaves linear-oblong, fleſhy, ſmooth; flowers panicled." *Root* perennial. A native of the Cape of Good Hope. 7. C. *teretifolia*. Willd. 7. Thunb. 83. "Leaves fleſhy, nearly cylindrical, hirſute; flowers panicled; ſtem hirſute." *Root* perennial. A native of the Cape of Good Hope. 8. C. *cacaloides*. Mart. 11. Willd. 8. Linn. jun. Supp. Thunb. 83. "Leaves cylindrical; flowers panicled, ſtem ſhrubby." Perennial. *Flowers* yellow. A native of the Cape of Good Hope. 9. C. *reticulata*. Linn. jun. Supp. 242. Mart. 13. Willd. 9. "Leaves cylindrical; flowers reticulate-panicled;

ſtem ſhrubby." Perennial, with the habit of ſtatice reticulata. A native of the Cape of Good Hope. 10. C. *papillaris.* Linn. jun. Supp. 242. Mart. 8. Willd. 10. "Leaves cylindrical-egg-ſhaped; flowers in corymbs." A native of the Cape of Good Hope. 11. C. *mamillaris.* Linn. jun. Supp. 242. Mart. 9. Willd. 11. "Leaves alternate, cylindrical-egg-ſhaped; flowers alternate, nearly ſeſſile." A native of the Cape of Good Hope. 12. C. *tuberculoſa.* Lam. 4. Burm. Afr. 45. tab. 20. fig. 1. "Stem thick, beſet on all ſides with ſemi-globular tubercles; leaves oblong, fleſhy, ſcattered, acute; peduncles and calyxes ſcabrous." β. Burm. Afr. 51. tab. 21. fig. 1. *Root* perennial. *Stem* ſhrubby, fleſhy, cinereous, ſix inches high or more. *Leaves* from the centre of the tubercle, two or three inches long, ſeſſile, almoſt cylindrical, glaucous, erect, a little channelled on the inner ſide; ſcattered, on the trunk; alternate, on the flowering ſtem. *Flowers* large, erect, red. β. Leaves linear, alternate; flowers greeniſh, inflated. A native of Africa, cultivated at Paris. 13. C. *hemiſphærica.* Linn. Sp. Pl. 3. Mart. 4. Lam. 5. Willd. 12. Dill. Elth. 112. tab. 95. fig. 111. "Leaves ſemi-globular." Linn. "Leaves ſomewhat orbicular, dotted with ſcurſ, convex underneath; flowers nearly ſeſſile." Hort. Kew. *Root* perennial. *Stem* ſcarcely a foot high, fleſhy, ſhrubby, curved and twiſted, branched from the bottom. *Leaves* not an inch long, about a quarter of an inch broad, ſcattered or imperfectly oppoſite, convex on the lower ſurface, nearly flat on the upper. *Flowers* greeniſh, with purple tips, in a terminal ſpike. A native of Africa. 14. C. *triflora.* Linn. Supp. 242. Mart. 10. Willd. 13. Thunb. Prod. 85. "Leaves inverſely egg-ſhaped, entire; flowers in a ſpike, nearly ſeſſile, growing by threes." A native of the Cape of Good Hope. 15. C. *coccinea.* Willd. 14. Cavan. Ic. 2. 54. tab. 170. "Leaves inverſely egg-ſhaped, acute, fleſhy; ſpike leafy, terminal." *Flowers* ſeſſile. Native country unknown. 16. C. *ſerrata.* Linn. Sp. Pl. 4. Mart. 5. Lam. 6. Willd. 16. Dill. Elth. 113. tab. 95. fig. 112. (Sedum creticum, ſaxatile latifolium, flore purpuraſcente; Tourn. Cor. 19.) "Leaves oval, crenate; ſtem ſpiked." *Root* biennial. *Stems* ſeveral, ſimple. *Leaves* ſcattered, rather thick, toothed or crenate. *Flowers* reddiſh, in an oblong terminal ſpike, two or three together on the ſame peduncle; corolla divided more than half way down. A native of Candia and Siberia. 17. C. *ſpinoſa.* Linn. Sp. Pl. 5. Mart. 3. Lam. 7. Murray Comm. Gott. 1776. p. 33. tab. 5. (Craſſula; Linn. Mant. 388. Willd. Gmel. Sib. 4. 173. tab. 67. fig. 2.) "Leaves oblong, ſpinous-mucronate; ſtem ſpiked." *Root* perennial. *Stem* not more than a foot high, quite ſimple, leafy from the bottom, about a third of its length, erect, the other two thirds covered with flowers and curved in the form of an S, thick, angular, ſtiff. *Root-leaves* in a roundiſh tuft; ſtem ones irregularly diſpoſed, very near together, glaucous, ſprinkled with ſmall reddiſh dots. *Flowers* whitiſh, ſeſſile; in a long, compound, leafy or bracteate ſpike. A native of Siberia. 18. C. *malacophyllum.* Willd. 15. Pallas It. 3. App. 88. tab. O. fig. 1. "Leaves lanceolate, acute, fleſhy; ſpike cylindrical, terminal, leafleſs." It has the habit of the preceding ſpecies. *Root* annual. A native of the mountains in Dauria. 19. C. *umbilicus.* Venus navelwort. Linn. Sp. Pl. 6. β. Mart. 6. β. Lam. 8. Willd. 17. Eng. Bot. 325. (C. major; Bauh. Pin. 285. Tourn. 90. C. umbilicus veneris; Cluſ. Hiſt. 2. 63. C. vera radice tuberoſa; Rai. Syn. 271. Sedum luteum, folio umbilicato; Moriſ. Hiſt. 3. 470. § 12. tab. 10. fig. 4.) "Leaves peltate, crenate; ſtem ſpiked, nearly ſimple; flowers drooping; bractes entire; root tuberous." *Root* perennial. Whole plant ſucculent, fragile, even-ſurfaced, pale-green. *Stem* from ſeven to ten inches high, erect, cylindrical, ſmooth, leafy, and ſometimes with flowering branches from the baſe. *Root-leaves* numerous, on long petioles, roundiſh, generally umbilicate, concave, crenulate, ſmooth, fleſhy, withering as the ſtem advances. Stem-leaves petioled; lower ones umbilicate-peltate, crenate-repand; upper ones ſmaller, ſcarcely peltate, toothed-crenate; bractes lanceolate, entire. *Flowers* yellowiſh, cluſtered, tubular; border ſlightly divided into five ſhort, mucronate, concave ſegments; ſtamens very ſhort, inſerted in the mouth of the tube. A native of various parts of Europe; abundant in Wales, and ſome of the weſtern counties of England. 20. C. *lutea.* Hudſ. Flor. Ang. p. 194. Willd. 18. Eng. Bot. 1522. (C. umbilicus α; Linn. Sp. Pl. Mart. C. luſitanica; Lam. 9. Ill. Pl. 389. fig. 2. C. radice tuberoſa longa repente; Moriſ. Prælect. 257. Tourn. 90. Dodart Rem. 265. tab. 73. Sedum luteum, radice repente majus; Moriſ. Hiſt. 3. 471.) "Leaves crenate-toothed; the loweſt ſomewhat peltate; ſtem ſpiked, nearly ſimple; flowers erect; bractes toothed; root creeping." *Root* perennial, fleſhy, branched. *Stem* a foot high, erect, reddiſh. *Root-leaves* a little larger than thoſe of the preceding ſpecies, ſcarcely umbilicate. *Stem-leaves* alternate, roundiſh oval, on ſhort petioles. *Flowers* on ſhort peduncles, in a denſe, cylindrical, upright ſpike, bright yellow, divided nearly half way down; ſegments lanceolate, acute. A native of Portugal; and ſuppoſed by Hudſon to be indigenous in England, but, we think, on queſtionable authority. He himſelf ſaw a plant in a garden, ſent from Somerſetſhire. His friend, Tofield, alſo informed him, that it grows wild on walls and in rocky ground, in the Weſt Riding of Yorkſhire; but, though well acquainted with that part of the country, we have not had the good fortune to meet with it, nor has it been found by any other Engliſh botaniſt. 21. C. *hiſpanica.* Linn. Sp. Plan. 8. Mart. 7. Lam. 10. Willd. 23. Loefl. It. tab. 1. (C. africana, ſedi folio; Tourn. 90. C. paluſtris, floribus rubris longioribus. β. brevioribus; Shaw Afr. 177, 178.) "Leaves oblong, nearly cylindrical; flowers faſcicled." *Root* biennial, fibrous. *Stem* ſimple, cylindrical, nearly erect, about five inches high. *Leaves* alternate, rather obtuſe, ſeſſile, ſomewhat hairy, flattiſh above, with duſky red dots. *Flowers* in a terminal corymb; calyx ſhort, deeply divided; corolla funnel-ſhaped; tube an inch long, reddiſh on the outſide, a little hairy; border purple, with flat acute ſegments. A native of Spain, the Levant, and the north of Africa. The herb has the habit of ſedum album. 22. C. *viſcoſa.* Mart. 17. Willd. 24 Vahl. Symb. 2. 51. (C. hiſpida; Lam. 11. C. mucizonia; Orteg. Monogr. Madrit. 1772, with a figure. Jacq. Collec. Supp. 112. tab. 12. fig. 2.) "Leaves cylindrical; racemes terminal, villous-viſcid; ſtem branched." *Root* annual. *Stem* four or five inches high, ſlender, weak, cylindrical, purpliſh towards the bottom, hiſpid. *Leaves* alternate, ſeſſile, fleſhy, glaucous green, generally ſmooth, obtuſe, three or four lines long, reſembling thoſe of ſedum album, but thicker. *Flowers* ſmall, campanulate, white, with reddiſh ſtreaks on the outſide, erect, in a terminal corymb; peduncles one-flowered; ſegments of the calyx expanding, oblong, flattened on the inſide, convex without, hiſpid; corolla only three lines long; lobes of the border obtuſe, expanding; ſtamens a little ſhorter than the corolla; anthers yellow. A native of Spain.

** *Flowers four-cleft.*

23. C. *pinnata.* Lam. 12. "Leaves quinate-pinnated; leaflets inverſely egg-ſhaped; crenatures filament-bearded;

flowers long, drooping. β. crenatures not bearded." A beautiful evergreen plant, about four feet high. *Stem* about the thickneſs of a finger, quadrangular, marked with purple lines and dots. *Leaves* oppoſite; upper ones ſimple, lanceolate, entire. *Flowers* yellow, tubular, an inch and half long, octandrous, in a large terminal panicle; four of the ſtamens a little longer than the others. Diſcovered in the Iſle of France by Sonnerat. 24. C. *laciniata*. Linn. Sp. Pl. 7. Mart. 14. Lam. 13. Willd. 20. (C. afrum, folio laciniato; Boerh. Lugdb. 1. 288. tab. 288. Telephium africanum anguſtiori folio; Pluk. Alm. 362. tab. 228. fig. 2. T. ſempervivum; Petiv. Gaz. tab. 95. n. 384. Planta anatis; Rumph. Amb. 5. 275. tab. 95.) "Leaves laciniated; flowers nearly erect, narrowed at the neck." *Root* perennial. *Stem* a foot and half, or two feet high, cylindrical, ſucculent. *Leaves* oppoſite, fleſhy, laciniated, or deeply pinnatifid, with lanceolate toothed ſegments; upper or bracteal ones entire, linear-lanceolate. *Flowers* yellow, much ſmaller than thoſe of the preceding ſpecies, in a terminal panicle; calyx divided almoſt to the baſe into lanceolate ſegments; lobes of the corolla oval, expanding; ſtamens eight; four larger, with their anthers at the orifice of the tube of the corolla. A native of the Eaſt Indies. 25. C. *lanceolata*. Mart. 18. Willd. 19. Vahl. Symb. 2. 51. Forſk. deſc. 89. "Leaves lanceolate, ſerrated towards the tip; panicle villous." Similar to the preceding in habit, infloreſcence, and the form and colour of the corolla; but differing in the form of the leaves, and in having the ſtem, peduncles, calyxes, and corollas villous. A native of Arabia. 26. C. *alternans*. Mart. 19. Willd. 21. Vahl. Symb. 2. 51. (C. orbiculata; Forſk. cat. arab. 112.) "Leaves orbicular-ſpatulate, quite entire; flowers panicled, ſmooth." Whole plant ſmooth. Partial peduncles alternate, not oppoſite. Corolla reſembling that of C. laciniata, with reddiſh-yellow lanceolate ſegments. A native of Arabia. 27. C. *nudicaulis*. Mart. 15. Willd. 22. Vahl. Symb. 2. 51. (C. Ægyptiaca; Lam. 14. C. integra; Medic. Comm. palat. 3. 200. tab. 9. C. deficiens; Forſk. deſc. 89.) "Leaves roundiſh, concave, obſoletely crenated; flowers erect, in a panicled cyme." *Root* perennial. *Stems* a foot and half high, cylindrical, aſcending. *Leaves* oppoſite, fleſhy, pale green; lower ones roundiſh, concave, entire, ſomewhat petioled; thoſe on the middle of the ſtem egg-ſhaped, and ſlightly crenated; upper ones ſmall, a little ſpatulate. *Flowers* with a reddiſh border, pale on the outſide, ſometimes five-cleft; calyx divided to the baſe. A native of Egypt.

Propagation and Culture.—The African and Eaſt Indian kinds are propagated by planting cuttings in any of the ſummer months, which ſhould be previouſly placed in a dry place for a fortnight or three weeks, that the wounded part may heal, and the redundant ſap evaporate. They thrive beſt in a compoſt conſiſting of one-third of freſh light earth from a paſture, one-third of ſand, and the other third of lime-rubbiſh and rotten tan in equal quantities; theſe ſhould be well mixed, laid in a heap ſix or eight months, turned over five or ſix times, and finally paſſed through a ſcreen. The cuttings ſhould be planted ſeparately in ſmall pots, ſet for about a week in a warm ſhady place, and then plunged into a moderate hot-bed of tanners' bark, where they ſhould be ſhaded from the ſun, and allowed freſh air as often as the weather will permit. In about ſix weeks, or two months, they ſhould be gradually hardened by drawing the pots out of the tan; a week after, they may be removed into the green-houſe, and after another week expoſed to the open air, in a well-ſheltered ſituation, where they may remain till the beginning of October; being allowed only ſo much water as is neceſſary to keep their leaves from ſhrinking. They are beſt kept during winter in an open, airy, dry glaſs caſe, among meſembryanthemums and other tender ſucculent plants, where they may enjoy as much ſunſhine as poſſible; for if kept in a common green-houſe among ſhrubby plants, they are apt to imbibe too much moiſture, often caſt their leaves, and ſometimes entirely periſh. C. laciniata requires a moderate ſtove in winter, and will not bear the open air in our climate during any part of the year. The hardy European ſpecies thrive beſt when ſown upon a wall, or among rock-work, ſimilar to their natural ſituation.

Cotyledon *africana fruteſcens foliis aſpins anguſtis*; Mart. See Crassula *ſcabra*.

Cotyledon *africana fruteſcens flore carneo amplo*; Breyn. See Crassula *coccinea*.

Cotyledon *africana fruteſcens flore umbellato coccineo*; Comm. Bradl. See Crassula *coccinea*.

Cotyledon *altera matthioli*; J. Bauh. See Saxifraga *cuneifolia*.

Cotyledon *altera montana*; Cluſ. See Sempervivum *hirtum*.

Cotyledon *aquatica*; Lob. See Hydrocotyle *vulgaris*.

Cotyledon *aquatica*; Sloan. See Hydrocotyle *umbellata*.

Cotyledon *aut ſedi ſpecies*; Geſn. See Saxifraga *cuneifolia*.

Cotyledon *flore luteo media*; Herm. See Crassula *alternifolia*.

Cotyledon *media et minor foliis ſerratis*; C. Bauh. See Saxifraga *cotyledon*.

Cotyledon *paluſtris*; Dod. See Hydrocotyle *vulgaris*.

Cotyledon *ſtellata*; C. Bauh. See Sedum *ſtellatum*.

COTYLEDONES, the cotyledons, or ſeed-lobes, are a pair of roundiſh or compreſſed bodies, conſtituting the chief bulk of moſt ſeeds, and immediately attached to the embryo. See Corculum. They commonly riſe out of the ground, with the *plumula*, as ſoon as the young root has eſtabliſhed itſelf, and aſſume the appearance and office of leaves, till the real foliage comes forth. Afterwards, ſooner or later, the cotyledons wither and fall off. Their original figure differs widely in different tribes of plants, and much more their form and appearance in a leafy ſtate, when, moreover, they uſually bear no reſemblance to the real leaves of the ſpecies or genus to which they belong. In the lupine they are orbicular; ſmooth and convex below; rugged on the upper-ſide: in the radiſh inverſely heart-ſhaped: in umbelliferous plants long and lanceolate: being in all theſe examples remarkably different in ſhape, texture and ſurface from the leaves of each. The ſame parts in the pea, bean, or vetch family, frequently remain under ground but little altered, the *plumula* being ſent up naked to become the ſtem and leaves of the plant. The ſame thing takes place in the horſe-cheſnut, naſturtium, and *Cyamus Nelumbo*. We preſume ſuch ſubterraneous cotyledons are deſtined to perform the uſual functions of thoſe organs with reſpect to air, but not to light, for being never expoſed to the latter, they never acquire that green colour proper to leaves, which is owing to its action, and which aſcending cotyledons do aſſume. We ſpeak of theſe bodies in the plural, becauſe we doubt very much whether any plant can be ſaid to have a ſolitary cotyledon, unleſs we underſtand as ſuch the *vitellus* of Gærtner, which is moſtly ſimple; if ſo, the latter term becomes ſuperfluous. Some few plants are acknowledged to have more than two cotyledons, as the fir genus, *Pinus*, and its allies; moſſes alſo, hitherto reported to have but one, are now ſhewn by Hedwig to have numerous, as well as compound cotyledons.

The organs in queſtion are not in all caſes confined to the functions of leaves. They are frequently the repoſitory of farinaceous matter, deſtined to be abſorbed into the embryo for its nouriſhment, till the root can furniſh due ſupplies. This is evinced by a ſweet taſte perceptible in the cotyledons of many ſeeds as they begin to germinate. Dr. Darwin ſuppoſes, with great probability, that melon and cucumber ſeeds, if kept long before they be ſown, grow leſs luxuriantly in their herbage, owing to this nutritious farina being partly ſpoiled by keeping. The fact is well known to gardeners, who purpoſely preſerve ſuch ſeeds for ſome years, that the plants may prove more compact and manageable, as well as more abundant in fructification. In many plants this nutritious farina forms a diſtinct body or organ by itſelf, denominated by Gærtner *albumen*, which term not having been explained, in this ſenſe, in the former part of this work, we ſhall mention it here. The bulk of the ſeed in wheat, barley, and all the natural order of graſſes to which they belong, as well as in palms, and many other plants, is made up of the *albumen*, or white, a ſubſtance of a farinaceous, horny, or even ſtony texture. This never riſes out of the ground, but becomes ſoft and even milky, acquiring more or leſs of a ſweet taſte, as ſoon as the proceſs of germination begins. The operation of malting is well known to conſiſt in firſt promoting this proceſs by moiſture, and then ſtopping it by ſuch a degree of heat as deſtroys the vital principle, by which means the ſweet *albumen* is obtained for uſe. See MALT. Plants thus circumſtanced have been named *monocotyledones*, or furniſhed with a ſingle cotyledon; thoſe with two being called *dicotyledones*, and thoſe with more than two *polycotyledones*. It ſeems, however, that the firſt have ſcarcely any cotyledon at all, graſſes and corn indeed having a ſcale only, very diminutive and inconſpicuous, ſituated between their *albumen* and *embryo*, which is the *vitellus* of Gærtner, a part he ſuppoſes to contribute to the nouriſhment of the ſeed. Such an opinion, however, is ſcarcely tenable, when we reflect how amply food is ſupplied by the *albumen*. The writer of the preſent article therefore has firſt preſumed the *vitellus*, in whatever form it preſents itſelf to our notice, to be analogous to a cotyledon, ſo far as air only is concerned; and he further preſumes that many tribes of plants, gueſſed by writers of botanical ſyſtems to be monocotyledonous, and as ſuch making a primary diviſion in their claſſification, are in fact acotyledonous; even graſſes ſcarcely deſerving, on account of the ſlight ſcale or rudiment of a *vitellus* above-mentioned, to be eſteemed monocotyledonous, and certainly not ſo to be denominated from the ſimple form of their *albumen*, according to the hitherto received idea. But whatever may be determined with reſpect to graſſes, it is allowed that palms and lilies have not even the rudiment of a *vitellus*, much leſs any acknowledged cotyledon. Yet theſe two families have ſuch an affinity to graſſes, that future writers on natural orders muſt, ſomehow or other, ſquare their definitions ſo as to arrange them near together; while moſſes, in many points more nearly related to them than to any other plants, muſt, if the cotyledons are to regulate us, be ſent far away. We mean by theſe ſuggeſtions, merely to collect facts; well aware that a natural ſyſtem of arrangement, the great *deſideratum* in botanical philoſophy, is only to be brought in any degree towards perfection by the labour and attention of ages, and that nothing but diſjointed materials can as yet be obtained towards the intended edifice, whoſe plan is yet in embryo. We readily admit that the parts of the ſeed, eſpecially the cotyledons and *albumen*, promiſe the moſt ſtable foundation of this edifice; but they muſt be applied in a different manner to this purpoſe from what they have hitherto been. We are happy to ſee that the great leader in this department of botanical arrangement, Juſſieu, is laudably deſirous to profit of, and to purſue, the remarks and diſcoveries of his eminent fellow-labourer Gærtner. By the co-operation of ſuch minds, ſcience is really advanced, and ſuch only can lend any beneficial aſſiſtance to ſo deep a ſubject. S.

COTYLEDONOIDES; Bradl. See CRASSULA *tetragona*.

COTYLISCUS, or COTYLUS, in *Antiquity*, a veſſel with a narrow mouth, a very wide belly, and only one handle.

COTYLIUM, in *Ancient Geography*, a ſtrong place of Aſia Minor, in Phrygia.

COTYLIUS, a mountain of the Peloponneſus, in Arcadia. Pauſanias ſays, that it was ſituated at the diſtance of 40 ſtadia from the town of Phigalia.

COTYLON, a place of the Peloponneſus in Arcadia, upon mount Cotylius, and above the temple of Apollo. Pauſanias ſays that it had a temple of Venus with her ſtatue, and that in his time it was not covered.

COTYLUS, a hill of Aſia Minor, in Phrygia, according to Strabo; who ſays, that it formed a part of mount Ida, and that the Scamander, the Granicus, and the Æſepus iſſued from it.

COTYNES, a town of Italy, poſſeſſed by the Aborigenes, and taken by the Sabines.

COTYORA, a Greek town and colony, ſituated on the coaſt of the Euxine ſea in the country of the Tibarenians. It is ſaid to have been founded by the inhabitants of Sinope, and that it was their emporium or mart of commerce.

COTYRGA, a town ſituated in the interior of Sicily. Ptolemy.

COTYTTIA, or COTYTTIS, in *Antiquity*, a nocturnal feſtival, in honour of *Cotys*, or *Cotytta*, the goddeſs of wantonneſs. It paſſed from Thrace to Athens, where it was introduced by Alcibiades. This feaſt was obſerved by the Athenians, Corinthians, Chians, Thracians, and others, and celebrated with rites ſuitable to ſuch a goddeſs, who was delighted with nothing ſo much as lewdneſs and debauchery; and the prieſts practiſed all ſorts of effeminacy and meretricious arts. Another feſtival of the ſame name was celebrated in Sicily, in which the worſhippers carried boughs hung with cakes and fruit, which any perſon might pluck off and devour. This laſt is ſaid to have been obſerved in memory of the rape of Proſerpine, who is by ſome thought to be the ſame with Cotytta. The worſhip of this deity was transferred from Greece to Rome. The prieſts were named Baptæ; which ſee.

COTZIANUM, in *Ancient Geography*, a town of Aſia Minor, in Phrygia.

COTZIO, or COZZAT, in *Geography*, a town of Boſnia, on the river Dracia; 104 miles S.W. of Belgrade, and 108 S.E. of Banjaluka.

COVA, a town of Portugal, in the province of Beira; 3 leagues N. E. of Viſeu.

COUA, in *Ornithology*, the name given by Buffon to the CUCULUS *criſtatus* of Gmelin.

COVALAM, in *Botany*. See CRATÆVA *marmelos*.

COUANG-YANG, in *Geography*, a town of Aſia, in the kingdom of Corea; 40 miles S.S.E. of Koang-tcheou.

COUBLANDIA, in *Botany*, Lam. Encyc. Juſſ. 352. Aubl. Guian. 937. tab. 356. Claſs and order, *monadelphia polyandria*. Nat. Ord. *Leguminoſæ*? Juſſ.

Gen. Ch. *Cal.* Perianth one leafed, four toothed, with a ſmall ſcale at the baſe. *Cor.* monopetalous; tube oblong, attached to the lower part of the inſide of the calyx; border with four ſmall diviſions. *Stam.* Filaments more than twenty-five, long, united at the baſe, attached to the bottom of the calyx: anthers yellow, egg-ſhaped. *Piſt.* Germ ſuperior, oblong; ſtyle the length of the ſtamens; ſtigma acute. *Peric.* Legume? elongated, terminated by a point, compoſed of roundiſh knots ſeparated from each other by ſtrongly marked partitions, not opening. *Seeds* ſolitary in each knot.

Sp. C. *fruteſcens*. A ſhrub with the habit of a ſophora. *Stem* five or ſix feet high, much branched near the top. *Leaves* alternate, winged; leaflets five, egg-ſhaped, acute, entire, green, petioled; ſtipules two, ſmall, caducous. *Flowers* white, in axillary and terminal racemes. A native of Cayenne, where it is in flower and fruit almoſt the whole year.

COUCH, in *Gaming*. See BASSET.

COUCH, in *Heraldry*, a term uſed to expreſs a ſhield hanging downwards. The origin of this poſition is ſuppoſed to have been, that the perſons who were to fight in the tournaments, from the time when proclamation was made, till the day of fighting, hung up their ſhields by one corner from the windows of the neighbouring houſes, or on the trees or barriers of the ground; if the tournament was to take place in the fields. The horſe combatants hung up their ſhields by the left corner, and the foot combatants by the right. Some heraldic writers expreſs this poſition by the word *pendant*.

COUCH, in *Malting*. See WET-*couch*.

COUCH, in *Painting*, denotes a lay, or impreſſion of colour, whether in oil or water, wherewith the painter covers his canvas, wall, wainſcot, or other matter to be painted.

The word is alſo uſed for a lay or impreſſion on any thing, to make it more firm and conſiſtent, or to ſcreen it from the weather.

Paintings are covered with a couch of varniſh; a canvas to be painted muſt firſt have two couches of ſize, before the colours be laid; two or three couches of white lead are laid on wood, before the couch of gold be applied: the leather gilders lay a couch of water and whites of eggs, on the leather, before they apply the gold or ſilver leaf.

The gold wire drawers alſo uſe the word couch for the gold or ſilver leaf wherewith they cover the maſs to be gilded or ſilvered, before they draw it through the iron that is to give it its proper thickneſs.

The gilders uſe couch for the quantity of gold or ſilver leaves applied on the metals in gilding or ſilvering. Each couch of gold is but one leaf, or two at moſt, and each of ſilver three, to gild: if the gilding be hatched, there are required from eight to twelve couches; and only three or four, if it be without hatching. To ſilver there are required from four to ten couches, according to the beauty of the work.

COUCH *Graſs*, in *Agriculture*, the name of a plant of the weed kind, the (*triticum repens*,) which is well known to the farmer from the expence, labour, and trouble which it cauſes in many caſes, in removing it from arable lands. It is the peſt of theſe ſorts of ground, in many ſituations, as from its nature and habits of growth it cannot be extirpated without conſiderable difficulty. It has numerous long jointed or knotted creeping roots, which inſinuate themſelves in the ſoil in various directions, and which, after being broken by the plough or harrow, have the property of quickly producing new plants. The ordinary method of deſtroying it is by laying the ground to fallow in a hot dry ſummer, and harrowing it frequently over well, to draw out the roots, every piece of which ſhould then be collected and burnt, or otherwiſe deſtroyed. Where this work is carefully and effectually performed, the ground may be ſo well cleanſed and freed from it in one ſummer, that the remaining roots will not be capable of doing any great injury to the enſuing crop; but the beſt way is probably to ſow the land in which this weed prevails with the ſeeds of ſuch plants as require a frequent application of the horſe-hoeing culture; or with ſuch ſorts as produce plants which are capable of keeping it from growing by their ſhade and great cloſeneſs of ſtems. The blade of this graſs is ſaid by ſome to be ſo rough, that the cattle will not feed upon it when green. Trench-ploughing is recommended by Mr. Young in the Annals of Agriculture, as a proper method to deſtroy couch graſs; where he thinks that by one earthing given deeply with the ſkim-coulter plough, and after that a hoeing ſyſtem on the ſurface, the couch may be converted to a manure.

It is obſerved by the author of the "General view of the Agriculture of the County of Salop," that this weed, which is there termed *ſcutch*, is every where common, to the great expence of the huſbandman. And Mr. Rudge, in the Report of the County of Glouceſter, finds it "a moſt troubleſome and almoſt unconquerable weed on clay lands; on the light lands and loams, he thinks, it may be dragged out, and finiſhed by hand-picking with tolerable eaſe, but that on the ſtiff ſoils, and particularly in the wet furrows, nothing but repeated ploughings and expoſure to the ſun, during the heat of ſummer, can check the increaſe of it: hence, after a wet ſummer, the vale lands, in that diſtrict are, he ſays, generally foul." And he recommends a crop of ſpring vetches, as well ſuited to ſmother and keep it down.

But it has been ſuggeſted by Dr. Withering, on the authority of Mr. Southwell, that though this weed is commonly ſaid to be refuſed by cattle, "at Naples the roots are collected in large quantities and ſold in the market to feed horſes; they have a ſweet taſte, ſomething approaching to that of liquorice; when dried and ground to meal, they have been made into bread in years of ſcarcity. Dogs eat the leaves to excite vomiting." And "horſes eat them when young, but leave them when full grown." "Cows, ſheep, and goats, alſo eat them." It is likewiſe ſuppoſed that from their detergent quality they may be beneficial in the diſeaſed livers of animals; as cattle which have been found to have ſchirrous livers in the winter, ſoon get cured when turned out to graſs in the ſpring.

But though this is ſuppoſed the moſt common ſort of couch or *ſquitch* in garden grounds, Mr. Pitt conſiders the *ſquitch* of arable lands as conſiſting of ſeveral ſpecies of plants beſides the above, as different kinds of Bent graſſes, (the *agroſtis alba*, and *ſtolonifera*,) the tall oat graſs (*avena elatior*,) and the creeping ſoft graſs (*holcus mollis*,) and probably of the roots of ſome other of the hardy perennial graſſes. The ſpreading knotty creeping ſorts of theſe ſeveral plants, "are, he ſays, ſometimes ſo interwoven together, in the ſoil, in land that has been under hard tillage and bad management, as to form a perfect matting, and to choke the plough," that "they abound moſt in light and mixed ſoils, not equally infeſting ſtrong clays." It is conceived, that not one-tenth part of the couch or ſquitch of arable land is produced by the dog's grafs, (*triticum repens*) it being chiefly formed by the agroſtis family of plants, though the particular ſpecies have not yet been fully aſcertained by the agricultural botaniſts. It has been referred by ſome to the *agroſtis capilaris*, by others to the *agroſtis alba*, while others contend that it is the *triticum repens*. On ſtrong or cold wet lands, it is ſuppoſed that the creeping red ſtalked bent graſs, and the creeping ſoft graſs, the (*agroſtis ſtolonifera*, and *holcus mollis*,) are the common couch or ſquitch graſſes, but that on the light gravelly ſoils in Staffordſhire, the tall oat graſs, (*avena elatior*) is a very common couch or ſquitch graſs; the roots of which, it is remarked, "are compoſed of a bunch of bulbs affording ſhelter to pernicious grubs, worms, and inſects;" and that the plant is extremely difficult of extirpation, and highly injurious to the crop, eſpecially in a ſeaſon which is inclined to be wet.

It has been further ſuggeſted that the different plants noticed above, as conſtituting what is underſtood by farmers under the title of couch graſs, though they are found ſo troubleſome in lands under the ſtate of tillage, are probably good meadow graſſes, from their roots not being ſo liable to run and ſpread themſelves there, as in ſuch lands as are pulverized, looſened, and broken down by the operations of the plough.

In different diſtricts the weed, or combination of weeds, which conſtitute the couch graſs of the farmer, is known under different titles, as *twitch-graſs*, *ſquitch-graſs*, *quitch-graſs*, *knot-graſs*, *dog-graſs*; *ſcoutch*, *ſcutch*, *&c.*

COUCH *Graſs-drag*, an uſeful implement of the harrow kind, made uſe of in different diſtricts, for the purpoſe of drawing out and extirpating couch graſs in tillage lands when undergoing the proceſs of ſummer fallowing, or in other circumſtances. The tools of this deſcription are conſiderably different in different inſtances, but the more ſimple the conſtruction the better. It has been ſuggeſted as an improvement in them, to have them formed with a double row of teeth or tines, thoſe of one row being put oppoſite the intervals of the other, by which means the tool is ſaid to be rendered more effective.

A powerful implement of this ſort is ſhewn in *Plate* IX. of *Agriculture*, where *fig* 6, is a ſide view of it when ready for work; *a*. *a*, wheels for conveying it, and regulating its depth in working, being ten inches in diameter, turning on their axles on the under end of upright ſhanks as in caſtors of beds. When to be removed from one field to another, the wheels are to be taken out and reverſed, and the drag turned upſide down; *b*, middle beam to which the horſes are attached, *c*, *c*, *c*, *c*, *c*, the coulters fixed in the beam with nuts and ſcrews, being made of iron, 13 inches long below beams, and one inch and half, by half an inch ſquare, inclining forward, ſo as to form a ſort of ſegment of a circle in order to raiſe the roots to the ſurface; *e*, handle for directing the drag, four feet three inches in length. *Fig*. 7 is a horizontal view of it; in which *a*, *a*, *a*, ſhew the mortice holes that receive the ſhanks of the wheels; *b*, the middle beam ſix feet eight inches in length, and five by four inches ſquare, having a coulter hole near *b*; *c*, *c*, two ſide beams ſix feet nine inches in length, and five by four inches ſquare; each beam having five coulters, placed ſix inches diſtant from each other to the right and left, ſo as to drag every ſix inches, the holes for them being plated with iron on both ſides; *d*, bar, three by one inch ſquare, by which the middle part of the implement is bound together; *e*, iron bolt, by which the foreparts of the ſide beams *c*, *c*, are fixed to the middle beam *b*; *f*, *f*, handles for guiding it; *g*, hind bar four inches ſquare for bracing the three beams together, and receiving the ſhanks of hind wheels; *h*, is another bar three by one inch ſquare; between which bars, the handles are placed by ſquare ſtaples ſo as to put in and take out as may be neceſſary; *i*, *i*, hind wheels ten inches in diameter. *Fig*. 8 is a front view of one of the coulters, the full length before bent to the proper form, being 18 inches below, part going into the beam.

This implement is the invention of the author of the "Treatiſe on Agriculture and Planting," who conſiders it of great utility in clearing land infeſted with weeds of the couch graſs kind, as tearing them up to the ſurface without ploughing the ground, or breaking the roots, and as being capable of doing a large extent, as 15 acres in the courſe of a day, with two men and four horſes. It is conſidered as the proper time for the uſe of this tool, when the couch graſs, after the ſecond ploughing, has been collected by the common harrow. It is recommended that the land ſhould be firſt dragged both ways of the ridges, then harrowing it once or twice, and at the ſame time collecting the weeds as much as poſſible into rows, by the harrows, rolling and afterwards gathering the weeds into heaps by the rake again, in order to their being burnt. And where the ground is much infeſted with theſe weeds, to have recourſe to croſs dragging, afterwards harrowing, collecting, gathering, and burning as before; and in ſome caſes to plough the land a third time; and where theſe weeds appear, to have recourſe to the ſame means again, ſo as to rake the land once or twice before the fourth ploughing. In caſes where the coulters gather much weed, they ſhould be occaſionally cleared, which may be done by one perſon lifting up the ſide of the drag, while another removes it from the coulters by means of one of the handles of the implement.

COUCH *Graſs-rake*, is a ſort of implement of the rake kind conſtructed for the purpoſe of collecting and removing weeds of the couch-graſs kind from land in the ſtate of tillage. In the work mentioned in the preceding article an uſeful tool of this ſort is deſcribed, by means of which and the drag already noticed, the labour and expence of clearing lands from ſuch weeds may be conſiderably abridged and reduced.

At *fig*. 9 in *Plate* IX. of *Agriculture*, is a ſide view of the whole implement in its complete ſtate; *a* is the land wheel, thirty-two inches in diameter, turning on an iron arm one inch and a quarter in diameter, fixed on the end of a wooden axle-tree *b*, in the manner of coaches; the nave of which is ſeven inches in diameter at the thickeſt part, and eight inches long; the fellies two by three inches ſquare, having the ſpokes in proportion; *b* a ſection of the wooden axle-tree, forty-eight inches in length, and five inches ſquare; on the ends of which are two iron arms, on which the land wheels move: *c* is a ſide view of the right hand ſhaft, mortiſed into the axle-tree, where it is about three inches and a half ſquare, being about eight feet in length: *d* is a ſection of the rake head four by three inches and a half ſquare: *e* a ſide view of one of the teeth or tines of the rake, eighteen inches in length below the wood in which it is fixed, and one by three eighths of an inch ſquare next the wood tapering towards the point; *f* the regulating wheel ten inches in diameter, capable of being ſet ſo as to adjuſt the tines to any depth: *g* ſide view of the right ſide handle, fixed to the rake head by ſtaples, being three feet four inches long, and three by two inches in the ſquare: *h* ſide view of the forked iron bar by which the rake head is faſtened to the axle-tree by two bolts; *i* iron bolt or hook in form of L, on which the forked iron bar *h* is hung.

Fig. 10 exhibits a horizontal view of the tool; *a*, *a*, the land wheels; *b* the axle-tree four feet in length; *c*, *c*, ſhafts; *d*, the rake head, ſix feet ſix inches in length, in which are fixed 17 teeth, at four inches diſtance from the centre to the centre of each other : *f, f*, regulating wheels, fixed in the outer mortiſes of the rake head, being made faſt by ſcrews at the ends of it ; which preſſes on the ſhank of the wheel ; *g, g*, handles by which the rake is lifted up and cleaned; *h, h*, forked iron bars hanging on hooks *i, i*, and fixed in the rake head ; *i, i*, iron hooks fixed in the axle-tree ; *k*, wooden bar four feet in length and four by two inches ſquare, for bracing the ſhafts together ; *l, l*, two iron arms for bracing the ſhafts more perfectly, being made faſt to the axle-tree and ſhafts by iron bolts; *m, m*, two pins for fixing the wheels at any required depth. In conveying the implement from place to place, the rake head is raiſed upright and faſtened to the brace *k*.

It is remarked that the beſt ſeaſon for commencing the proceſs of clearing land by this tool, is in the interval between the ſecond and third ſtirrings or ploughings of the fallow. In the execution of the buſineſs the firſt thing to be effected is, the rendering the land fine by harrowing and rolling, when it ſhould be left under the impreſſion of the roller, that the ſurface may be even, and the clods forced down out of the way of the rake. After this it may be raked croſs-ways of the ridges, and when the tool has collected as much of the weeds as it can hold in a perfect manner, the handles ſhould be lifted up high enough by the perſon who directs it, to admit the weeds to drop off from the teeth ; and then proceeding again the rake be dropped juſt beyond the row of weeds which have been brought together ; repeating the ſame as often as the rake becomes full, till the whole is completed at the ſide of the field. Then in returning by the ſide of the raked part, the rake is emptied adjoining the firſt row ; by which means the weeds are left in ſtraight rows lengthways of the lands. After the field has been finiſhed in this manner, the different rows ſhould be collected into heaps, forked over to lighten them, and then burnt. Or, probably, a better method is to incorporate them with lime in its cauſtic ſtate, ſo as to convert them into manure, to be afterwards blended with vegetable mould or other earthy ſubſtances.

It has been hinted that this tool may in ſome caſes be beneficially converted to the purpoſe of raking the hay in meadow lands into what are termed wind-rows, in order to their being made up into large cocks.

COUCHAKAR, in *Geography*, a town of Aſiatic Turkey, on the road from Smyrna to Tocat.

COUCHA-HOTUN, a town of Aſia, in the country of Thibet ; 90 leagues W.S.W. of Turfan.

COUCHAN, a town of Aſia, in the kingdom of Corea ; 85 miles E.N.E. of Ning-ki-tao.

COUCHANT, an heraldic term to expreſs an animal lying cloſe to the ground, having the head erect in order to diſtinguiſh him from an animal *dormant*.

COUCHANT *and Levant*, in *Law*. See LEVANT.

COUCHE', JEAN, in *Biography*, a deſigner and engraver, born at Paris in 1759, was the pupil of the elder Aliamet. Couché has diſtinguiſhed himſelf amongſt his cotemporaries, by a judicious choice of his ſubjects, and a conſiderable degree of merit in the execution of them. In 1786, he undertook to publiſh the celebrated Gallery of the Duke of Orleans, which came out in numbers, the pictures being engraved from the deſigns of Borel by himſelf and other eminent artiſts. The following prints, having no other name than his own, are ſuppoſed to be from the deſigns of Couché.

1. A pair. 1. L'Amour volage. 2. L'Amour quêteur. 2. Four plates. 1. Le chemin de Caſtel en Flandres. 2. Vieux Chateau prés d'Ypres. 3. La Nourrice. 4. Les Baigneuſes. Huber.

COUCHED, in *French Heraldry*, *couché*, ſignified a cheveron placed either to the dexter or ſiniſter ſide of the eſcutcheon, with the point toward the centre.

COUCHER, or COURCHER, in our *Statutes*, is uſed for a factor, or one that continues in ſome place or country for traffic; as formerly in Gaſcoign, for the buying of wines. Anno 37 Edw. III. c. 16.

COUCHER is alſo uſed for the general book, in which any religious houſe or corporation regiſter their particular acts. Anno 3 & 4 Edw. VI. c. 10.

COUCHES, in *Geography*, a ſmall town of France, in the department of Saône and Loire. It is the chief place of a canton, and has 1277 inhabitants. The canton itſelf has ſixteen communes and a territorial extent of 192 kiliometres and a half, with a population of 9802 individuals.

COUCHETOU, a town of Aſia, in the country of Thibet ; 9 leagues E.N.E. of Coucha-hotun.

COU-CHI, a town of China, of the third rank, in the province of Honan : 30 miles E.N.E of Kouang.

COUCHING, in *Agriculture*, a term frequently made uſe of by the older writers on huſbandry to ſignify the operation or proceſs of clearing tillage lands from weeds of the couch-graſs or other kinds. See FALLOW, and FALLOWING *of Land*.

COUCHING *the Cataract*, in *Surgery*, ſignifies the depreſſion of it towards the bottom of the eye : this term ſeems to be derived from the French word *couchant*, lying down. (See the article CATARACT.)

In the article above referred to, the reader will find a detailed account of the different kinds of cataract, the circumſtances under which an operation for its removal may be adviſed, and the modes of extracting it ; alſo a ſhort deſcription of the methods uſed by ſeveral foreign practitioners for the depreſſion of the cataract. But, we purpoſely reſerved ſome obſervations on this latter part of our ſubject for the preſent occaſion ; and therefore ſhall now deſcribe the modes of depreſſing which are followed by Engliſh ſurgeons, eſpecially by a judicious and ſkilful ſurgeon of Leeds, who is a ſtrong advocate for this operation, in preference to extraction. Mr. Ware, Mr. Wathen, Mr. Phipps, and moſt of our other oculiſts, have practiſed extraction rather than the depreſſion. Mr. Pott, indeed, did not altogether adopt the faſhion in this reſpect ; but the ideas of baron de Wenzel have ſo far prevailed in England, as almoſt to explode the depreſſing it from our practice. (Vide Mr. Ware's tranſlation of M. de Wenzel's Treatiſe on the Cataract, ſect. v ; and Mr. Hey's Surgical Obſervations, chap. ii.) Mr. Hey has very fairly and ſenſibly met all the objections of M. de Wenzel againſt this neglected operation, and gives a variety of intereſting caſes to illuſtrate his own practice : he is decidedly of opinion, that couching or depreſſion is both eaſier and ſafer than the common mode of extraction.

When the cryſtalline humour of the eye becomes opake, the central part ſeems always to be the firſt affected. From the centre the opacity extends in all directions towards the circumference, but rarely, if ever, reaches the circumference. For if that were the caſe, unleſs the capſule contained a tranſparent fluid ſurrounding the cryſtalline, a mere opacity of this humour would be ſometimes attended with total blindneſs, which, Mr. Hey believes, never happens without ſome other morbid affection of the eye. The ciliary proceſſes advance on all ſides as far as the circumference of the cryſtalline ; therefore no rays of light can fall upon the retina without paſſing through the cryſtalline.

In the operation of couching, the cryſtalline can only be moved into ſome part of the vitreous humour, different from that in which it is naturally ſituated, unleſs it is brought into the anterior chamber. It cannot be lodged *beneath* the vitreous humour, as a valuable modern author ſpeaks; for that humour is every where in contact with the retina, and fills up the cavity formed by the coats of the eye.

The length of Mr. Hey's needle is ſomewhat leſs than an inch. It would be ſufficiently long if it did not exceed ſeven-eighths of an inch. It is round, except near the point, where it is made flat by grinding two oppoſite ſides. The flat part is ground gradually thinner to the extremity of the needle, which is ſemicircular, and ought to be made as ſharp as a lancet. The flat part extends in length about an eighth of an inch, and its ſides are parallel. From the place where the needle ceaſes to be flat, its diameter gradually increaſes towards the handle. The flat part is one-fortieth of an inch in diameter. The part which is neareſt the handle is one-twentieth of an inch. The handle, which is three inches and a half in length, is made of light wood ſtained black. It is octagonal, and has a little ivory inlaid in the two ſides which correſpond with the edges of the needle.

The needle, made conformably to his directions, will paſs through the ſclerotis with eaſe. It will depreſs a firm cataract readily, and break down the texture of one that is ſoft. If the operator finds it of uſe to bring the point of the needle into the anterior chamber of the eye (which is often the caſe) he may do this with the greateſt ſafety, for the edges of the needle will not wound the iris. In ſhort, if the operator, in the uſe of this needle, does but attend properly to the motions of its point, he will do no unavoidable injury to the eye; and this caution becomes the leſs embarraſſing, as the point does not project beyond that part of the needle by which the depreſſion is made, the extreme part of the needle being uſed for this purpoſe.

We have no certain criteria by which it can be known, previouſly to an operation, whether a cataract is ſoft or hard. Thoſe propoſed for conſideration by Mr. Pott are not to be relied upon. When a cataract is complicated with a complete amauroſis, or a total opacity of the cornea, the removal of the diſeaſed cryſtalline muſt be fruitleſs. But in partial affections of the eyes from theſe complaints, a patient may receive ſuch a degree of ſight from an operation as yields much comfort, though it falls ſhort of diſtinct viſion. An univerſal adheſion of the iris to the capſula of the cryſtalline argues ſuch a morbid ſtate of the eye, that an operation cannot be undertaken without conſiderable doubt reſpecting the event, though the operation is not rendered hereby wholly improper. In this caſe, the iris ſhews no motion upon a ſudden expoſure to light, the pupil uſually remains contracted, and is often irregular in its form. The operation has been done with ſucceſs, where the adheſion was partial, by proceeding with great caution. In this caſe the pupil is contracted and dilated, by varying the degree of light thrown upon the eye. Sometimes when the pupil is circular in a ſtrong light, it will, as being dilated in an obſcure light, aſſume an irregular form, and thereby point out the ſituation and extent of the adheſion.

Though it would be improper to perform the operation of couching when the eye is in a ſtate of inflammation, yet perſons affected with a lippitude (ſee article Lippitude) bear the operation much better than one would expect from the appearance of the eyes in that diſeaſe. Mr. Hey has never rejected a patient on this account, but has repeatedly performed it with ſucceſs, and with very little ſubſequent inflammation, when numerous veſſels of the conjunctiva were turgid with blood, and the eyelids thickened, provided this ſtate of the organ was habitual.

The author does not recommend an operation, if the diſeaſe is confined to one eye, while the ſight of the other eye remains perfect. Nor is he haſty in recommending the operation in caſes of cataract from external injury, as blows, or punctures of the cornea; having been led from experience to form the ſame opinion of the diſeaſe, when originating under ſuch circumſtances, which the late Mr. Pott entertained.

When the cataract is *congenital*, the eyes have often an irregular motion, as if the patient was looking at two diſtinct objects at the ſame time. The operation is rather more difficult in ſuch patients, on account of the unſteadineſs of their eyes; but it may be performed with ſafety, when the patient is ſo far advanced in years as to underſtand the deſign of the operation, and has been taught to deſire it.

The habit of perſons afflicted with cataracts is ſo different, that no general rule can be laid down reſpecting the manner of preparing a patient for the operation. In ſome caſes, the loſs of a little blood may with propriety be added to laxatives, and a ſtrict regimen. In other caſes, there may be ſuch conſtitutional debility as to forbid any evacuation: and, in general, patients need only abſtain from animal food and fermented liquors a few days previous to the operation, or a doſe or two of any gentle purgative may be given.

Before we deſcribe Mr. Hey's mode of operating, we ſubmit to the reader Mr. Pott's anſwer to ſome objections which have been raiſed againſt couching.

The objections made againſt the operation of couching, at leaſt thoſe which have an apparent plauſibility, Mr. Pott obſerves, are reducible to four:

1. That if the cataract be perfectly ſoft, the operation will not be ſucceſsful, from the impoſſibility of accompliſhing the intention of it.

2. That if it be of the mixed kind, partly ſoft, and partly hard, it will alſo moſt probably fail of ſucceſs, not only from the impracticability of depreſſing the ſofter parts, but alſo becauſe the more firm ones will either elude the point of the needle, and remaining in the poſterior chamber, ſtill form a cataract; or getting through the pupil into the anterior chamber, will there bring on pain and inflammation, and induce a neceſſity of dividing the cornea for their diſcharge.

3. That if the cataract be of the firm ſolid kind, and therefore capable of being depreſſed, yet in whatever part of the eye it ſhall happen to be placed, it will there remain undiſſolved, ſolid, and opake; and, although removed from the pupil, yet prove ſome hindrance to perfect viſion.

4. That, however ſucceſsfully the depreſſion may have been accompliſhed, the operation will neceſſarily occaſion ſuch diſarrangement of the internal parts of the eye, as muſt cauſe very conſiderable miſchief.

Mr. Pott obſerves, that theſe objections, if they have any real weight, are of equal force in every ſpecies of cataract; and therefore are the more worthy of our attention; ſince, if they be founded on truth, they render the operation improper; but if they be not, miſrepreſentation and faſhion ſhould never induce us to lay aſide any means which have been, and ſtill may be, advantageous to mankind. The firſt and ſecond, from frequently repeated experience he affirms not to be true. He means that the operation of couching will not neceſſarily, nor even generally, be unſucceſsful, merely becauſe the cataract ſhall happen to be either partially or totally ſoft. On the contrary, although thoſe ſtates will prevent perfect depreſſion, yet, by the judicious uſe of the needle, a recovery of ſight, the true end and aim of the operation, will be as certainly and as perfectly obtained, as it could have been either by depreſſion or by extraction in the ſame ſubject; and that generally without any of the numerous and great inconveniences which moſt frequently attend the latter operation.

The third objection, our author obſerves, is ſpecious, and therefore very generally credited. That it never happens, he will not take upon him to ſay, becauſe ſo many have aſſerted it. But, he adds, when we conſider how few have written from their own examination and experience, our faith will not be quite implicit. He is certain from repeated experience, that this opinion has not that foundation in truth which it is generally ſuppoſed to have; and that it has been haſtily embraced without ſufficient enquiry.

In proſecuting the evidence on this ſubject, Mr. Pott remarks, that when the opake cryſtalline is in a ſtate of diſſolution, or the cataract is what is called perfectly ſoft, if the capſule of it be freely wounded by the couching-needle, the contents would immediately iſſue forth, and mixing with the aqueous humour, will render it more or leſs turbid; ſometimes ſo much as to conceal the point of the needle, and the iris of the eye from the operator.

This is a circumſtance, he continues, which has been obſerved by moſt operators, and has been mentioned by many writers; but it has always been regarded as an unlucky one, and in ſome degree preventive of ſucceſs; which is ſo far from being the fact, that reſpecting this circumſtance merely, all the benefit that can be derived from the moſt ſucceſsful depreſſion, or extraction, moſt frequently attends it, as Mr. Pott has ſeen in numerous inſtances.

The aqueous humour, however turbid it may become, will in a ſhort ſpace of time be again perfectly clear; and if no diſorder of the capſule of the cryſtalline, previous or conſequential, prevents, the rays of light will paſs without obſtruction through the pupil, and the patient will be reſtored to as perfect viſion as could have followed the moſt ſucceſsful operation of either, or of any kind in the ſame ſubject, and under the ſame circumſtances.

When the cataract is of the mixed kind, partly ſoft, and partly hard, the immediate effects of the needle are ſomewhat different; the ſoft part of the cataract being leſs in quantity, as well as generally leſs ſoft; the aqueous humour is leſs turbid; and the firm part or parts of the cryſtalline will be very viſible. In this ſtate, thoſe firmer parts will very frequently elude the attempts made by the needle to depreſs them; and will therefore remain in the poſterior chamber. This is alſo reckoned one of the unfortunate circumſtances; but though to an operator not aware of, nor acquainted with the conſequence, it may have all the appearance of being ſo, yet, as Mr. Pott obſerves, it really is not; the true end and aim of the operation not being thereby neceſſarily fruſtrated. In this caſe, if the needle had been ſo uſed as to have wounded the capſule very ſlightly, it will ſometimes happen that the firm part of the cryſtalline will remain in its nidus, and ſtill form a cataract, which may poſſibly require a re-application of the inſtrument. This, Mr. Pott obſerves, is the worſt that can happen, and occurs indeed very ſeldom. For if the capſule be properly wounded, ſo that the aqueous humour be freely let in, the firm part or parts, though very viſible at firſt, and preventing the paſſage of light through the pupil, will in due time, in ſome longer, in others ſhorter, gradually diſſolve, and at laſt totally diſappear; leaving the eye as fair, as clear, and as fit for viſion as any, the moſt ſucceſsful operation, could have rendered it.

In order to aſcertain the fact with greater certainty, Mr. Pott, when he has found the cataract to be of the mixed kind, has ſometimes not attempted depreſſion; but has contented himſelf with a free laceration of the capſula; and having turned the needle round and round between his finger and thumb, within the body of the cryſtalline, has left all the parts in their natural ſituation. In thoſe caſes he has hardly ever known them fail of diſſolving ſo entirely as not to leave the ſmalleſt veſtige of a cataract. In a few inſtances, where he has had fair opportunity, he has puſhed the firm part through the pupil into the anterior chamber, where it has always gradually and perfectly diſſolved and diſappeared, without producing any pain or trouble during the whole of that time.

Mr. Pott obſerves, that if the remarks above-mentioned be well founded, ſome other important conſequences will reſult from them:

1ſt. If the ſoft cataract will, when its capſula is properly wounded, mix with the aqueous humour, and undergo ſo perfect a diſſolution and abſorption, as to leave the eye fair, clear, and fit for viſion, and which he has often experienced beyond any doubt, it will then follow, that the ſoftneſs of a cataract is ſo far from being an unlucky circumſtance, that it is rather a fortunate one; as it enables the patient to receive the more early aſſiſtance; and that from an operation attended with leſs pain, and a leſs violation of parts, than a firmer one would neceſſarily acquire.

2dly. When the cataract is of the mixed kind, and which therefore frequently baffles all the attempts towards depreſſion, the firmer parts may very ſafely be left for diſſolution, and viſion be thereby reſtored.

3dly. When the cataract ſhall happen to be of the firmer kind, and during an unſucceſsful attempt to depreſs get through the pupil behind the cornea, diſappointment will be ſo far from being the conſequence, that if no other injury has been done to the parts within than what ſuch attempt neceſſarily required, the diſplaced cryſtalline will gradually diſſolve and diſappear; and the patient will recover his viſion as perfectly as he could have done by any operation. We now ſhall deſcribe the beſt mode of depreſſing.

During this operation Mr. Hey directs the patient to be ſeated in a chair ſomewhat lower than that on which the operator ſits, that the arm of the operator may not be much elevated. An elevated poſition of the arm ſoon produces fatigue, and renders the hand leſs ſteady. The eye of the patient ſhould be expoſed to the light of one window only, and that ſhould admit no more light than is neceſſary, for ſeeing the interior parts of the eye diſtinctly. If the patient's head is placed a little obliquely to the light, the picture of the objects reflected by the cornea (which often prevents a diſtinct view of the cataract) is thrown to one ſide of the pupil, and then creates no impediment to the operation. A horizontal light is in this operation preferable to a ſky-light. The head of the patient muſt be kept erect, or inclined a little forward, by an aſſiſtant who places one hand upon the forehead, and another under the chin, ſupporting at the ſame time the occiput by a pillow interpoſed between it and the breaſt of the aſſiſtant. The eye, which is not the immediate ſubject of the operation, ſhould be kept ſteady by a proper bandage, and by a gentle preſſure from that hand of the aſſiſtant which is placed upon the forehead. If a ſpeculum oculi is not uſed, the operator may ſupport the upper eye-lid with the thumb of one hand, and with the ring finger of the other hand, which holds the needle, depreſs the lower eye-lid till he has introduced the needle. After that, it is more convenient to have the lower eye-lid held down by an aſſiſtant. The tarſus ſhould be turned a little inwards, and the eye-lids gently preſſed againſt the edge of the orbit, and the globe of the eye. This gentleman ſays he has found the common ſpeculum oculi to be inconvenient, and has never tried that which is recommended by Mr. Benjamin Bell. The patient ſhould be directed to turn his eye inwards, as if he were looking at his noſe, that the part in which the puncture is to be made may preſent itſelf to the operator, and that the conjunctiva may be put upon the ſtretch. If the conjunctiva remains wrinkled where the needle enters the eye, the operator will find his inſtrument ſo entangled as greatly to impede the regularity of his motions.

The needle being beſmeared with oil, ſhould be puſhed ſuddenly through the coats of the eye. The direction in which this is done is of ſome conſequence, eſpecially if a ſpear-ſhaped couching needle is uſed. The needle ſhould not be puſhed through the ſclerotis in a direction parallel to the iris; for preſſure made in that direction is apt to give a rolling motion to the eye, and thereby alter the courſe of the needle. If the eye be made to roll towards the noſe, the point of the needle will then be directed towards the iris, and the operator will be in danger of wounding it. This danger may be avoided by piercing the ſclerotis with the point of the needle directed towards the centre of the eye. By this method the eye is rendered ſteady, and the needle will paſs through its coats without any danger of wounding either the iris or ciliary proceſs.

When the needle has pierced the coats of the eye, it muſt be puſhed forwards in the ſame direction, till ſo much of the inſtrument is introduced, that its point, when brought forwards, will reach the centre of the cryſtalline. This part of the operation, as we have already obſerved, may be performed with greater exactneſs by the uſe of a ſhort needle. If the length of the needle is little more than the diameter of the eye, the operator will be greatly aſſiſted in judging when the point of his inſtrument has advanced to the axis of the pupil, which correſponds with the centre of the cataract. It is not abſolutely neceſſary that the needle ſhould be introduced at one determinate diſtance behind the ciliary ligament. Indeed, the want of ſteadineſs in the eyes of ſome patients renders this impracticable; but our author conſiders the diſtance of about one-ſixteenth of an inch to be the moſt convenient. The operation may be performed with great eaſe and ſafety, when the needle pierces the ſclerotis near the ciliary ligament.

So far the operation muſt be conducted in the ſame manner, whatever be the ſtate of the cataract. The remaining part of the operation muſt be varied according to the circumſtances of the diſeaſe.

If, in bringing forwards the point of the needle, we perceive the cataract to advance, and dilate the pupil; we then know that the cataract is firm, and that the needle is in contact with its poſterior part. The preſſure uſed in bringing forwards the cataract, ſometimes cauſes the point of the needle to ſink ſo far into the cryſtalline, and to become ſo much entangled in its more tenacious part, that the depreſſion may be completed, though the inſtrument has not been ſeen through the pupil. When, therefore, the appearance which has been mentioned takes place, our author does not perſiſt in bringing forward the point of the needle, leſt the iris ſhould be injured by the too great dilatation of the pupil; but depreſſes the point, at the ſame time that he carries it backwards. If this motion of the needle removes the cataract from its place, the operation is uſually concluded without any farther trouble.

If the cataract does not follow the motion of the needle, he cautiouſly brings forward its point through the ſofter part of the cryſtalline, till he can ſee his inſtrument through the pupil, and then proceeds in his attempts to effect the depreſſion. In theſe attempts he always moves the needle backwards as well as downwards; for the operator ought always to be ſure, that his needle is behind the ciliary proceſſes when he moves it upwards or downwards. Before Mr. Hey withdraws the needle, he uſually elevates its point a little to ſee whether the cataract riſes again when the preſſure is removed. If it does, the preſſure is renewed once or twice, and the needle is then withdrawn. He always endeavours to lodge the cataract below the place where his needle entered the vitreous humour, and withdraws the needle in a direction nearly parallel with the axis of the pupil.

Though Mr. Hey does not think it adviſeable to perſiſt in preſſing an entire cataract into the anterior chamber, when the advance of the cataract cauſes a large dilatation of the pupil; yet after the needle has wounded the capſule, a firm cataract, or at leaſt its nucleus, will ſometimes ſlip through the pupil without the deſign of the operator. This has been conſidered by ſome authors as a diſagreeable circumſtance, and has been ranked amongſt the objections to the operation of couching. On the contrary, it ought to be conſidered as a favourable event, ſince the cataract always diſſolves in the aqueous humour, and finally diſappears without any injury to the eye. This, at leaſt, has been the event in every caſe of the kind, which the author has ſeen. He has ſix or ſeven times ſeen the whole opake nucleus fall into the anterior chamber of the eye, and very frequently ſmall opake portions. Indeed, if the cataract could, in all caſes, be brought into the anterior chamber of the eye, without injury to the iris, it would be the beſt method of performing the operation. But this is not uſually practicable; the ſoftneſs, as well as the bulk of the cataract, preſenting an obſtacle to this proceſs.

If the cryſtalline, or rather its capſule, is found to adhere in part to the iris, great caution ſhould be uſed in our attempts to deſtroy the adheſion; as it is much more ſafe to repeat the operation after a gentle attempt, than by continuing the uſe of force to riſque the danger of an inflammation. It is uſeful in this caſe to lift up the cataract with the needle, as elevation may be ſucceſsful where depreſſion has failed. Mr. Warner ſucceeded at the fourth operation, in deſtroying an adheſion of the iris; and the author has repeated the operation oftener than four times with advantage, rather than incur the hazard of inflammation, which might have left the patient in total blindneſs.

Hitherto the cataract has been conſidered as firm, and capable of bearing the preſſure of the needle; but in the greater number of patients which have fallen under his care, the cataracts have been found ſo ſoft as to permit the needle to paſs through them in all directions. In this ſtate of the diſeaſe, he does nothing more than break down the texture of the cataract, and endeavour to puncture, or tear off, a portion of the capſule, that the aqueous humour may flow in upon the broken cataract. In doing this, it is common to ſee ſome fragments of the cataract fall, through the pupil, into the anterior character of the eye. Mr. Hey is always glad to ſee this take place, as he then knows that there is a paſſage opened for the admiſſion of the aqueous humour, and that thoſe opake fragments, which have paſſed through the pupil, will ſoon diſappear.

Sometimes the cataract is ſo uniformly ſoft, that the paſſage of the needle through it makes no alteration in its appearance. This ſpecies of cataract was conſidered by the late Mr Sharp and Mr. Warner as incurable In this opinion theſe excellent authors were certainly under a miſtake;

for we find that although an uniform ſoftneſs of the cataract may require a more frequent repetition of the operation, it affords no permanent impediment to the cure. Upon repeating the operation in ſuch caſes, Mr. Hey has often found, that the firſt operation had produced more effect than at the time of operating it appeared to produce. The cataract, upon a ſubſequent operation, appears more violent, and irregularly opake. Some portions may now be removed, which before appeared immoveable; ſome fall into the anterior chamber; and the remainder becomes gradually diſſolved in its original ſituation.

When both eyes are affected with a cataract, Mr. Hey uſually operates upon them both at the ſame time; nor has he ſeen any reaſon for diſcontinuing this practice.

That gentleman always operates upon the right eye with his left hand. A ſurgeon may eaſily acquire the power of uſing his left hand in this operation, if he accuſtoms himſelf to bleed with the left hand, whenever a proper opportunity offers.

After the operation, we cover both the eyes, though only one may have been couched, with a broad piece of linen, ſpread with unguentum ceræ, and faſtened to a ribbon tied round the head. The patient's face ſhould not be expoſed to a ſtrong light, nor to the heat of a fire, till the tenderneſs of the eyes is gone off. A ſtrict regimen ſhould be obſerved for a few days; and a gentle laxative may uſually be given with advantage.

When the nature and variety of the parts wounded in couching are conſidered, a perſon not accuſtomed to this operation might reaſonably conclude, that it would uſually be followed by a conſiderable degree of inflammation. Yet we may with truth aſſert, that when it is performed in the manner above deſcribed, the uſual conſequence is nothing more than a tenderneſs of the eye, which goes off by degrees, if the patient uſes the proper cautions. Frequently the eye appears as free from inflammation as it did before the operation, excepting a ſlight redneſs in the conjunctiva, where the puncture was made. Nor is the operation itſelf attended with that degree of pain which one might reaſonably expect. It is commonly ſpoken of by the patient as inconſiderable.

Though the inflammatory affection, which is immediately ſubſequent to the operation, is generally ſlight, yet it muſt be confeſſed, that it is ſometimes conſiderable; and we have alſo obſerved, that the patient's eye is more ſuſceptible of inflammation, from any irregularity, for two or three weeks after the operation. Some of the worſt attacks of inflammation, which Mr. Hey has ſeen, have come on at ſo late a period; when the patient, preſuming upon the comfortable ſtate in which he had found himſelf, has incautiouſly expoſed his eye to a cold blaſt of air, or has caught cold by any other means.

In the caſe of ſubſequent inflammation, Mr. Hey places the greateſt dependance upon the evacuation of blood from ſome branch of the temporal artery. The quantity and frequency of the evacuation muſt be directed by the circumſtances of the caſe; but it ought to be uſed freely, till the inflammation begins to ſubſide. Purgatives, and other cooling remedies ſhould be added. Warm ſoft water, directed in a gentle ſtream acroſs the eye, abates the pain in the acute ſtage of the inflammation. When that has ſomewhat ſubſided, the face, the neck, and head, if not covered with hair, ſhould be frequently waſhed with cold water.

Sometimes, when the eye is not inflamed, the patient feels pain in the forehead, juſt above the eye-brow, which is now and then accompanied with ſickneſs or reaching. This complaint is the moſt effectually relieved by an opiate.

We have ſeen a few inſtances where the eye, upon being examined ſome days after the operation, has appeared to be affected with an amauroſis. The pupil has been found largely dilated, and the patient has had a weak perception of light. We know not how to account ſatisfactorily for this accident, which, as far as we have obſerved, is more alarming than dangerous. In the few caſes of this kind, which have fallen under our notice, bleeding has appeared to relieve the complaint; the iris has, by degrees, regained its contractile power, and the retina has been reſtored to its natural ſenſibility.

It would ſcarcely be neceſſary to mention the riſing again of the cataract, when enumerating the conſequences of the operation, but that ſome good authors have conſidered this as a circumſtance, which affords an important objection to the operation of couching, and renders it fruitleſs. This circumſtance may require a repetition of the operation, but throws no hindrance in the way of the cure.

If the cataract, though riſen again into view, appears detached, ſo as to move ſenſibly and readily in the vitreous humour, with every motion of the head, it will generally, by degrees, ſubſide, and finally diſappear without any farther aſſiſtance.

A frequent and moſt important conſequence of the operation, and one that ſucceeds the method of extraction, as well as that of depreſſion, is an opacity of the capſule of the cryſtalline. This *ſecondary* cataract will appear when no inflammation has ſucceeded the operation. It will ſometimes diſappear by the effect of time, as in caſes of cataract from blows or punctures; but this event is often ſlow, and always uncertain. If time does not remove this diſeaſe, recourſe muſt be had to the needle. When an aperture has been made in the centre of the capſule, at the time of the depreſſion, and remains ſo large as to enable the patient to ſee diſtinctly, the opacity of the ſurrounding part of the capſule need not be regarded. But if any opake portions occupy the axis of the pupil, and do not ſoon ſhow ſome return of tranſparency, it is proper to repeat the operation, for the purpoſe of breaking aſunder, or removing the opake portions.

When portions of the opake capſule hang floating in the poſterior chamber of the eye, it is difficult to pierce, or lay hold of them. The attempt to remove them muſt be made in different directions, yet with great caution, leſt the iris ſhould be injured. Mr. Hey has ſometimes ſucceeded in detaching theſe portions by moving his needle upwards, when the motion downwards has failed to lay hold of them.

When the capſule appears in croſs threads, like net-work, the inſtrument will readily break them aſunder. Sometimes the capſule has a conſiderable degree of elaſticity, and ſprings up again immediately with force after being depreſſed. When fragments of this kind are near the circumference of the cryſtalline, and do not materially interrupt the paſſage of the rays of light, it is the moſt prudent method to leave them, leſt the ciliary proceſſes ſhould be injured by tearing them off.

As the opacity of the capſule, which forms the ſecondary cataract, is uſually diminiſhed in ſome degree by time, it may be well to conſult the inclination of a patient with reſpect to the time and frequency of theſe operations. A labouring man, who has a family to maintain by his work, will not perhaps regard a frequent repetition of the operation, that he may the ſooner return to his labour. Perſons of a higher rank often prefer a delay.

The vitreous humour does not appear to ſuffer the leaſt injury by the paſſage of the needle or cataract through it.

If there was any tendency in this humour to become opake, we ſhould frequently ſee this conſequence enſue from the operation of couching. But no ſuch conſequence, we believe, was ever known to enſue. On the contrary, this humour ſeems to be in as proper ſtate for the tranſmiſſion of light, after the operation, as it was before.

Surgeons, who undertake the operation of couching, ſhould not be induced, by their deſire of completing the cure at one operation, to uſe long continued efforts to depreſs or break down a cataract. By ſuch efforts there is great danger of injuring the eye. It has been too much conſidered as a matter of diſgrace to the operator, if ſight has not been immediately reſtored to the patient. The fear of this diſgrace has probably conſigned many an unhappy ſufferer to irremediable blindneſs.

There is no operation of ſurgery, which may not ſometimes fail of ſucceſs; but couching, when conducted in the manner above deſcribed, ſo rarely fails to reſtore a conſiderable degree of ſight, if the cataract is not complicated with any other morbid affection of the eye, that it cannot be conſidered as attended with *much* uncertainty.

Couching-*needle*. See Needle.

COUCO, or Cuco, in *Geography*, a diſtrict of Africa, under the eaſtern government of the kingdom of Algiers, which derives its name from the mountain at the foot of which the metropolis ſtood, or perhaps from the city itſelf, once the ſeat of a kingdom, magnificent and powerful. It was ſituated, in a triangular form, ſouthward of Algiers and Boujeiah or Bugia, about 36 miles from the former and 20 from the latter, at the foot of the mountain ſurrounded with ſteep rocks, which ſerved it as a ſtrong defence. On the ſummit of this mountain was a great number of farms and villages, both populous and rich; one of which, containing 500 houſes, had a large market every Friday, to which the neighbouring people reſorted in great multitudes. The princes poſſeſſed likewiſe a port on the ſea-coaſt called "Tamagus," between Bugia and Algiers, from which the city carried on a conſiderable trade in hides, wax, and honey, with Marſeilles. The acceſs to it was very difficult and dangerous, through narrow and rugged defiles, that a ſmall number of men might overwhelm an enemy's army with ſtones; and beſides, the city was fortified with ſtrong high walls, on the ſide where it was leaſt inacceſſible. In this flouriſhing condition it continued, under its princes, till the beginning of the 17th century, when the king of Couco, then in alliance with Spain, ceded to it the port of Tamagus, which the Algerines gained poſſeſſion of ſoon after. In order to terminate all intrigues with Spain, they demoliſhed the metropolis, ravaged the adjacent plains, and obliged the inhabitants to flee to the mountains. The Turks, however, have regarded the city and country of Couco, on account of its vicinity to Algiers and the inacceſſibility of its mountains, with ſuſpicion and diſſatiſfaction, becauſe it was a ſure refuge to their enemies and criminals of ſtate; and particularly to ſome of their deys, when they apprehended the diſpleaſure of the Porte, or on any other occaſion when they wanted an aſylum. The Algerines have therefore frequently attempted to reduce the inhabitants to ſubjection. Theſe are diſtinguiſhed by the name of Arabians, Bereberes and Azagues, and they value themſelves on their independence; to the ſecurity of which they have ſacrificed their wealth. From being once the richeſt people of all the inland countries in horſes, cattle, grain, and fruits, and alſo from their manufacture of iron, and of linen and cotton ſtuffs, they are ſunk into extreme indigence, avoiding all commerce with their neighbours, leſt they ſhould excite the jealouſy of the Algerines, and afford a pretence for reducing them to the ſame condition of ſlavery with the other Arabs and Moors of Barbary.

COUCOU, probably the *Couchan* of Du Halde, a ſmall town of Chineſe Tartary on the northern frontiers of the province of Petche-li in China, ſeated on a hill near a river which falls into the Hoan-ho.

Coucou-*thacſac*, a town of Aſia, in the country of Thibet; 4 leagues N. of Cha-te-heou.

COUCOUR-Hotan, a town of Aſia, in the country of Thibet; 70 leagues W. of Turfan.

COUCOURON, a ſmall town of France in the department of the Ardeche, with 927 inhabitants. It is the chief place of a canton which conſiſts of ſix communes, and comprizes a population of 4090 individuals on an extent of 162 kiliometres and a half.

COUCY Le Chateau, or *Coucy le Chatel*, a ſmall town of France in the department of the Aiſne, 15 miles weſt of Laon and 9 miles north of Soiſſons, remarkable for the ruins of a caſtle built by the ancient lords of Coucy, and repaired and enlarged by Lewis Duke of Orleans, brother to Charles VI. king of France. It is the chief place of a canton, contains 800 inhabitants, and muſt not be confounded with *Coucy la Ville*, which is a village two miles diſtant from Coucy le Chateau. The canton itſelf contains 34 communes and 14992 inhabitants, on 275 kiliometres. It was in the old caſtle of Coucy that the celebrated looking glaſs, or mirror manufactory of Saint Gobin, was originally eſtabliſhed in 1691.

COUDOU, in *Zoology*, the *antilope*, *Antelope oreas* of Gmelin, *antilope oryx* of Pallas, *mazame* of Seba, African elk of Kolben, eland and elk antelope of Sparrman, and Indian antilope of Pennant, is an animal of a grey colour; having ſtraight, tapering, ſharp-pointed horns, ſurrounded at the baſe with a ſpiral ridge a the baſe. This animal inhabits India, Congo, and the vicinity of the Cape of Good Hope; found chiefly in the mountainous parts of the country, and living in herds, though the elder males are often ſolitary. They grow very fat, and are eaſily caught, as they cannot run ſwiftly, and often fall down dead during the chace. The coudou is thick in the body, ſtrongly made, and near 5 feet high at the ſhoulder; the head is reddiſh, with a duſky line on each cheek, and a ſtripe of long looſe hairs, on the forehead; the body is of blueiſh-aſh colour, ſometimes white and ſpotted with red and grey; it has a ſhort black mane along the neck and ridge of the back; the tail is duſkiſh, and tufted with black hairs at the end; the females have horns ſimilar to thoſe of the males, and both are made into tobacco-pipes by the Hottentots. The fleſh is fine-grained, very juicy, and reckoned delicious. In this ſpecies the *lachrymal groove* is wanting.

COUDRAS, in *Geography*, a ſmall iſland in the river of St. Lawrence, about 45 miles N.E. of Quebec.

COUDRAY-Saint Germer, a ſmall town of France in the department of the Oiſe, with 488 inhabitants. It is the chief place of a canton which has 19 communes and a population of 10239 individuals, on a territorial extent of 247 kiliometres and a half.

COUDRETTE, Christopher, in *Biography*, a French prieſt, who flouriſhed laſt century, was intimately connected with the fathers of the port royal, in the conteſts which they engaged in with the Jeſuits, and partook in the ſufferings inflicted on the party that was condemned by the bull unigenitus. He was twice impriſoned for the boldneſs with which he avowed his ſentiments. In 1761 he publiſhed, "A General Hiſtory of the Jeſuits;" in 4 vols. 12 mo. to which was added a ſupplement in two others. This was highly eſteemed, and proved to be of conſiderable uſe in the meaſures taken againſt that ſociety. Coudrette died at Paris in 1774, highly reſpected for his zeal and talents, and alſo for the candour which was diſplayed in his writings. Nouv. Dict. Hiſt.

COVE, a ſmall creek or bay, where boats and ſmall veſſels may ride at anchor, ſheltered from the wind and ſea.

Cove, or *Cove of Cork*, a market and poſt town of the county of Cork, Ireland, ſituated on the great iſland facing the entrance of Cork harbour. It was a very wretched place, but it has of late years been much improved. A fine quay has been built and many good houſes. The admiral commanding on the Iriſh ſtation, generally reſides there; and a conſiderable retail trade is carried on to ſupply the ſhips in the harbour. There is a ſmall barrack and a fort which commands the only paſſage for large veſſels to the city of Cork. Oppoſite to this town is the anchorage for men of war, and large veſſels; and here very large fleets are often moored, when collecting for the weſt India convoy. The iſlands of Spike and Hawl Cowlin, which lie nearly oppoſite to Cove, have been fortified. The works on the former are very conſiderable. Cove is 131 miles S.W. from Dublin, and ſeven from Cork.

COVEL, John, in *Biography*, an Engliſh divine born at Hornings-pearth in Suffolk, in 1638, and educated at the grammar-ſchool at Bury. He was admitted into Chriſt's college Cambridge in 1654, where he took his degrees, and was choſen fellow. In the capacity of chaplain to ſir Daniel Harvey he went out in the embaſſy to the Ottoman Porte, where he remained ſeven years. Upon his return he was created doctor in divinity, and was choſen in 1679 lady Margaret's preacher in the Univerſity. He advanced by degrees to ſeveral honourable and lucrative preferments in the church, and in 1708 obtained the office of vice-chancellor to the Univerſity of Cambridge, which he held with much reputation till his death in 1722, having attained to the great age of eighty-four. As an author, his chief work was entitled "Some account of the preſent Greek Church," &c. for which he collected materials while he was reſident at Conſtantinople. The object of this work was to clear up ſome difficulties that occurred in the controverſy between the celebrated Claude and M. Arnauld, doctor of the Sorbonne. By his cotemporaries Dr. Covel was regarded as "a perſon noted for polite and curious learning, ſingular humanity and knowledge of the World." Biog. Britan.

COVELIACÆ, in *Ancient Geography*, a town of Vindelicia, marked in the Peutingerian table.

COVELLIANI *Codices*, in *Biblical Hiſtory*, five MSS. of different parts of the New Teſtament, brought from the Eaſt by John Covell, profeſſor of divinity in the univerſity of Cambridge, which came afterwards into the hands of Harley earl of Oxford, and, with the reſt of the Harleian MSS. into the Britiſh Muſeum. They were collated by Mill. The 1ſt contains the four Goſpels; the 2d is a manuſcript of the Acts, Epiſtles, and Revelation, written in the year 1087; from ſeveral of its very extraordinary readings, it appears to be of no great value:—the 3d has the Acts of the Apoſtles, beginning with chap. i. 11. with all the Epiſtles, and was ſuppoſed by Mill to be 500 years old:—the 4th contains the Acts and Epiſtles, written in a modern hand:—the 5th, called likewiſe *Sinaiticus*, becauſe Covell brought it from mount Sinai, contains the Acts, Epiſtles, and Revelation; but it has been injured, and rendered illegible in many places, by the damp, which has had acceſs to it. It begins with Acts i. 20, and the laſt lines of the book of Revelation are wanting. The 1ſt, 2d, and 4th have been examined by Grieſbach.

COVENANT, in *Law*, the conſent or agreement of two or more parties by deed in writing, ſealed and delivered, to do or omit a direct act; which is a ſpecies of expreſs contract, the violation or breach of which is a civil injury. The perſon who makes the covenant is called the *covenantor*, and he to whom it is made is the *covenantee*.

The remedy for breach of covenant is by a "writ of covenant," which directs the ſheriff to command the defendant generally to keep his covenant with the plaintiff (without ſpecifying the nature of the covenant), or ſhew good cauſe to the contrary: and if he continues refractory, or the covenant is already ſo broken that it cannot now be ſpecifically performed, then the ſubſequent proceedings ſet forth with preciſion the covenant, the breach, and the loſs which has happened thereby; whereupon the jury will give damages in proportion to the injury ſuffered by the plaintiff, and occaſioned by ſuch breach of the defendant's contract.

A covenant ſeems to be much the ſame with a *pactum*, or *conventum*, among the civilians.

Covenant is either in *law* or in *fact*.

Covenant in *law*, is that which the law intends to be made, though it be not expreſſed in words: as, if the leſſor demiſe, and grant a tenement to the leſſee for a certain term: the law intends a covenant on the leſſor's part, that the leſſee ſhall, during the term, quietly enjoy the leaſe againſt all lawful incumbrances. 1 Inſt. 384.

Covenant *in fact*, is that which is expreſsly agreed between the parties, and inſerted in the deed.

There is alſo a covenant *merely perſonal*, and a covenant *real*. Fitzherbert defines a covenant *real* to be that whereby a man ties himſelf to paſs a thing real, as lands or tenements, or to levy a fine on lands, &c. Covenant *merely perſonal*, is where a man covenants with another by deed to build him a houſe, or to ſerve him, &c. F. N. B. 145. 5 Rep. 10.

The covenant *real*, to convey or diſpoſe of lands, ſeems to be partly of a perſonal, and partly of a real nature. For this the remedy is by a ſpecial writ of covenant, for a ſpecific performance of the contract, concerning certain lands particularly deſcribed in the writ. It therefore directs the ſheriff to command the defendant, here called the deforciant, to keep the covenant made between the plaintiff and him concerning the identical lands in queſtion: and it is upon this proceſs that fines of land are uſually levied at common law; the plaintiff, or perſon to whom the fine is levied, bringing a writ of covenant, in which he ſuggeſts ſome agreement to have been made between him and the deforciant, touching thoſe particular lands, for the completion of which he brings his action. And for the end of this ſuppoſed difference, the fine or *finalis concordia* is made, whereby the deforciant (now called the cognizor) acknowledges the tenements to be the right of the plaintiff, now called the cognizee. And moreover, as leaſes for years were formerly conſidered only as contracts or covenants for the enjoyment of the rents and profits, and not as the conveyance of any real intereſt in the land, the ancient remedy for the leſſee, if ejected, was by writ of covenant againſt the leſſor, to recover the term (if in being) and damages, in caſe the ouſter was committed by the leſſor himſelf; or, if the term was expired, or the ouſter was committed by a ſtranger, claiming by an older title, then to recover damages only. No perſon could at common law take advantage of any covenant or condition, except ſuch as were parties or privies thereto; and, of courſe, no grantee or aſſignee of any reverſion or rent. To remedy which, and more effectually to ſecure to the king's grantees the ſpoils of the monaſteries then newly diſſolved, the ſtatute 32 Hen. VIII. c. 34. gives the aſſignee of a reverſion (after notice of ſuch aſſignment) the ſame remedies againſt the particular tenant, by entry or action, for waſte or other forfeitures, non-payment of rent, and non-performance of conditions, covenants, and agreements, as the aſſignor himſelf might have had: and makes him equally liable, on the other hand, for acts agreed to be performed by the aſſignor, except in the caſe of warranty. Blackſt. Com. vol. iii.

Covenants are not only *perſonal* and *real;* but they are likewiſe *inherent*, tending to the ſupport of the land or the thing granted, or *collateral* to it; and they are *affirmative* where ſomewhat is to be performed, or *negative; executed*, of what is already done, or *executory*:—a covenant binding a perſon to do ſomething in *futuro* is for the moſt part executory (1 Vent. 176. Dyer, 112, 271.) The law does not ſeem to have appropriated any ſet form of words, as abſolutely neceſſary to be uſed in creating a covenant; and therefore it ſeems that any words, expreſſing the party's concurrence to the performance of a future act, will be effectual for that purpoſe. A covenant differs from a condition in this reſpect, that a condition gives entry, and covenant gives an action only. (Owen 54.) A perſon cannot have action of covenant upon a verbal agreement, for it cannot be grounded without writing, except by ſpecial cuſtom. (F.N.B. 145.) All covenants between perſons muſt be to do that which is lawful; otherwiſe, they will not be binding: and if the thing to be done be impoſſible, the covenant is void. (Dyer 112.)

COVENANT *to ſtand ſeiſed to uſes*, is when a man that hath a wife, children, brother, ſiſter, or kindred, doth by covenant in writing under hand and ſeal, agree that for their or any of their proviſion or preferment, he and his heirs will ſtand ſeiſed of land to their uſe, either in fee-ſimple, fee-tail, or for life. The uſe being created by the ſtat. 27 Hen. VIII. c. 10. which conveyeth the eſtate as the uſes are directed; this *covenant to ſtand ſeiſed* is become a conveyance of the land ſince the ſaid ſtatute. The conſiderations of theſe deeds are, natural affection, marriage, &c. and the law allows in ſuch caſes conſiderations of blood and marriage to raiſe uſes, as well as money and other valuable conſideration when a uſe is to a ſtranger. Plowd. 302.

COVENANT, in *Eccleſiaſtical Hiſtory*, denotes a contract or convention agreed to by the Scots, in the year 1638, for maintaining their religion free from innovation. In 1581, the general aſſembly of Scotland drew up a confeſſion of faith, or national *covenant*, forming a ſyſtem of diſcipline or eccleſiaſtical polity, and condemning epiſcopal government, under the name of Hierarchy. In 1588, during the apprehenſion of an invaſion by the Spaniſh armada, a bond was framed for the maintenance of true religion, and the defence of the king's perſon and government, in oppoſition to all enemies foreign and domeſtic. This contained a confeſſion of the Proteſtant faith, a particular renunciation of the errors of popery, and the moſt ſolemn promiſes, in the name, and through the ſtrength, of God, of adhering to each other in ſupporting the former, and contending againſt the latter, to the utmoſt of their power. The king, the nobles, the clergy, and the people ſubſcribed with equal alacrity. This national covenant in defence of religion was renewed at different times during the reign of James. It was revived with great ſolemnity, though with conſiderable alterations, in the year 1638. The ſubſcribers engaged by oath to maintain religion in the ſame ſtate as it was in 1580, and to reject all innovations introduced ſince that time. This oath annexed to the confeſſion of faith received the name of the *covenant*; as thoſe who ſubſcribed it were called Covenanters. In the aſſembly at Glaſgow which met in 1638, the covenant was ordered to be ſigned by every one, under pain of excommunication. See *Solemn League and* COVENANT.

COVENANT, in *Theology*, is much uſed in connection with other terms. Thus, the *covenant of grace* is that which is made between God and thoſe who believe the Goſpel, whereby they declare their ſubjection to him, and he declares his acceptance of them and favour to them. The Goſpel is ſometimes denominated a *covenant of grace*, in oppoſition to the Moſaic law. The covenant of grace, denoting the promiſe or grant of favours and bleſſings to mankind in Jeſus Chriſt, our Lord, was firſt publiſhed to Adam (Gen. iii. 15); nor could it be wholly unknown to the patriarchs; but it was more clearly revealed to Abraham (Gen. xii. 3. xvii. 7. xviii. 18. xxii. 16, 17, 18.); and hence it has been ſometimes called the "Abrahamic covenant."

Covenant of redemption denotes a mutual ſtipulation, tacit or expreſs, between Chriſt and the Father, relating to the redemption of ſinners by him, previous to any act on Chriſt's part under the character of Mediator. By this covenant, it is ſaid, Chriſt undertook to perform thoſe ſervices, to ſubmit to that humiliation, and to endure thoſe ſufferings, which were indiſpenſible on his part in the accompliſhment of the work aſſigned him; and God the Father, on the other hand, ſtipulated, that he would impart thoſe aſſiſtances and encouragements, and beſtow thoſe tokens of favour and reward, which were neceſſary to the ultimate ſucceſs and honour of Chriſt's undertaking. See REDEMPTION.

Covenant of works ſignifies, in the language of ſome divines, any covenant whereby God requires perfect obedience from his creatures, in ſuch a manner as to make no expreſs proviſion for the pardon of offences to be committed againſt the precepts of it, on the repentance of ſuch ſuppoſed offenders, but pronounces a ſentence of death upon them: ſuch, they ſay, was the covenant made with Adam in a ſtate of innocence, and that made with Iſrael at Mount Sinai.

It is alſo alleged, that ſo far as the light of nature reaches in diſcovering our duty, we are *all* ſo born under ſuch a covenant as the former, as by ſin to be expoſed to death; which may be conſidered as including not merely the ſeparation of ſoul and body, and the conſequent diſſolution of the mortal part; but likewiſe ſuch degrees of future puniſhment as it ſhall ſeem to the Supreme Judge righteous and fit to inflict. Hence it has been inferred, that the covenant was made with Adam, not only for himſelf, but in ſome meaſure for his poſterity; ſo that he was to be conſidered as the great federal head and repreſentative of all who were to deſcend from him. And it has been ſuggeſted that, in conſequence of this damage to which Adam's poſterity were to become liable by his tranſgreſſion, they would have received ſome additional advantages from his continued obedience: ſuch, it may be conceived, though not mentioned in ſcripture, as would ſecure the honours of divine juſtice in the eſtabliſhment of ſuch a conſtitution. Accordingly, it has been aſſerted, that all Adam's poſterity would, after his ſhort trial, have been confirmed in a ſtate of immutable happineſs.

In order to ſhew that a conſtitution, ſuch as that which ſome divines have ſuppoſed to be the covenant with Adam, whereby all mankind ſhould become obnoxious to eternal miſery for the tranſgreſſion of one common head, is conſiſtent with divine juſtice; many have pleaded, that in conſequence of ſuch an appointment, we ſtood ſo fair a chance for happineſs, that if we had then exiſted, and the propoſal had been made to us, we muſt in reaſon have been contented to put our eternal all on that iſſue: ſo that God might reaſonably impute that to us *as our act*, which he knew *would have been* our act, if we had been conſulted on the occaſion. But nothing would ſeem ſufficient to vindicate ſuch a proceeding, unleſs it were to ſuppoſe (as an obſcure writer has done), that the ſouls of all the race of Adam were for that moment actually brought into being, and gave perſonal conſent to that covenant, after which they were reduced to a ſtate of inſenſibility, till the appointed moment came for their animating their reſpective bodies. See Sale's Koran, c. vii. p. 135. *note e.* Howe's Works, vol. ii. p. 253, 254. See Fall, Imputation, and Original Sin.

Covenant, *Solemn League and*, was eſtabliſhed in the year 1643, at Edinburgh by the perſuaſion of ſir Henry Vane, and formed a bond of union between Scotland and England. It was ſworn and ſubſcribed by many in both nations, who hereby ſolemnly abjured, and engaged to extirpate popery and prelacy, and combined together for their mutual defence. The ſubſcribers of the covenant vowed alſo to preſerve the reformed religion eſtabliſhed in the church of Scotland; but, by the artifice of Vane, no declaration more explicit was made with regard to England and Ireland, than that theſe kingdoms ſhould be reformed, according to the word of God, and the example of the pureſt churches. It was approved by the parliament and aſſembly at Weſtminſter, and ratified by the general aſſembly of Scotland in 1645. King Charles I. diſapproved of it when he ſurrendered himſelf to the Scots army in 1646: but Charles II. in 1650 declared his approbation both of this and the national covenant by a ſolemn oath; and in Auguſt of the ſame year, made a farther declaration at Dumferling to the ſame purpoſe, which was alſo renewed on occaſion of his coronation at Scone in 1651. The covenant was ratified by parliament in this year, and the ſubſcription of it required by every member, without which the conſtitution of the parliament was declared null and void. It produced a ſeries of diſtractions in the ſubſequent hiſtory of that country, and was voted illegal by parliament, and proviſion made againſt it. Stat. 14 Car. II. c. 4. It was ordered by parliament to be burnt by the hands of the common hangman, and the people aſſiſted with great alacrity on the occaſion.

Covenant, *Suit.* See Suit

Covenant, *Ark of the.* See Ark.

COVENT-Garden. St. Paul's church in this pariſh has often been noticed for the boldneſs and excellence of the carpentry diſplayed in its roof: which was a few years ago deſtroyed by a fire that accidentally happened, but has again been rebuilt on its former plan. The Tuſcan portico to this church, being reckoned as a model of good architectural taſte, we have repreſented it as a ſpecimen of that order, in *Plate* XIV. of *Architecture.*

COVENTRY, in *Geography*, a city in Warwickſhire, England. It is ſituated on a gentle eminence, and according to Camden "is ſet on a low ground, but by eaſt it ſomewhat condeſcendeth." The city having never ſuffered from fire, ſtill bears ſtrong marks of antiquity in its narrow dark ſtreets, and impending buildings, ſome of which almoſt meet each other from the oppoſite ſides of the way, through the extravagant projection of their different ſtories. Dugdale and other antiquaries agree in deriving Coventry from *Coven* or Convent, with the addition of *Tre*, the Britiſh word ſignifying town; and yet the learned hiſtorian of Warwickſhire ſuggeſts doubts whether the *original* name of the river Sherburn that paſſes through the city might not have been *Cune*, and thence *Cune-tre* and Coventry. The origin of the place appears to be involved in impenetrable obſcurity, but it is certain that the preſent ſite is not altogether that of *ancient* Coventry, which is demonſtrated by the diſcovery of many foundations on the bank, north-weſt of the city, where there is a place ſtill called St. Nicholas' church-yard. The Convent above alluded to is ſaid by John Rous in his MS. chronicle (preſerved in the Cotton library and printed by Hearne) to have been at one time under the governance of the Abbeſs *Saint* Oſburg, but as this holy virgin's name does not appear in Capgrave's calendar of Engliſh Saints, we muſt reject this part of his aſſertion and admit that the Convent was burnt in 1016, when Canute and the traitor Edric invaded Mercia and deſtroyed many towns in Warwickſhire; on the ruins thus occaſioned, Leofric, earl of Mercia, founded a new monaſtery in 1043 for an abbot and 24 Benedictine monks, which William of Malmſbury ſays was afterwards "enriched and beautified with ſo much gold and ſilver that the walls ſeemed too narrow to contain it, inſomuch that Robert de Limeſie, biſhop of this dioceſe in the time of king William Rufus, ſcraped from one beam that ſupported the ſhrines 500 marks of ſilver." We ſhall be the more particular in noticing the "Priory of Coventry as it is acknowledged to have been of infinite uſe to the city during its proſperity." Leofric dedicated the church and monaſtery to the honour of God, the Virgin Mary, St. Peter the Apoſtle, and All Saints, and preſented it with one half of the town of Coventry, and 23 lordſhips, which gifts were confirmed by king Edward the Confeſſor, who granted the abbot and monks many valuable privileges afterwards increaſed by pope Alexander, and the ſucceeding kings of England. Dugdale ſpeaks of this foundation in his hiſtory of Warwickſhire as "the chief of all the religious houſes in theſe parts," and as "the only one of Monks in this county." It appears that Leofric had a caſtle at Coventry, and that he had been inſtrumental in placing Edward the Confeſſor on the throne; theſe facts ſufficiently account for the intereſt he took in the proſperity of the place, and for the influence by which he accompliſhed his wiſhes; but if our ancient hiſtorians are to be credited, he held the inhabitants in unjuſtifiable ſervitude from which they were relieved by the following means. Leofric married the pious and beautiful Godeva, deſcended from Thorold, and ſiſter of Thorold, ſheriffs of Lincolnſhire. This lady moved by the oppreſſions of her lord's tenants ſeized on every opportunity to intercede in their favour, till wearied by her inceſſant importunity, he peeviſhly offered to grant her requeſts provided ſhe would conſent to ride naked through the town: Dugdale ſays in "ſight of all the people." Godeva agreed to this indecent propoſal, and contrived to accompliſh her unpleaſant penance, covered by her flowing treſſes; and thus obtained a charter of freedom for the grateful citizens who placed portraits of the earl and Godeva in one of the ſouth windows of Trinity church about the time of Richard II.; Leofric was repreſented holding the charter in his right hand with this inſcription on it:

"I, Luriche, for the love of thee
"Doe make Coventre toll free."

Some authors aſſert that Leofric repenting his raſh propoſal, commanded every perſon to retire from the ſtreets and the fronts of their houſes during the lady's progreſs, under pain of death, but that one curious perſon procured a glance which has obtained him the appellation of "Peeping Tom of Coventry," and the honour of a ſtatue looking out of a window in one of the ſtreets of the city: Dr. Pegge, however, produces many arguments to invalidate the whole ſtory. Theſe are inſerted in Mr. Gough's edition of Camden's Britannia, to prove that the preſent annual proceſſion of the inhabitants with a naked figure is founded on hiſtorical error. Contrary to ſubſequent cuſtom, Leofric and Godeva were interred in the *two porches* of their monaſtic church, to which the latter gave vaſt treaſures by will. Previous to the conqueſt, the dioceſe of Litchfield and Coventry included Cheſter; after that event, a ſynod held at London, by Lanfranc, archbiſhop of Canterbury, decreed that no epiſcopal ſeats ſhould be fixed at inconſiderable towns; in conſequence there was a tranſfer from Litchfield to Cheſter, and hence through the influence of Robert de Limeſey, biſhop of this ſee, who obtained the cuſtody of Leoſric's monaſtery from William Ruſus, and the authority of a bull from pope Paſchal II. the epiſcopal ſeat was again removed from Cheſter to Coventry, where the office of abbot became utterly ſuppreſſed. The biſhop's palace was ſituated at the north-eaſt corner of St. Michael's church-yard, but not a veſtige of it now remains; five of Limeſey's ſucceſſors ſtyled themſelves *biſhops of Coventry*, and the priors of St. Mary's received ſummons to parliament. In the reign of king Stephen the monks ſuffered (in addition to their loſſes by the peculations of Limeſey) the misfortune of having their church and other buildings converted into fortifications, and themſelves ejected by Robert Marmion, a powerful chief, then poſſeſſor of Tamworth caſtle, in the progreſs of his hoſtilities againſt the earl of Cheſter; but they were ſoon afterwards releaſed from their intruder by the enſuing ſingular accident: Marmion had ſurrounded his new fortreſs with ſecret pit-falls to deſtroy his opponents, but, making a ſortie at the head of his garriſon, his horſe fell with him into one of them in the hurry and confuſion of the moment, where he was immediately killed by a ſoldier belonging to the earl of Cheſter's army. According to an inquiſition quoted by Dugdale, taken about the reign of Edward I., this priory had the firſt voice in electing the biſhop of the dioceſe of Coventry and Litchfield; the prior was lord of the town, holding a moiety, with the whole barony, of the king in *capite* by the ſervice of two knights fees in the army, beſides which he alſo held the earl's part; with the former he had a market weekly, and an annual fair of eight days duration, a coroner, and free warren in all his demeſne lands, and "being priviledged of murder, had gallows, pillory, tumbrel, aſſiſe of bread and beer; as alſo fealty of his burghers, and appearances at his court twice in the year." It will appear from this inquiſition that Coventry was in a double ſenſe completely in the power of the priory; as the biſhop of the dioceſe poſſeſſed the abbacy, all eccleſiaſtical affairs came under the cognizance of the biſhop, the prior, and chapter collectively, and every temporal concern has been ſhewn to have been within their juriſdiction. That the city flouriſhed under their government, may be inferred by the decreaſe of the population immediately after the diſſolution of the priory, 30 Henry VIII. when the annual value was eſtimated at 731l. 19s. 5d. John Hales, whoſe memory is ſtill revered by the citizens, repreſented to the protector Somerſet, that the inhabitants were reduced from 15,000 to 3,000 by the above event, but this ſtatement was incorrect, as the population amounted to 7,000 in 1520, as appears from an exact enumeration taken at that period and recorded in the city leet book. Nothing now remains of this important priory, except ſome fragments of one of the towers of the church, and a ſmall portion of the cells. The temporal hiſtory of Coventry may be traced with tolerable certainty from the reign of king Stephen, when Ranulph, otherwiſe *Gernons*, hereditary poſſeſſor of the manor of Cheyleſmore, on the ſouth ſide of the town, where the caſtle of the earls was ſituated, having adopted the cauſe of the empreſs Maud, and being repulſed in an attempt upon Lincoln, retired to his manſion; but, finding it in the king's poſſeſſion, he raiſed works againſt it, and, after various conflicts, was driven from it wounded. Ranulph died under ſentence of excommunication for ſome offence committed againſt Durdent, biſhop of Cheſter, and was ſucceeded by his ſon, earl Hugh, who, adopting his father's principles, excited the citizens of Coventry to rebel againſt Henry II. for which that monarch fined them, and deprived them of their privileges; but they recovered the latter after the death of earl Hugh, by paying the king 20 marks. Ranulph, the laſt earl of the name, granted the citizens their poſſeſſions in free burgage, and a town-court, where he permitted them to try cauſes, relative to himſelf and them, before a perſon learned in the laws, of their own appointment. This grant was enlarged and confirmed by Henry III., who added a fair for eight days, on the feaſt of the Holy Trinity, at the earl's requeſt: beſides theſe important advantages they received others of great benefit to the city. The burgeſſes and inhabitants obtained the king's letters patent, 13 Ed. I., authoriſing them to take toll of all commodities offered for ſale for three years, the produce to be applied in paving the town; but theſe letters were renewed 20 years after; and from thoſe addreſſed to the *bailiff*, it appears the appointment of that officer had originated between the 13 and 33 of Edw. I. In the ſecond year of Edward III. the priory and inhabitants procured a patent for ſix years' toll, the produce to be expended in walling Coventry, to which were added two years more, at the interceſſion of John of Eltham, who then had an eſtate in reverſion in the manor of Cheyleſmore, on condition he might be exempted from the expence of erecting the gates. Six years afterwards, they had licence to make conduits throughout the town; and ſubſequently they purchaſed an exemption from toll, ſcavage, pontage, and murage, throughout the kingdom for ten marks. Queen Iſabel, poſſeſſing a life eſtate in the manor, and influenced by the intereſt veſted in Edward, prince of Wales, duke of Cornwall, and earl of Cheſter, prevailed upon Edward III., in the 18th year of his reign, to make Coventry a corporation, to conſiſt of a mayor, bailiffs, &c.; at the ſame time authoriſing them to erect a priſon in the queen's portion of the town, for the confinement and puniſhment of malefactors who were thus placed in their cuſtody. Richard Stoke, mayor, laid the firſt ſtone of the walls at New-gate, in 1355; but the money raiſed by toll for this purpoſe was afterwards augmented by heavy taxes on the laity only, to build a wall of ſtone embattled, for which they had a licence from Edward, the Black Prince, 37 Edward III., who granted the corporation a fee farm of the place. Numerous privileges were beſtowed at this period, which enabled the citizens to erect a moſt admirable incloſure to the town, and many magnificent gates. In the 21ſt year of Richard II., that monarch viſited Coventry, in order to prevent the intended combat between Henry, duke of Hereford, and John, duke of Norfolk; and in 1404, Henry IV. held a parliament there, from which all lawyers or perſons learned in the law were expreſsly excluded: this *parliamentum indoctorum* was held in the priory. In the preceding reign, ſeveral wealthy citizens preſented the corporation with meſſuages and rents to ſupport the future expences of that body; but the moſt valuable gift the place had ever received, was the charter of Henry VI., who erected it into a diſtinct county, under the title of the county of the city of Coventry. This charter, which ordains the offices peculiar to this deſcription of diſtrict, was confirmed by Edward IV. Another parliament held there in the reign of Henry VI. was called *Parliamentum diabolicum* by ſome of our hiſtorians, from the numerous attainders paſſed in it. The earl of Warwick afterwards held the city for Henry VI.; and Edward IV., thinking it would be too well defended for ſpeedy reduction, paſſed on to London. When the kingdom ſubmitted to him after the battle of Barnet, and the death of Warwick there, Coventry was disfranchiſed; nor did the corporation receive their privileges again, till they had been purchaſed with 500 marks. Edward IV. viſited the city in 1474 with his queen; and Henry VII. ſlept at the mayor's houſe, when paſſing through the place, ſubſequent to the battle of Boſworth-field. Great part of the wall, the majority of the 32 towers, and ſeveral of the 12 gates of Coventry, were taken down in 1661, as a puniſhment and diſgrace to the citizens for cloſing the latter againſt Charles I. Aug. 13, 1642. Previous to the period when Coventry was garriſoned by parliament, Charles requeſted to reſide there for ſome time, and to quarter his forces in the city and neighbourhood. This the corporation refuſed; but offered to receive the monarch only, with many profeſſions of loyalty. Exaſperated at the denial, the king attacked and forced open one of the gates with his cannon, but was at length repulſed by the citizens, who remained during the reſt of the conteſt unmoleſted. The eccleſiaſtical government of this city is deputed to an archdeacon of Coventry; and the city, previous to the reformation, contained, beſides the priory, the grey friars, on the ſouth ſide of the town, the church of which was built in the reign of Edward III., as is evinced by a beautiful octagon tower and ſpire yet remaining. The friars to whom it belonged were celebrated for performing ſacred myſteries or interludes on moveable ſtages in different parts of the city. Their pageants amounted to 40, and included the interval between the creation and the laſt day. Theſe were exhibited on Corpus Chriſti day, to crowds who entered the city from the ſurrounding neighbourhood. The Carmelites, or white friars, were provided with a reſidence and church at Coventry by ſir John Poultney, who was four times mayor of London, in 1342. The dormitory, refectory, the weſt gate, and part of the cloiſters, are all that remain of this foundation. Theſe are ſituated at the eaſt end of the city, and now uſed as a houſe of induſtry. Sponne hoſpital, founded for the reception of the lepers of Coventry, by Hugh, earl of Cheſter, on the weſt ſide of the city, is reduced to the ruins of the chapel and gateway; but Bablake hoſpital, founded in 1506, by Thomas Bond, mayor, ſtill flouriſhes: Bond placed 10 poor men, a woman, and a prieſt, in this hoſpital, the revenues of which were veſted in the city, after its ſuppreſſion in the reign of Ed. IV., and they now ſupport 18 old men and a nurſe. Part of the ſame building furniſhes a reſidence for a number of boys, who are cloathed in blue, and educated through the *juſtice* and benevolence of Thomas Wheatley, mayor, in 1556, whoſe ſervant, ſent to Spain by him to purchaſe ſome barrels of ſteel gads, brought home, through an unaccountable miſtake, a number of caſks filled with ingots of ſilver and cochineal, which were offered for ſale in an open fair as the articles alluded to, and bought as ſuch. This worthy ironmonger and card-maker made every poſſible effort to diſcover the perſon who ſold them, but without ſucceſs. He then honourably converted the profits to this charity, to which he added part of his own property. Grey Friars hoſpital was founded in 1529, by William Ford, merchant, of the ſtaple of this city, augmented by William Piſford, his executor, and ſubſequently by other benefactions for the reception and maintenance of 14 aged and poor perſons, for whom a nurſe is alſo provided. St. John's hoſpital, in Biſhop-ſtreet, was founded by Lawrence, prior of Coventry, in the reign of Henry II. This hoſpital came into the poſſeſſion of John Hales, in the reign of Henry VIII. who intended to found a college ſimilar to that of Weſtminſter; but, after various diſappointments, was under the neceſſity of removing from the White Friars church, where he had commenced his operations, to St. John's. Hales left an eſtate of 43 *l.* per annum (ſince greatly improved) to endow a free ſchool, held at preſent in an aile of the chapel. St. Michael's church originally belonged to the priory, afterwards became a vicarage, and finally came to the crown. The body of this beautiful ſtructure was, in part, rebuilt in 1434. The length of the church is 303 feet, the height of the ſteeple the ſame, and the breadth of the church 104. The tower is richly ornamented with niches and ſaints, and the taper ſpire riſes majeſtically from an octagon; nor are the exterior and interior leſs light and elegant. The ſteeple was built in 1372 by two brothers, Adam and William Botoner, who expended 100 *l.* per annum on it for 22 years; and it was completed by two ladies of the ſame family who built the middle aiſle. Trinity church almoſt vies with St. Michael's in beauty; in which was buried Dr. Philemon Holland, an indefatigable tranſlator, ſchool-maſter, and phyſician, and the firſt that gave "Camden's Britannia" in Engliſh. He died in 1636, aged 85. The beautiful croſs, 57 feet high, erected by ſir William Hollis, lord mayor of London, between 1541 and 1544, has been entirely removed, after previous gradual mutilation. St. Mary-hall, ſituated near St. Michael's church, is a magnificent and intereſting ſtructure, principally erected about the time of Henry VI.: the entrance is a rich gate-way, the key-ſtone to the arch roof of which is ſculptured with a repreſentation of the Deity crowning the Virgin, (it being dedicated to St. Mary, and founded by the brethren of St. Mary gild.) The great room has a large window at the north end, containing, in nine diviſions, the whole length figures of as many kings of England, with various armorial bearings; and the windows on the eaſt ſide are decorated with the portraits of ſeveral eminent perſons formerly members of the Trinity gild, who came into poſſeſſion of the hall on the union of the gilds. The Drapers'-hall, lately rebuilt, is a handſome ſtructure ornamented with Tuſcan pilaſters. Beſides the hoſpitals and free-ſchool of Coventry, there have been ſeveral conſiderable ſums given to the citizens, particularly by ſir Thomas White, in truſt, for the diſtribution of the intereſt in various ways. Coventry was a long time celebrated for its extenſive manufacture of cloth, and caps, or bonnets, which it maintained from a period previous to 1346, till the laſt century. After the latter period, the inhabitants made large quantities of ſhags, tammies, camblets, laſtings, &c.; but theſe purſuits having declined, the manufacture of ſilk ribbands was introduced about an hundred years paſt, which has proved highly beneficial to the city, and is carried on to a vaſt extent there, and in the neighbourhood. Amongſt the arts loſt at Coventry may be noticed a manufactory of thread, which, before 1581, was nearly proverbial for the excellence of the blue with which it was dyed. Coventry poſſeſſes the advantage of a canal communicating with London and Liverpool, through the grand junction and grand trunk canals, and Oxford (the Coventry and Oxford canals uniting the two former); it alſo ſerves for the conveyance of coal from the neighbouring collieries of Hawkſbury, &c. The city is ſupplied with water for domeſtic purpoſes from a ſpring near Swanſwell, without the priory gate, which is held by the corporation. Coventry is ſituated 91 miles from London, and contains three churches, one quaker, and five other meeting-houſes, with a Roman catholic chapel. The population, as returned under the general ſurvey in 1801, was 16,034, but is certainly erroneous, as former calculations led to an eſtimation exceeding 20,000. Dugdale's Warwickſhire, Gough's edit. of Camden, and Pennant's Journey from Cheſter to London. The exact ſituation of the ſpire of St. Martin's church in this city, was aſcertained in the Government Trigonometrical Survey in the year 1799, by obſervations from Arbury-hill ſtation, diſtant 94,262 feet; from Epwell, diſtant 122,632 feet, and bearing 2° 3′ 42″ S.E. from the parallel to the meridian of Dunmore; and from Broadway beacon, diſtant 158,205 feet; whence is deduced its latitude 52° 24′ 26.″3 N., and long. 1° 30′ 5.″5, W. of Greenwich royal obſervatory.

Coventry ſtands upon a remarkable ſtratum of red ſandy earth, in ſome places hardened into ſtone; to the north-weſt of this town the coal meaſures begin to crop-out; (ſee COAL and COLLIERY;) in the park near the town a very ſoft grey ſtone is dug, which eaſily pounds to ſand for domeſtic purpoſes, making of mortar, &c. The ploughed lands near Coventry furniſh a great variety and quantity of rounded quartz pebbles, with which the city is paved, ſome are black, deep red, brown, white, and others veined like marble; they run generally from the ſize of hen's eggs to that of a man's fiſt. Since the year 1776 this city has enjoyed the benefit of inland navigation. In addition to the particulars of this grand undertaking, given under the article CANAL, we here beg to mention, that the termination of the branch, or principal line as ſome call it, in the city of Coventry, is upon very high ground at the N.W. end of the town, upon the ſtrong red clay ſoil, in which all this branch from Longford is cut.

In aſcending the ſteep hill from the deep vale which runs through Coventry, the canal company's houſe, facing the top of the ſtreet, preſents a very ſtriking and fine object, and the ſight of the yards, wharfs, and canal beyond it, is not leſs gratifying to the curious traveller.

The canal terminates in two parallel branches or baſons, forming a ſpacious yard between them for the ſtowage and landing of coal and other rough goods, and the canal baſons are embanked by narrow wharfs or campſheads, raiſed ſo much above the level of the yards, that carts and waggons when backed up againſt them have their bottoms level with the campſhead, and very nearly ſo with the gunwales of the loaded boats floating in the baſon, by which arrangement the utmoſt facility is afforded to a vaſt number of carts and waggons to load with coal, lime, and other goods at the ſame time, immediately from the barges, either by barrows, or throwing the coals by ſhovels firſt on to the wharf, and then into the carts, &c. and the buſy ſcene is among one of the moſt gratifying which can well be conceived.

Further north, the eaſtern bank of the baſon is occupied by a range of warehouſes, with roofs projecting over the boats lying in the baſon, which can thus be loaded or unloaded in ſafety in any weather, and at certain intervals gate ways or openings are made from the ſtreet on the ſouth-eaſt ſide of the warehouſes for carts and waggons, to back up to the campſhead as already deſcribed, and cranes are contrived to hoiſt goods out of the barges, and at once depoſit them in the dry in any weather, in carts or waggons, and the contrary in loading goods into the barges, where it is not neceſſary to lodge them for a time in the warehouſe: theſe cranes are conſtructed with booms inſtead of jibs, and are worked with chains. In one of the gate-ways of the company's houſe, at the entrance to the yard, a weighing engine is fixed for weighing at once the quantity of coals loaded into a cart or waggon, after taking its empty weight as it paſſed over the machine in entering the yard: over this is a ſpacious count-room for the meetings of the canal proprietors, and a ſuit of counting-houſes and offices for the buſineſs of the company and reſidence of its officers. About one mile from Coventry, on the road towards Nuneaton, a meadow is watered, whenever circumſtances ſuit, by the waſte water diſcharged over a river on the canal bank, or a trunk through it; a practice which we earneſtly wiſh to ſee more generally adopted. About 2½ miles from Coventry there is an aqueduct and conſiderable embankment over the Sow river. S.E. of Bedworth, about half a mile, there is an immenſe deep-cutting and ſpoil-banks, 12 yards deep in the middle, and 600 yards long through the grand ridge of the iſland, which here is formed of the red clay ſtratum before mentioned.

A branch and rail-way proceed from the line at Shackelton's bridge to the coal-pits at Bedworth town, which are 120 yards deep. Sir Roger Newdigate's canal branches from the line on the N.W. of the ſummit, and riſes by ſeveral locks, and in its courſe croſſes the ſummit again before it enters his park. See NEWDIGATE'S CANAL.

COVENTRY, a townſhip of America, in the ſtate of Connecticut and county of Tolland, 20 miles E. of Hartford city. It was ſettled in 1709, being purchaſed by a number of Hartford gentlemen of one Joſhua, an Indian.—Alſo, the north-eaſternmoſt townſhip of Kent county in the ſtate of Rhode iſland: containing 2477 inhabitants.—Alſo, a townſhip in the northern part of New-Hampſhire, in Grafton county; incorporated in 1764, and containing 80 inhabitants.—Alſo, a townſhip in the ſtate of Vermont, and county of Orleans. It lies in the north part of the ſtate, at the ſouth-end of lake Memphremagog. Black river paſſes through this town in its courſe to Memphremagog.—Alſo, a townſhip of Cheſter county in the ſtate of Pennſylvania.

COVENTRY, a town of America, in the ſtate of Connecticut; 14 miles N.E. of Norwich.

COVENTRY *Act*, in *Law*. See MAYHEM.

COVENTRY *Bell*, in *Botany*. See CAMPANULA.

COVENTRY *remedy*, in *Pharmacy*, a title given by Mr. Wilmer to a preparation of ſponge powder, formed by taking of burnt ſponge, powdered, and common ſalt, each three drams, mixing them, and dividing them into 12 powders; and highly celebrated by Mr. W. in ſcrofulous affections, and particularly in the caſe of the bronchocele. Mr. W. employed it at Coventry ſometimes in its pure ſtate, combined with a ſufficient quantity of honey, to form it into a bolus, and ſometimes united with calcined cork and pumice ſtone.

COUEPIA, in *Botany*, Lam. Enc. Juſſ. 341. Aubl. Guian. 519. tab. 207. Claſs and order, *monadelphia polyandria*. Nat. Ord. *Roſaceæ*, Juſſ.

Gen. Ch. *Cal.* Perianth top-ſhaped or funnel-ſhaped; tube ſomewhat curved, inflated in the upper part; border with five egg-ſhaped ſegments. *Cor.* Petals ſeveral, but not ſeen by Aublet, having fallen off before he found the plant. *Stam.* Filaments numerous, united at the bottom by a rim which crowns the entrance of the calyx. *Piſt.* Germ ſuperior, egg-ſhaped, leſſened at the baſe ſo as to appear peduncled; ſtyle filiform, long, curved; ſtigma acute. *Peric.* Drupe egg-ſhaped, with a thick, fibrous, woody, or coriaceous, much cracked bark: nut thin, brittle; kernel oval-oblong, bitter, two-lobed, covered with a reddiſh bark.

Obſ. This generic character ſo nearly reſembles that of

Aublet's coupi, Acia of Schreber, that La Marck agrees with Schreber in thinking that the two ought to conſtitute one genus. See Acia, where Aublet's coupi is deſcribed.

Sp. A tree about ſixty feet high, with a grey ſmooth bark, and hard, heavy, reddiſh wood; branches crooked, compound, ſpreading wide. *Leaves* two inches and a half long, alternate, oval, acute, thin, ſmooth, entire, undulated; petioles ſhort, cloathed with red hairs. *Flowers* in bunches at the ends of the branches. A native of the foreſts of Guiana, about thirty leagues from the ſea.

COVER, &c. in *Military Language*. See Couverture.

Cover *of a Bank*, in *Canal Works*, is a term for the area or ſpace of ground, covered by the baſe or ſeat of its banks.

COVERDALE, Miles, in *Biography*, an Engliſh prelate, born in Yorkſhire, during the reign of Henry VII. was educated in the religion of the times, and became an Auguſtine monk. At the era of the Reformation he became a zealous preacher in its defence. In 1532 he publiſhed Tindal's "Engliſh Verſion of the Bible," to which he had given much aſſiſtance, and, in 1540, he gave another reviſed edition of it with notes. See Bible. In 1551, king Edward appointed him to the biſhopric of Exeter; from which he was ejected during the reign of Mary, and impriſoned. The king of Denmark interfered in his behalf, and the good biſhop was allowed to retire from the walls of a priſon to a foreign country. In the next reign he was invited home, and might have been reſtored to his biſhopric, could he have conformed to certain rites and ceremonies which were conſidered by many others, as well as himſelf, the relics of popery, and unfit to be ſanctioned by their example. As he could not comply with the terms held out, he was neglected, and for a conſiderable time without any proviſion. Having ſuffered from poverty and old age, he was at length noticed by Grindal, biſhop of London, who preſented him with the living of St. Magnus, London-bridge, where he exerciſed his miniſterial functions, without wearing the offenſive habits. He became popular, and was, through the jealouſy of his ſuperiors, compelled to relinquiſh his profeſſional duties, a ſhort time before his death, which was about the year 1567, being ſomething more than 80 years of age. Biog. Brit.

COVERED *Flank*, *Fountain*, *Medals*. See Flank, Fountain, Medal.

COVERING, in *Architecture*, one of the principal parts of a building. See Roofing.

COVERIPATAM, in *Geography*. See Caveripatam.

COUERON, a town of France, in the department of the Lower Loire, and diſtrict of Savenay, ſeated on the Loire; 2½ leagues W. of Nantes.

CO-VERSED Sine, in *Trigonometry*, a term which ſome people uſe for the remaining part of the diameter of a circle, after the verſed ſine is taken from it.

COVERT, in *Law*.—*Feme* Covert, *fœmina viro co-opertu*, denotes a woman married, and ſo *covered* by, or under the protection of, her huſband. See Coverture.

Covert-*way*, in *Fortification*. See Chemin *couvert*.

Covert-*way*, *Second*, called by the French *mont chemin couvert*, is a covert-way at the foot of or beyond the glacis.

COVERTURE, in *Law*, is particularly applied to the ſtate and condition of a married woman; who, by the laws of our realm, is under *covert-baron*, or *ſub poteſtate viri*, and called a *feme-covert*; and therefore diſabled to make bargains with any, to the prejudice of herſelf, or her huſband, without his conſent or privity; or at leaſt without his allowance and confirmation; and if the huſband alien the wife's lands, during the marriage, ſhe cannot gainſay it during his life.

In law, the huſband and wife are conſidered as one perſon; and therefore a man cannot grant any thing to his wife, or enter into covenant with her (Co. Litt. 112); for the grant would be to ſuppoſe her ſeparate exiſtence; and to covenant with her would be to covenant with himſelf; hence it is generally true, that all compacts between huſband and wife, when ſingle, are voided by the intermarriage. (Cro. Car. 551.) A woman, indeed, may be attorney for her huſband (F. N. B. 27.); for that implies no ſeparation from, but is rather a repreſentation of, her lord. A huſband may alſo bequeath any thing to his wife by will; for that cannot take effect till the coverture is determined by his death. (Co. Litt. 112.) The huſband is bound to provide his wife with neceſſaries by law, as much as himſelf; and if ſhe contracts debts for them, he is obliged to pay them, (Salk. 118.) but for any thing beſides neceſſaries, he is not chargeable. (1 Sid. 120.) Alſo, if a wife elopes, and lives with another man, the huſband is not chargeable even for neceſſaries; (Stra. 647.) at leaſt if the perſon, who furniſhes them is ſufficiently apprized of her elopement. (1 Lev. 5.) If the wife be indebted before marriage, the huſband is bound afterwards to pay the debt; for he has adopted her and her circumſtances together. (3 Mod. 186.) If the wife be injured in her perſon or property, ſhe can bring no action for redreſs without her huſband's concurrence, and in his name, as well as her own; (Salk. 119. 1 Roll. Abr. 347.) neither can ſhe be ſued without making the huſband a defendant. (Bro. Cor. 173. 1 Leon. 311. 1 Sid. 120.) This was alſo the practice in the courts of Athens. There is one caſe, indeed, in which the wife ſhall ſue and be ſued, as a feme ſole; *viz.* where the huſband has abjured the realm, or is baniſhed (Co. Litt. 133.); for he is then dead in law; and the huſband, being thus diſabled to ſue for or defend the wife, it would be very unreaſonable if ſhe had no remedy, or could make no defence at all. In criminal proſecutions, it is true, the wife may be indicted and puniſhed ſeparately, (1 Hawk. P. C. 3.) for the union is only a civil union. But in trials of any ſort, they are not allowed to be evidence for, or againſt each other. (2 Hawk. P. C. 431.) However, when the offence is directly againſt the perſon of the wife, this rule has been uſually diſpenſed with: and therefore, by ſtatute 3 Hen. VII. c. 2. in caſe a woman be forcibly taken away, and married, ſhe may be a witneſs againſt ſuch her huſband, in order to convict him of felony. For in this caſe ſhe can with no propriety be reckoned his wife; becauſe her conſent was wanting to the contract: and, beſides, there is another maxim of law, that no man ſhall take advantage of his own wrong; which the raviſher here would do, if by forcibly marrying a woman, he could prevent her being a witneſs, who is perhaps the only witneſs, to that very fact.

In the civil law the huſband and wife are conſidered as two diſtinct perſons; and may have ſeparate eſtates, contracts, debts, and injuries; and therefore, in eccleſiaſtical courts, a woman may ſue and be ſued without her huſband. (Cod. 4. 12. 1. 2 Roll. Abr. 298.)

But though our law in general conſiders man and wife as one perſon, yet there are ſome inſtances in which ſhe is ſeparately conſidered; as inferior to him, and acting by his commiſſion. Conſequently, all deeds executed, and acts done by her, during her coverture, are void; except it be a fine, or the like matter of record, in which caſe ſhe muſt be ſolely and ſecretly examined, to learn if her act be voluntary. (Litt. § 669, 770.) She cannot by will deviſe lands to her huſband, unleſs under ſpecial circumſtances; for at the time of making it, ſhe is ſuppoſed to be under his coercion. (Co. Litt. 112.) Alſo, in ſome felonies, and other inferior crimes committed by her, through conſtraint of her huſband, the law excuſes her; (1 Hawk. P. C. 2.) but this extends not to treaſon or murder.

By the old law, the huſband might give his wife moderate correction. (1 Hawk. P. C. 130.) But this power of correction was confined within reaſonable bounds; (Moor, 874.) and the huſband was prohibited from uſing any violence to his wife, *aliter quam ad virum, ex cauſa regiminis et caſtigationis uxoris ſuæ, licitè et rationabiliter pertinet.* (F. N. B. 80.) The civil law gave the huſband the ſame, or a larger authority over his wife; allowing him, for ſome miſdemeſnors, *flagellis et fuſtibus acriter verberare uxorem;* for others, only *modicam caſtigationem adhibere.* (Nov. 117. c. 14. and Van Leeuwen. in *loc.*) But with us, in the politer reign of Charles II., this power of correction began to be doubted (1 Sid. 113. 3 Keb. 433.); and a wife may now have ſecurity of the peace againſt her huſband (2 Lev. 128.), or, in return, a huſband againſt his wife. (Stra. 1207.) Yet the lower rank of people, who were always fond of the old common law, ſtill claim and exert their ancient privilege; and the courts of law will ſtill permit a huſband to reſtrain a wife of her liberty, in caſe of any groſs miſbehaviour. (Stra. 478, 875.) Blackſt. Com. book i.

COUESNON, in *Geography*, one of the principal rivers of the department of Ille and Vilaine, formerly part of Britanny in France. It runs through Fougeres, and empties itſelf into Cancale bay, below Pontorſon, on the flat ſandy ſhore of Mont St. Michel. Its courſe is extremely variable, on which account it was to be rendered navigable in 1804, by collecting its waters at the eaſt of Mont St. Michel, and embanking its bed between two moles from Pontorſon, as far as the ſea.

COUET, a town of Switzerland, in the biſhopric of Bâle; 5 miles S. W. of Delmont.

COUFA, a town of Aſiatic Turkey, in the Arabian Irak; 122 miles S. of Bagdat.

COUGAN, a town of China, of the third rank, in the province of Pe-tche-li; 6 leagues N. of Pa.

COUGH, in *Medicine*, a ſudden, violent, and ſonorous expiration, in a great meaſure involuntary, and excited by a ſenſation of the preſence of ſome extraneous matter or irritating cauſe in the lungs or windpipe.

This ſenſation of obſtruction or irritation, although ſometimes perceived in the cheſt, eſpecially near the pit of the ſtomach, is moſt commonly confined to the trachea, or wind-pipe; and eſpecially to its aperture in the throat, which is termed the glottis. Yet this is ſeldom the ſeat of the irritating cauſe; which is generally ſituated at ſome diſtance from the glottis, and often in parts unconnected in ſtructure, or by proximity, with the organs of reſpiration. We have other inſtances in the animal economy of diſtant irritations being referred, by ſympathy, to particular points. Thus the irritation of the urine, diſtending the bladder, is chiefly perceived at the external termination of the urethra; at which point, alſo, a pain is felt, when the bladder is irritated by a ſtone within it. A view of the various cauſes of cough will evince the truth of the above poſition.

Cough is rather to be conſidered as a ſymptom of different morbid ſtates of the viſcera, than itſelf a diſeaſe; and hence Dr. Cullen has omitted to arrange it among his *genera* of diſeaſes. Of the various irritations which give riſe to cough, ſome occur within the cavity of the cheſt; others are external to that cavity; and ſome exiſt even in the viſcera of the pelvis.

1. Of thoſe cauſes of cough, which take place within the thorax, the diſorders of the lungs themſelves are the moſt common; eſpecially the inflammation of the mucous membranes lining the paſſages, which excites the catarrhal cough, or common cold. See CATARRH. In this caſe, the cough is at firſt excited by pain and ſoreneſs of an inflamed membrane, and is dry; but afterwards, as the inflammation ſubſides, a thick mucus is poured out, which obſtructs the reſpiratory paſſages, and a cough is excited in order to expel it. The cough is then ſaid to be moiſt, or accompanied by expectoration. In the chronic catarrh, or the cough and dyſpnœa of old people, where, from frequent attacks of cough, there is much relaxation of the membranes in thoſe paſſages, a copious effuſion of mucus takes place into the cells of the lungs, which occaſions an almoſt inceſſant coughing, by which, and the great impediment to the function of reſpiration, they are frequently deſtroyed. See CATARRHUS *ſenilis*. Another common cauſe of cough, which has its ſeat in the lungs, is inflammation of thoſe organs, whether in the form of *pleuriſy* or *peripneumony*. Theſe diſeaſes, indeed, do not very eſſentially differ, except in violence and extent, from the acute catarrh; they are more dangerous, and more rapid in their progreſs, and the conſtitution is excited to a highly febrile condition. See theſe articles. Even after the acute ſtate of inflammation may have ſubſided, a cough, attended with extreme danger, ſometimes continues to be excited, by collections of pus, or abſceſſes, which enſue in the ſubſtance of the lungs, and terminate either in conſumption, or ſuffocate the patient, by ſuddenly burſting; more rarely the pus is diſcharged gradually from a ſmall aperture, and the patient recovers. In ſuch caſes, the fever, originally acute, is converted into a hectic, with daily chills, ſucceeded by heat and fluſhing of the face, night ſweats, and emaciation. Another frequent origin of cough, is the rupture of ſome of the blood-veſſels of the lungs, and the conſequent effuſion into the cells, of blood, which is expelled by the cough, that its irritation excites, conſtituting what is technically termed, *hæmoptoe*, *hæmoptyſis*, or ſpitting of blood. When the veſſels of the lungs are thus ruptured, they ſeldom heal readily, but degenerate into ulcers, which pour out a purulent matter; and, by this diſcharge, the vital powers are gradually worn down and deſtroyed. This is a common ſource of conſumption, or phthiſis pulmonalis. See CONSUMPTION. A cough is excited, and the ſame fatal diſorder is alſo induced, by the exiſtence of tubercles in the lungs; theſe are little tumours, which gradually inflame, and ulcerate, and produce the ſame conſequences as the ulcerations from hæmoptyſis. Calculi, or ſtony concretions, are ſometimes formed in the lungs, and the irritation which they produce neceſſarily excites a cough, which is liable to terminate in conſumption. For an ample account of the occurrence of ſuch pulmonary concretions, the reader may conſult Morgagni de Sed. et Cauſ. Morbor. Epiſt. xv. art. 20. See alſo Cullen's Firſt Lines, § 883.

There is yet another ſource of irritation within the lungs, of which cough is an attendant; namely, an effuſion of ſerum into the parenchymatous ſubſtance of the lungs, or into the cellular membrane, which connects the cells and blood-veſſels together. This has been called *anaſarca pulmonum*, or dropſy of the lungs, and is marked by great difficulty of breathing, with a ſenſe of weight and oppreſſion in the cheſt, occaſioned by the compreſſion of the air-cells, and veſſels, by the accumulated water; hence alſo great irregularity of pulſe, frightful dreams. imperfect ſleep, &c. are among its ſymptoms. It has been ſuggeſted by Dr. Darwin, that this form of dropſy may be diſtinguiſhed from hydrothorax, or dropſy of the cheſt, in which the water is effuſed between the ribs and the lungs, by the circumſtance, that the patient is greatly oppreſſed when he lies on his back, in the latter caſe; while the change of poſition in the dropſy of the lungs occaſions little or no aggravation of the ſymptoms; becauſe the water, confined within the cellular ſtructure of the lungs, cannot change its poſition as in hydrothorax. Œdæma of the legs often accompanies both theſe diſeaſes. See Dropsy.

Cough is likewiſe a ſymptom ariſing from other morbid changes, within the cavity of the cheſt, but external to the lungs. Beſides the hydrothorax, or effuſion of ſerum into the ſac of the pleura, a ſimilar effuſion into the pericardium, or inveſting membrane of the heart, produces effects reſembling thoſe juſt enumerated. Inflammation of the pericardium, and of the heart itſelf, is alſo accompanied by cough, and other ſymptoms, not eaſy to be diſtinguiſhed from thoſe of pleuriſy and peripneumony. And inſtances are on record, in which a depoſition of fat between the laminæ of the mediaſtinum, which ſeparates the two lobes of the lungs, has excited cough, with dyſpnœa, &c. and terminated in death.

2. But although cough is moſt frequently occaſioned by diſorders of the organs of reſpiration themſelves, or other morbid changes in the cavity which they occupy; it is, nevertheleſs, often excited by diſorders of parts external to the cavity of the thorax, which affect the reſpiratory organs, either by the vicinity of their ſituation, or through ſome medium of ſympathy, which cannot always be traced In theſe caſes, the cough is generally dry, inaſmuch as the irritating cauſe is external, and not any obſtructing matter in the lungs themſelves. This, however, is by no means a complete criterion of the ſeat and nature of the cauſe; for, in the beginning of catarrhal and pneumonic coughs, there is generally no expectoration; as well as in thoſe coughs ariſing from tubercles, or vomicæ, before the matter finds an opening into the cells of the lungs.

Diſorders of the viſcera of the abdomen, eſpecially of thoſe which lie in contact with the diaphragm, (the muſcular curtain, ſeparating the cavities of the belly and cheſt,) frequently induce a cough. A ſhort dry cough is an invariable ſymptom of inflammation of the liver, whether acute or chronic, and accompanies the various tubercular and other obſtructions in that organ. Hence inflammation of the liver is not unfrequently miſtaken for inflammation in the lungs; and in ſome of the chronic diſeaſes of the liver, we have occaſionally found the cough complained of, as the moſt urgent ſymptom The preſence of pain in the right ſide, ſhooting up to the top of the ſhoulder, the dryneſs of the cough, and pain, enlargement, hardneſs, or uneaſineſs on preſſure, below the ribs of that ſide, will afford the beſt means of diſtinguiſhing, whether a diſeaſe of the liver is the origin of the cough. Diſorders of the ſtomach are, alſo, often accompanied with a cough of the ſame dry and teazing nature, eſpecially when that organ is over-diſtended with food, or is in the oppoſite condition of emptineſs. A ſhort cough is, therefore, a frequent ſymptom of indigeſtion, and hypochondriaſis, or of that weakneſs of the ſtomach, which is popularly termed *bilious*. In ſhort, there is ſcarcely a viſcus, in the cavity of the abdomen, the irritation of which, in a ſtate of diſeaſe, has not excited cough. Diſorders of the ſpleen, pancreas, and even the kidneys, have all given riſe to this ſymptom; and external tumours, attached to them, have had the ſame effect. See Morgagni Epiſt. xix. art. 57, 58, &c. Any diſtenſion of the abdomen, which, by its preſſure upwards, impedes the deſcent of the diaphragm, and conſequently the expanſion of the lungs, occaſions cough. Thus, in the aſcites, or dropſy of the belly, the water—in tympanites, the air—in corpulency, the fat in the omentum—and, in pregnancy, the gravid uterus; all have the effect of exciting cough, in many conſtitutions.

It is ſcarcely neceſſary to mention, that any irritation in the windpipe, will immediately excite cough; whether it be permanent, as catarrhal, inflammation, or that of croup; or temporary and accidental, as when a particle of food or drink paſſes into it. But even irritations in the head, by an unobſerved ſympathy, produce a cough. Thus the introduction of the finger into the external *meatus* of the ear, occaſions an uneaſy ſenſation in the windpipe, which is immediately followed by coughing. And cough is not an uncommon ſymptom of dentition in young children; but it may be doubted whether the irritation of the riſing teeth in the gums, or of the bowels, which are commonly diſordered by dentition, be the exciting cauſe of the cough.

Having enumerated the various circumſtances from which cough may originate, and briefly pointed out the moſt obvious means of diſtinguiſhing its ſeat and cauſe, it will be unneceſſary here to detail the different remedies and modes of treatment which the difference in the nature and origin of the diſorder will demand. It is ſufficient to have referred the reader to thoſe diſeaſes with which it is connected, and by the cure of which, it will be removed. Before we conclude this article, however, we cannot refrain from pointing out a practical inference of the higheſt importance, which reſults from a conſideration of the facts here detailed. It is, that we have hence a demonſtration of the abſurdity and falſity of thoſe pretenſions of empirics, and good lady-doctors, who offer to cure all coughs by the ſame remedy; regardleſs, generally ignorant, indeed, of the difference in the origin, ſeat, and nature of the diſeaſes, of which cough is only a ſymptom. This inference may be deduced, in fact, from various other ſymptomatic complaints, ſuch as headache, (ſee Cephalalgia,) ſickneſs at the ſtomach, &c.; but is in no inſtance more conſpicuous than in the diſorder of which we now treat. See Sauvage's Noſol. Meth. Claſs v. Ord. i. Gen. 5. *Tuſſis*.

Cough, in *Farriery*, is a diſeaſe to which horſes are very ſubject. Some of theſe are ſymptomatic of a conſumption, when they have been of long continuance, and are attended with loſs of appetite, waſting of fleſh, and weakneſs. Other coughs proceed from phlegm and ſlimy matter that ſtuff up the veſſels of the lungs: in this caſe, which is of the aſthmatic kind, the horſe's flanks have a quick motion; he breathes quick; his cough is ſometimes dry and huſky, ſometimes moiſt; before which he wheezes, rattles in the throat, and throws out of his noſe and mouth a quantity of white phlegm, eſpecially after drinking, or when he begins or ends his exerciſe.

Theſe coughs ſhould be diſtinguiſhed from that thickneſs of wind, which is occaſioned by full or foul feeding, want of exerciſe, or their being taken up from winter's graſs. Theſe are eaſily cured by proper diet and exerciſe: and the other diſorders may be relieved, and totally cured, if it happens to a young horſe, and is not of long continuance, by the following treatment. Bleeding ſhould be uſed, in proportion to the ſtate of the horſe with reſpect to fleſh; mercurial medicines are of great ſervice: a mercurial ball, with two drams of calomel may be given at night, and a common purge in the morning; or the following, which is recommended

commended by Mr. Gibſon: take gum galbanum, ammoniacum, and aſſa-fœtida, of each two drams; fine aloes, one ounce; ſaffron one dram; oil of anniſeed, two drams; oil of amber, one dram; with honey enough to form the whole into a ball. Theſe may be repeated at proper intervals: and during the intervals, and for ſome time after, one of the following balls may be given every morning: take cinnabar of antimony, finely levigated, ſix ounces; gum ammoniacum, galbanum, and aſſa-fœtida, of each two ounces; garlic, four ounces; ſaffron, half an ounce: let the whole be mixed into a paſte with honey. Exerciſe and moderate diet are alſo eſſential to the effect of any remedy. In dry coughs, which are the nervous aſthmas of horſes, moderate bleeding is proper; two drams of calomel, mixed with an ounce of diapente, may be given for two nights, and a purging-ball in the morning. This purge may be repeated with one mercurial ball once in eight or ten days; after which, one of the following balls, about the ſize of a pigeon's egg, may be taken every day for two months, or longer: take native cinnabar, half a pound; gum guiacum, four ounces; myrrh, and gum ammoniacum, of each two ounces; Venice ſoap, half a pound; mix the whole with honey, or oxymel of ſquills. In obſtinate dry coughs, the following has been found an uſeful remedy: take gum ammoniacum, ſquills, and Venice ſoap, of each four ounces; balſam of ſulphur, with anniſeeds, one ounce: beat them into a maſs, and give them as the former. Young horſes are ſubject to cough in cutting their teeth; bleeding and warm maſhes are generally ſufficient for removing this complaint: but in ſuch ſubjects, the cough often proceeds from worms; if this be the caſe, anthelmintic medicines ſhould be given. See Ascarides, and Horse *worms*.

Cough, *Chin.* See Hooping-*Cough*.

Cough, called the *huſk*, is a diſeaſe to which young bullocks are ſubject. In this diſorder, the wind-pipe and its branches are loaded with ſmall taper worms. Farmers count the diſeaſe incurable; but fumigations with mercurials, as cinnabar, or with fœtids, as tobacco, might prove ſerviceable. Phil. Tranſ. vol. xlix. part ii. p. 247.

COUGIN-PE, in *Geography*, a poſt of Chineſe Tartary; 30 miles S. of Tchahan Soubarkau.

COUGOU, the *Koukou* of Edriſi, and ſaid to be called *Fiddri* by the natives, is a diſtrict in the interior part of Africa; mentioned by Hornemann in his journey; in which, it is ſaid, there is a large lake from four to eight days' journey in circumference, according to the dry or rainy ſeaſon, and which receives a river from the eaſt. If this report may be credited, and the day's journey be eſtimated at 20 miles, this lake may perhaps be the real receptacle of the Niger.

COUGOUAR, in *Zoology*, the name given by Buffon to the *puma* or American lion of Hernandez, the panther of Lawſon, the puma or brown cat of Pennant, and Felis *concolor* of Gmelin; which ſee.

COUGUAR *of Pennſylvania*, a ſpecies of *Felis*, the body of which is remarkably thin and long. The body, from the neck to the tail, is 5 feet 4 inches long; the tail 2 feet 6 inches; the fore part of the body is 1 foot 9 inches high. It is of a reddiſh tawny colour above, and whitiſh on the lower parts of the body. It inhabits the mountains of Pennſylvania, Virginia, Carolina, and Georgia, in North America.

COUHAGE, or Stinking-Beans. Theſe are a kind of kidney beans imported from the Eaſt Indies, where they are uſed as a cure for the dropſy. The down growing on the outſide of the pod is ſo pointed, as like a nettle to ſting the fleſh, though not with ſo painful a ſenſation. This, by a corruption of the word, is called *cow-itch*, which ſee.

COUHE', in *Geography*, a ſmall town of France, in the department of Vienne, with 982 inhabitants. It is the chief place of a canton, which reckons 9072 inhabitants, upon a territorial extent of 240 kiliometres and 10 communes. Couhé is ſituated 21 miles S. of Poitiers, on a ſmall river which falls into the Clain.

COVIN, in *Law*, a deceitful compact, or agreement between two or more, to deceive or prejudice others. As, if a tenant for life, or in tail, conſpire with another, that this other ſhall recover the land which the tenant holds, in prejudice of him in reverſion. Plowd. 546.

Covin is commonly converſant in and about conveyances of land by fine, feoffment, recovery, &c.; and then it tends to defeat purchaſers of the lands they purchaſe, and creditors of their juſt debts; and ſo it is uſed in deeds of gift of goods: it may be likewiſe ſometimes in ſuits of law, and judgments had in them. But wherever covin is, it ſhall never be intended, unleſs it appears and be particularly found: for covin and fraud, though proved, muſt nevertheleſs be found by the jury, or it will not be good. Brownl. 188. Bridgm. 112.

Dr. Skinner takes the word to be a corruption of the Latin *conventum*, and therefore writes it *coven.* See Conspiracy.

COVING, in *Building*. When houſes are built projecting over the ground plot, and the turned projecture arched with timber, lathed and plaſtered; the work is called *coving*.

Coving *Corniche*. See Cornice.

COVINUS, among the *Ancients*, a kind of chariot, in which the Gauls and Britons uſed to fight in battles. This was a terrible inſtrument of deſtruction; being armed with ſharp ſcythes and hooks for cutting and tearing all who were ſo unhappy as to come within its reach. This kind of war-chariot was made very ſlight, and had few or no men in it beſides the charioteer; being deſigned to drive with great force and rapidity, and to do execution chiefly with the hooks and ſcythes. Mela, l. 3. c. 6. Tacit. Vit. Agric. c. 36.

COUKUL, in *Ornithology*, a name given by Buffon to the eaſtern black cuckow of Latham, or Cuculus *orientalis* of Gmelin; which ſee.—And alſo to the black Indian cuckow of Edwards, or Cuculus *niger* of Gmelin; which ſee.

COUL, or Cowl, a ſort of monkiſh habit worn by the Bernardines and Benedictines.

The word is formed from *cucullus*, by confounding the two firſt ſyllables into one, as being the ſame twice repeated.

There are two kinds of couls; the one white, very large, worn in ceremony, and when they aſſiſt at the office; the other black, worn on ordinary occaſions, in the ſtreets, &c.

F. Mabillon maintains the coul to be the ſame thing in its origin with the ſcapular. The author of the apology of the emperor Henry IV. diſtinguiſhes two forms of couls: the one a gown reaching to the feet, having ſleeves, and a capuchin, uſed in ceremonies; the other a kind of hood to work in, called alſo a *ſcapular*, becauſe it only covers the head and ſhoulders.

COULACISSI, in *Ornithology*, a name given by Buffon to the Philippine Parrakeet of Latham, or a variety of the Psittacus *galgulus* of Gmelin; which ſee.

COULAM, in *Geography*, a town of Hindooſtan, on the ſouthern coaſt, in the country of Tinewally or Palamcotta;

cotta; 15 miles N.E. of Cape Comorin. N. lat. 8° 10'. E. long. 77° 20'.

COULAN, a town of Hindooſtan, on the coaſt of Malabar, in the country of Travancore; 52 miles N.W. of Travancore. N. lat. 8° 54'. E. long. 76° 34'.

COULANGES La Vineuse, a ſmall town of France, in the department of the Yonne, 3 miles S. of Auxerre; remarkable for its excellent wine, from whence it derives the name of *Colonia Vinoſa.* It has 1654 inhabitants, and is the chief place of a canton, which, in 15 communes and on a territorial extent of 157 kiliometres and a half, comprizes a population of 9685 individuals.

Coulanges *Sur Yonne*, a ſmall town of France, in the department of the Yonne, 12 miles S. of Coulanges la Vineuſe, and 6 miles N. of Clamecy; chief place of a canton, with a population of 1068 individuals. The canton itſelf has 11 communes and 7234 inhabitants, on a territorial extent of 217 kiliometres and a half.

COULANS, a town of France, in the department of the Sarte; 7 miles from Le Mans.

COULAVAN, in *Ornithology*, a name given by Buffon to the Oriolus *Chinenſis* of Gmelin; which ſee.

COULET, Anne Philibert, in *Biography*, an engraver, born at Paris in 1738. This fair artiſt ſtudied under Aliamet, and afterwards under Louis Lempereur, and has done great credit to her inſtructors. In 1770 ſhe was received member of the Royal Academy at Paris. By her hand we have ſeveral landſcapes and ſea-views, executed in a very agreeable manner. We ſhall mention the following: "La Belle Aprés-dinee," from Vernet, lengthways; "La Partie de Plaiſir a la Campagne," from the ſame; "Les Pêcheurs Napolitains," from the ſame. Huber, Strutt, Heinecken.

COULEUVRE, in *Geography*, a town of France, in the department of the Allier; 2 leagues N.E. of Cerilly.

COULIBOEUF, a ſmall town of France, in the department of Calvados, with 405 inhabitants; but the canton, of which it is the chief place, counts 12,555, in 32 communes, on a territorial extent of 187 kiliometres and a half.

COULIHAUT, a town of the iſland of Dominica, on the W. coaſt; 16 miles S. of Portſmouth. N. lat. 15° 30'. W. long. 61° 29'.

COULNEY, or Foulney, a river of England, which runs into the Ouſe in Yorkſhire.

COULOMBIERS-Lusignan, Les, a town of France, in the department of the Vienne, and diſtrict of Poitiers. See Lusignan.

COULOMBS, a town of France, in the department of the Eure and Loire.

COULOMMIERS, a ſmall town of France, in the department of Seine and Marne, ſituated in a fertile plain on the right ſhore of the great Morin; 15 miles S.E. of Meaux, 30 miles N.E. of Melun, and 40 E. of Paris. It is the chief place of a diſtrict, has a ſub-prefect, an inferior court of juſtice, a regiſter office, and a population of 3533 individuals. The canton contains 15 communes and 14,696 inhabitants, on a territorial extent of 172 kiliometres and a half. Coulommiers has ſome excellent tan-yards; and its cheeſe is reckoned the beſt of the whole department.

The principal trade of the diſtrict is with corn, wine, cheeſe, and fiſh. It contains 4 cantons, 80 communes, and 49,420 inhabitants, on an extent of 952 kiliometres and a half.

COULON, or Dalai, a large lake of Chineſe Tartary, in the country of the Kalkas. N. lat. 49°. E. long. 116° 54'.

COULON-CHAUD, in *Ornithology*, a name given by Buffon to the Turnſtone or Sea-Dotterel of ſome writers, the Hebridal Sandpiper of Pennant, the Arenaria of Briſſon, and the Tringa *interpres* of Gmelin; which ſee.

COULONGE, in *Geography*, a town of France, in the department of the Aiſne, and diſtrict of Chateau-Thierry; 4½ leagues N.E. of Chateau-Thierry.

Coulonge, a lake of Upper Canada, formed by the Utawas river, and extending about 4 leagues in length. See *Grand* Calumet.

COULONGES, a ſmall town of France, in the department of the Deux Sèvres, with 1729 inhabitants. The canton, of which it is the chief place, has 14 communes and 11,407 inhabitants, on a territorial extent of 285 kiliometres.

COULONGHE, a town of France, in the department of the Orne; 7 miles N.E. of Domfront.

COULONS, a town of France, in the department of Loiret; 7 miles S.W. of Gien.

COULTER, in *Huſbandry*, that part of a plough which forms the edge, ſtanding before the ſhare of the plough, and cutting the clods as the ſhare tears them up. The coulter is an iron inſtrument of two feet eight inches in length, of near two inches breadth, and near one inch thick. It is driven through the beam of the plough, and fixed in its proper direction by a wedge. See Plough.

The modern improvement of the plough by Mr. Tull, gives it four coulters; the conſequence of which is, that the earth ploughed up is cut four times as ſmall as by the common plough, which has only one.

In all coulters, the length and direction are to be nicely regulated. The cutting the hole and driving the wedge, regulate the direction; and its length is altered from the beam, by the driving it farther down, as its point wears away.

None of theſe coulters ought to deſcend ſo low as the ſhare, except when the land is to be ploughed very ſhallow; it is always ſufficient for them to cut through the turf, let the plough go as deep as it will. In ploughing ſhallow, the fin of the ſhare muſt alſo be broad enough to cut off the fourth piece or furrow; elſe that lying very faſt, will be apt to raiſe up the groundwriſt, and throw out the plough: but when the land is ploughed deeper, the groundwriſt will break off this fourth furrow, though the fin be not broad enough to reach it. Tull's Huſbandry.

Coulter-*neb*, or Counter-*neb*, in *Ornithology*, a name by which the people in ſome parts of England call the *anas arctica cluſii.* See Alca *arctica* and Puffin.

COULTSCHA, in *Geography*, a town of Aſia, in Thibet; 50 miles S.E. of Sarangapoor.

COUMA, in *Botany*, (Coumier; Enc.) a tree, more than thirty feet high, and about two in diameter, with a grey thick bark, yielding by inciſion a large quantity of milky juice, which ſoon hardens into a reſin, much reſembling ambergriſe; branches triangular, very compound. *Leaves* egg-ſhaped, acute, entire, ſmooth, of a fine green above, paler underneath; petioles ſhort, channelled. They grow three together from each knot of the branches, and from the central ſpring two, three, or four buds; and as theſe lengthen, the lower leaves fall off, forming knots at the place where they have been attached. *Flowers* unknown. *Berries* reddiſh, globular, a little flattened at the ſummit, growing ſeveral together, each on a long peduncle, in the axils of the deciduous leaves. *Seeds* from three to five, bedded in a browniſh pulp. A native of the foreſts of Guiana and Cayenne. The unripe fruit abounds in an acrid milky juice, which at length thickens, becomes ſomewhat clammy, and acquires an agreeable taſte. It is then brought to market by the negroes, and ſerved up by the Creoles in their deſerts.

COUMADENI, in *Ancient Geography*, a people who inhabited the ſouthern part of the iſle of Corſica. Ptolemy.

COUMAROUNA, in *Botany*; Lam. Enc. Aubl. Guian. tab. 296. (Keizia; Scop. Baryoſma tongo; Gært. 579.) Nat. Ord. *Leguminoſæ*, Juſſ.

Gen. Ch. *Cal.* Perianth one-leafed, top-ſhaped, purple, coriaceous, three-cleft; two upper diviſions very large, concave; the lower one very ſhort, obtuſe. *Cor.* Petals five, unequal, attached to the lower part of the calyx; three upright, large, marked with violet veins; two inclining, ſhorter. *Stam.* Filaments eight, united towards the bottom, attached to the baſe of the calyx; anthers ſmall, roundiſh. *Piſt.* Germ ſuperior, oblong, compreſſed, encloſed in the tubular part of the ſtamens; ſtyle curved; ſtigma obtuſe. *Peric.* Drupe ovate-oblong, ſlightly acuminate, pale yellow; rind thin, ſmooth, ſhining; fleſh ſucculent, in ſmall quantity, drying up as the fruit ripens; ſtone the form and ſize of the drupe, thick, hard, beſet on all ſides with ſhort rigid ſomewhat faſcicled hairs or briſtles, one-celled, valveleſs. *Seed* ſolitary, much ſhorter and narrower than the cavity of the ſtone, oblong, lenticularly compreſſed, ſlightly wrinkled, black, ſhining, with an aromatic ſmell, and a taſte like that of bitter almonds, but ſtronger and more pleaſant.

Sp. C. *odorata.* A tree from ſixty to eighty feet high, about three and a half in diameter, with numerous twiſted wide-ſpreading branches. *Leaves* alternate, pinnated; leaflets in two or three pairs, oval-oblong, entire, acuminate, firm, ſmooth; common petiole about fourteen inches long, ruſſet, channelled on the upper ſide. *Flowers* purple-violet, in axillary and terminal racemes. A native of the foreſts of Guiana. The Creoles put the kernels into their cabinets, to preſerve them from inſects, and to give them an agreeable ſmell.

COUMOUR, in *Geography*, a poſt of Chineſe Tartary. N. lat. 49° 38′. E. long. 126° 17′.

COUNA, or COYNA, a town of Portugal, in the province of Eſtramadura; 2 leagues S.S.E. of Liſbon.

COUNCIL, or COUNSEL, an aſſembly, or meeting of divers conſiderable perſons, or officers, to conſider and concert meaſures touching the adminiſtration of public affairs, rendering juſtice, or the like.

The king's councils are ſuch as the law aſſigns him, in order to aſſiſt him in the diſcharge of his duties, the maintenance of his dignity, and the exertion of his prerogative. The *firſt* of theſe is the high court of parliament. See PARLIAMENT. *Secondly*, the peers of the realm are by their birth hereditary counſellors of the crown, and may be called together by the king to impart their advice in all matters of importance to the realm, either in time of parliament, or, which hath been their principal uſe, when there is no parliament in being. See PEERS. A *third* council belonging to the king, according to ſir Edward Coke (1 Inſt. 110.), conſiſts of his judges of the courts of law, for law matters. This appears frequently in our ſtatutes, particularly 14 Edw. III. c. 5. and in other books of law. So that when the king's council is mentioned generally, it muſt be defined, particularized, and underſtood, "ſecundum ſubjectam materiam;" and if the ſubject be of a legal nature, then by the king's council is underſtood his council for matters of law; *viz.* his judges. Accordingly by the expreſſion of the king's council in 16 Ric. II. c. 5. were underſtood the king's judges of his courts of juſtice, the ſubject-matter being legal: this being the general way of interpreting the word "council." 3 Inſt. 125. But the *fourth*, and principal council belonging to the king, is his privy-council, which is generally called, by way of eminence, "the council." See PRIVY *Council*.

COUNCIL, *Aulic*. See AULIC.

COUNCIL, in *Church Hiſtory* and *Polity*, a ſynod or aſſembly of prelates and doctors, and deputies, met for the regulation of matters, relating to the doctrine or diſcipline of the church. Moſheim obſerves (E. H. v. i. p. 107.) that the Chriſtian churches, in the early period of their eſtabliſhment, were entirely independent; none of them being ſubject to any foreign juriſdiction, but each one governed by its own rules and its own laws. For, though the churches founded by the apoſtles had this particular deference ſhewn them, that they were conſulted in difficult and doubtful caſes; yet they had no juridical authority, no ſort of ſupremacy over the others, nor the leaſt right to enact laws for them. Nothing, on the contrary, as he adds, is more evident than the perfect equality that reigned among the primitive churches, nor does there even appear, in the firſt century, the ſmalleſt trace of that aſſociation of provincial churches from which councils and metropolitans derive their origin. Although the meeting of the church of Jeruſalem, mentioned in the 11th chapter of the Acts, is commonly conſidered as the firſt Chriſtian council; yet this notion, as he conceives, ariſes from a manifeſt abuſe of the word council. That meeting conſiſted only of one church; and if ſuch a meeting be called a council, it will follow that there were innumerable councils in the primitive times. But every one knows, that a council is an aſſembly of deputies or commiſſioners ſent from ſeveral churches aſſociated by certain bonds in a general body, and therefore the term is inapplicable in the preſent inſtance. It has been generally ſuppoſed that the deliberations of the council at Jeruſalem were ſuggeſted and directed by immediate inſpiration; but others maintain that this kind of overruling interference would have ſuperſeded all reaſoning and debates on the ſubject under conſideration, and of courſe all difference of opinion. Although the members of this aſſembly conclude their advice to the Gentile Chriſtians about the obſervance of the Jewiſh ceremonies, with ſaying that it ſeemed good to the Holy Ghoſt and to us, they probably only meant, as the advocates of the latter opinion allege, that they were fully perſuaded that the regulations which they preſcribed were proper in themſelves, and therefore agreeable to the mind and will of God; being conſcious to themſelves that they were under no improper bias. When the apoſtles were dead, it was natural for the biſhops of particular churches to aſſemble on ſimilar occaſions; and though they could not have the authority of the apoſtles, that office becoming extinct with thoſe who were firſt appointed to it; yet, as there was no higher authority in the church, if they had contented themſelves with merely giving *advice*, and confined their deciſions to matters of diſcipline, they would hardly have been diſputed. But it has been pretended, that *general councils*, conſiſting of biſhops aſſembled from all parts of the Chriſtian world, ſucceed to all the power of the apoſtles, and have even abſolute authority in matters of faith.

During a great part of the ſecond century, as well as the whole of the firſt, the Chriſtian churches continued independent of each other; inſomuch, that, as Moſheim repreſents them, each Chriſtian aſſembly was a little ſtate, governed by its own laws, which were either enacted, or at leaſt approved, by the ſociety. But, in proceſs of time, all the Chriſtian churches of a province were formed into one large eccleſiaſtical body, which, like confederate ſtates, aſſembled at certain times, in order to deliberate about the common intereſts of the whole. This inſtitution had its origin among the Greeks, with whom nothing was more common than this confederacy of independent ſtates, and the regular aſſemblies, which met at fixed times, and were compoſed of the deputies of each reſpective ſtate. But theſe eccleſiaſtical aſſociations were not long confined to the Greeks; as ſoon as their great utility was perceived they became univerſal, and were formed in all places where the goſpel had been planted, (vid. Tertullian, lib. de Iejuniis, cap. 13.) To theſe aſſemblies, in which the deputies or commiſſioners of ſeveral churches conſulted together, the name of "ſynods" was appropriated by the Greeks, and that of "councils" by the Latins; and the laws that were enacted, in theſe general meetings, were called "canons," *i. e.* rules. (See CANON.) Theſe councils, of which, according to Moſheim, no trace can be found before the middle of the ſecond century, gave a new form to the Chriſtian church; for by them the ancient privileges of the people were conſiderably diminiſhed, and the power and authority of the biſhops greatly augmented. The prelates, at their firſt appearance in theſe general councils, acknowledged that they were no more than the delegates of their reſpective churches, and that they acted in the name, and by the authority, of their people. But the limits of their authority were ſoon extended, and they converted their influence into dominion, and their counſels into laws; and, at length, openly aſſerted, that Chriſt had empowered them to preſcribe to his people "authoritative rules of faith and manners." Theſe councils alſo gradually ſerved to aboliſh that equality, which ſubſiſted among biſhops in the primitive times; becauſe the order and decorum of theſe aſſemblies required, that ſome one of the provincial biſhops, met in council, ſhould be inveſted with a ſuperior degree of authority and power; and hence the rights of Metropolitans derive their origin. (See METROPOLITAN.) Beſides, the enlargement of the boundaries of the church, and the cuſtom of holding councils which ſpring from it, occaſioned the creation of a new order of eccleſiaſtics, who were appointed in different parts of the world, as heads of the church, and whoſe office it was to preſerve the conſiſtence and union of that immenſe body, the members of which were ſo widely diſperſed throughout the nation. Such were the nature and office of the patriarchs (ſee PATRIARCH); among whom, at length, ambition formed a new dignity, inveſting the biſhop of Rome, and his ſucceſſors, with the title and authority of prince of the patriarchs. See BISHOP, CHURCH, and POPE.

COUNCIL, *Provincial*, is an aſſembly of the prelates of a province under the metropolitan. In theſe councils the provincial biſhops deliberated together concerning thoſe matters that related to the intereſts of the churches of a whole province, as alſo concerning religious controverſies, the forms and rules of divine ſervice, and other things of like moment. Theſe leſſer councils were compoſed of the eccleſiaſtical deputies of one or more provinces. See CONVOCATION and PROVINCE.

COUNCIL, *National*, is an aſſembly of the prelates of a nation, under their primate, or patriarch. See PRIMATE.

COUNCIL, *Oecumenical* or *General*, is an aſſembly of all the prelates of Chriſtendom, or of commiſſioners from all the churches in the Chriſtian world, and repreſenting the church univerſal. Indeed to conſtitute a *general council*, it is not required, that all the prelates ſhould be actually preſent; it is ſufficient, that the *council* be regularly appointed, and that they may be there, or are ſummoned to attend.

General Councils are frequently called, by eccleſiaſtical authors, *plenary councils*. Theſe were eſtabliſhed by Conſtantine the Great, who aſſembled the firſt at Nice in 325.

This prince thought it equitable, that queſtions of ſuperior importance, and ſuch as intimately concerned the intereſts of Chriſtianity in general, ſhould be examined and decided in aſſemblies that repreſented the whole body of the Chriſtian church; and his judgment in this reſpect was probably directed by that of the biſhops. Indeed there never were any councils held, which could, with ſtrict propriety, be called "univerſal;" thoſe, however, whoſe laws and decrees were approved and admitted by the univerſal church, or the greateſt part of the ſacred body, are commonly called, however improperly, "oecumenical," or "general" councils. It is evident that no councils were entitled to this appellation in the ſtrict ſenſe of the term. For the four firſt, which are held in the higheſt eſtimation, had no biſhops from ſeveral whole provinces in the Chriſtian world; and the council of Trent, to the authority of which the papiſts pay ſuch great deference, was perhaps the leaſt reſpectable of all the councils. The chief intention of the crowned heads, who promoted this council, was to reform the abuſes in the court of Rome. But the pope himſelf, by his legates preſiding in it, pronounced the proteſtants, who appealed to it, heretics, before they were condemned by that council; and none were allowed to vote in it but ſuch as had taken an oath to the pope and the church of Rome. There were ſcarcely 50 biſhops preſent in it; none being ſent from ſeveral countries. Some that attended were only titular biſhops, created by the pope for that purpoſe; and ſome had Grecian titles in order to make an appearance of the Greek church conſenting to it. It is alſo well known, that nothing was decided in the council without the previous conſent of the court of Rome, and the decrees concluded with an expreſs ſalvo of the whole authority of the apoſtolical ſee.

Councils were moſt frequent in the times of the Chriſtian emperors at Conſtantinople, and of the Chriſtian princes of Europe, from the fall of the Roman empire till towards the end of the 8th century. But the publication of the forged decretals of Iſidore, at that period, produced a great change with reſpect to councils, the juriſdiction of biſhops, and appeals: for councils became leſs frequent when they could not be held without the pope's leave; and the interruption of provincial councils, was a great wound, ſays Fleury, to eccleſiaſtical juriſdiction.

The Romaniſts reckon eighteen *general* councils: of which only the firſt four are admitted by the reformed. The number is made out thus: two of Nice, four of Conſtantinople, one of Epheſus, one of Chalcedon, five of the Lateran, two of Lyons, one of Vienne, one of Florence, and the laſt of Trent, which held from 1545 to 1563. The council of Trent ordains *provincial* councils to be held every three years; yet the laſt held in France is that of Bourdeaux, a hundred years ago.

The firſt perſon who ſeems to have maintained the infallibility of councils, is Barlaam; who exhorts one of his friends to return to the communion of the church of Rome, becauſe a council at Lyons, being lawfully aſſembled, and having condemned the errors of the Greeks, he muſt then be conſidered as an heretic, cut off from the church, if he did not ſubmit to it. But Occam, who lived at the ſame time, *viz.* in the 14th century, ſpeaks of it as the opinion of ſome doctors only, while others ſay this infallibility was a privilege of the college of cardinals, and others of the pope himſelf.

It was a queſtion, however, that did not begin to be agitated till that time, and it was then diſputed very calmly. It was more openly debated during the differences between the popes and the councils; when the councils ſetting themſelves up above the popes, determined that *they*, and not the *popes*, were appointed by God to judge in the laſt reſort concerning articles of faith. The council of Conſtance made no deciſion on the ſubject; but that of Baſil did, ſaying that it was blaſphemy to doubt that the Holy Spirit dictated their reſolutions, decrees, and canons; while the pope, and his council at Florence, declared the contrary; and it is not yet determined which of theſe was a lawful council. (ſee Baſnage, vol. iii. p. 518.) But if we conſider the claims of infallibility in favour of theſe councils, we may argue, that an aſſembly of biſhops, however numerous and reſpectable, being only an aſſembly of fallible men, can have no juſt pretenſions to infallibility; nor, indeed, was this claim arrogated in early times. If the infallibility of general councils were admitted, it might be aſked, what conſtitutes a *general* council? and how ſhall we know that it is truly *univerſal?* For this, it ſeems, is a neceſſary prerequiſite to its infallibility. Were even all the Chriſtian biſhops admitted to the council of Nice? Were the Novatian biſhops admitted there? No, ſays Valeſius, they deſerved to be ſhut out as ſchiſmatics. But they were orthodox in point of doctrine; and if we credit Socrates, the eccleſiaſtical hiſtorian, ſome of them had a plauſible claim to admittance as they wrought miracles. Four hundred biſhops met together at Ariminum; did they conſtitute a general council? No; it was an Arian council; and, therefore, it muſt not be called "concilium," but "conciliabulum." Beſides, thoſe general councils, the decrees of which were moſt eſteemed and moſt authoritative, were aſſemblies, in too great a degree, of factious men, who determined, not under the ſole influence of a love of truth, but juſt as the emperors or the popes, who ſummoned them, were pleaſed to direct. Whoever duly conſiders the various motives by which the aſſembled prelates were influenced, will not be diſpoſed to pay a blind deference to the authority of general councils, and will rather be inclined to judge that the council held by the apoſtles at Jeruſalem was the firſt and the laſt in which the Holy Spirit may be affirmed to have preſided. "Thus far we may ſafely go," ſays the excellent Dr. Jortin (Rem. on E. H. vol. iii. p. 57.) "and ſubmit to an apoſtolical ſynod: but if once we proceed one ſtep beyond this, we go we know not whither. If we admit the infallibility of one general council, why not of another? And where ſhall we ſtop? At the firſt Nicene council, A. D. 325, or at the ſecond Nicene council, A. D. 787?" Although Arianiſm was condemned by the council of Nice, it was again eſtabliſhed at the council of Ariminum, which was as much a general council as the other, and alſo in the councils of Seleucia and Sirmium. We have alſo a remarkable inſtance of the mutual contradictions of councils, at which the popes themſelves have preſided, in thoſe of Chalcedon and Conſtantinople, in 554. For the former abſolved and juſtified Theodoret of Cyr, and Ibas of Edeſſa, and received them into their body, as orthodox biſhops; whereas the council of Conſtantinople, which is ſtyled the fifth general council, and was approved by the pope, condemned them as damnable heretics. The council of Conſtantinople alſo decreed that images were not to be endured in Chriſtian churches, whereas the ſecond council of Nice not only allowed them to be erected, but even to be worſhipped. In later times, the Lateran council of Julius II. was called for no other purpoſe but to reſcind the decrees of the council of Piſa, and whereas the council of Baſil had decreed that a council of biſhops is above the popes, the Lateran council, under pope Leo, decreed that a pope is above a council. "They who diſclaim private judgment," ſays Dr. Jortin (*ubi ſupra,*) "and believe the infallibility of the church, act conſiſtently in holding the infallibility of councils; but they who take their faith from the Scriptures, and not from the church, ſhould be careful not to require nor to yield too much regard to ſuch aſſemblies, how numerous ſoever. Numbers in this caſe go for little, and to them the old proverb may be applied.

"Eſt turba ſemper argumentum peſſimi."

A general council, however, we are told, will at leaſt be ſecured from erring in *fundamentals;* to which the ſame writer replies, that "by this way of reaſoning the number of *fundamentals* will be increaſed beyond meaſure and without end; and *metaphyſical terms of art* will be eſteemed *fundamental doctrines;* as if the very eſſence of Chriſtianity could depend upon words not uſed by the Holy Spirit, unknown to the ſacred writers, not to be found in the records of the three firſt centuries, of which different interpretations were given when they were firſt eſtabliſhed, and have been given ever ſince, and which common people moſt certainly do not and cannot underſtand; but they are ſecured, it ſeems, by that ſort of faith without knowledge, which the church of Rome recommends, and which is called by ſome "fides carbonaria."

After all, we may obſerve, that the moſt eminent catholic writers themſelves have maintained different opinions on this ſubject, and have been much influenced by the circumſtances in which they wrote. This was very remarkably the caſe with Æneas Sylvius, who had with great boldneſs maintained the authority of the council of Baſil againſt Eugenius IV.; but being made pope (by the name of Pius II.) he publiſhed a ſolemn recantation of all that he had written upon that ſubject, declaring without ſhame or heſitation, that as Æneas Sylvius he was a damnable heretic, but as Pius II. he was an orthodox pontiff. At preſent the opinion of the infallibility of the pope being generally given up by the catholics, they ſuppoſe the ſeat of infallibility (which muſt exiſt ſomewhere) to be in the councils. The proteſtants themſelves had at one time no diſpute about the authority of truly general councils. Luther appealed to a general council regularly aſſembled, and engaged to abide by its deciſion. Calvin maintained in expreſs terms, that the univerſal church is infallible, and that God muſt annul his ſolemn promiſes if it be otherwiſe (Baſnage, vol. iii. p. 499.) See alſo biſhop Bull's Def. Fid. Nic.

Among proteſtants, at this advanced period of general illumination and liberty, no one will aſcribe to any aſſembly of men, however dignified or numerous, the privilege of infallibility; nor will any one vindicate the impoſition and credulity, which have frequently originated in this ſource.

There have been various collections of the canons or decrees of councils; as that of Dr. Merlin at Paris in 1524; one of F. Crabbe, a Franciſcan, in 1536; another of Surius, in 1567; another at Venice, in 1585; another at Rome, in 1608; one of Binius, canon of Cologne, in 1606, in ten volumes; another at the Louvre, in 1664, in thirty-ſeven volumes; another of F. Labbe and F. Coſſart, Jeſuits, in 1672, in ſeventeen volumes, more ample than the reſt; laſtly, another by F. Hardouin. See CANON.

COUNCIL *of the Indies*, conſtitutes a tribunal, of very eminent dignity and extenſive power, in which is veſted the ſupreme government of all the Spaniſh dominions in America. It was firſt eſtabliſhed by Ferdinand in the year 1511, and brought into a more perfect form by Charles V. in the year 1524. The juriſdiction extends to every department, eccleſiaſtical, civil, military, and commercial. All laws and ordinances relative to the government and police of the colonies originate there, and muſt be approved of by two-thirds of the members, before they are iſſued in the name of the king. All the offices, of which the nomination is reſerved to the crown, are conferred on this council; and to it each perſon employed in America, from the viceroy downwards, is accountable. It reviews their conduct, rewards their ſervices, and inflicts the puniſhments due to their malverſations. Before this tribunal is laid whatever intelligence, either public or ſecret, is received from America, and every ſcheme of improving the adminiſtration. From the firſt inſtitution of the council of the Indies, it has been the conſtant object of the catholic monarchs to maintain its authority, and to make ſuch additions from time to time, both to its power and its ſplendour, as may ſerve to render it formidable to all their ſubjects in the New World. Whatever degree of public order and virtue ſtill remains in that country, where ſo many circumſtances conſpire to relax the former, and to corrupt the latter, may be aſcribed in a great meaſure to the wiſe regulations and vigilant inſpection of this reſpectable tribunal. Robertſon's America, vol. iii.

Council *of war*, is an aſſembly of the principal officers of an army, or fleet, occaſionally called by the general, or admiral, to conſider of the preſent ſtate of things, and concert meaſures for their conduct, with regard to ſieges, retreats, engagements, &c.

The ſame term is ſometimes alſo uſed for an aſſembly of the officers of a regiment or ſhip; met to try ſoldiers or ſailors accuſed of any crime.

Council, *Common*. See *Mayor's* Courts.

Council *and Seſſion in Scotland*. See Sessions.

COUNSEL, Counsellor, *Conſiliarius*, in *Law*; is a perſon retained by a client to plead his cauſe in a court of judicature.

Of counſellors there are two ſpecies or degrees; *viz. barriſters* and *ſerjeants;* which ſee reſpectively. From both theſe degrees ſome are uſually ſelected to be his Majeſty's counſel, learned in the law; the two principal of whom are called his attorney, and ſolicitor, general. The firſt king's counſel, under the degree of ſerjeant, was ſir Francis Bacon, who was made ſo "honoris cauſa," without either patent or fee; ſo that the firſt of the modern order (who are now the ſworn ſervants of the crown, with a ſtanding ſalary), ſeems to have been ſir Francis North, afterwards lord-keeper of the great ſeal to king Charles II. Theſe king's counſel anſwer in ſome meaſure to the advocates of the crown, "advocati fiſci," among the Romans. For they muſt not be employed in any cauſe againſt the crown without ſpecial licence; in which reſtriction they agree with the advocates of the fiſc (Cod. 2. 9. 1.); but in the imperial law the prohibition was carried ſtill farther, and perhaps was more for the dignity of the ſovereign; for, excepting ſome peculiar caſes, the fiſcal advocates were not permitted to be at all concerned in private ſuits between ſubject and ſubject. (Cod. 2. 7. 13.) A cuſtom has of late years prevailed of granting letters of patent of precedence to ſuch barriſters as the crown thinks proper to honour with that mark of diſtinction; whereby they are entitled to ſuch rank and pre-audience as are aſſigned in their reſpective patents;—ſometimes next after the king's attorney general, but uſually next after his majeſty's counſel then being. Theſe, as well as the queen's attorney and ſolicitor-general, rank promiſcuouſly with the king's counſel; and, together with them, ſit within the bar of the reſpective courts, but receive no ſalaries, and are not ſworn; and therefore are at liberty to be retained in cauſes againſt the crown. And all other ſerjeants and barriſters indiſcriminately (except in the court of common pleas, where only ſerjeants are admitted), may take upon them the protection and defence of any ſuitors, whether plaintiff or defendant. See Client. As pre-audience in the courts is reckoned of ſo much conſequence, we ſhall here ſubjoin the order of precedence, which uſually obtains among the practiſers: 1. The king's ſerjeant, ſo conſtituted by ſpecial patent:—2. The king's ancient ſerjeant, or the eldeſt among the king's ſerjeants:—3. The king's advocate general:—4. The king's attorney general:—5. The king's ſolicitor general:—6. The king's ſerjeants:—7. The king's counſel, with the queen's attorney and ſolicitor:—8. Serjeants at law:—9. The recorder of London:—10. Advocates of the civil law:—11. Barriſters. In the court of exchequer two of the moſt experienced barriſters, called the *poſt*-man, and the *tub*-man, from the places in which they ſit, have alſo a precedence in motions. A counſellor at law hath a privilege to enforce any thing of which he is informed by his client, if pertinent to the matter, and is not to examine whether it be true or falſe; for it is at the peril of him who informs him. Cro. Jac. 90. And by ſtat. 5 Eliz. c. 14. counſellors ſhall not be puniſhed for ſhewing a falſe deed in evidence. But after the court hath delivered their opinions of the matter in law depending before them, the *counſel* at the bar are not to urge any thing farther in that cauſe. 1 Lill. Abr. 355.

No counſel is allowed a priſoner upon a general iſſue, on indictment of felony, &c. unleſs ſome doubtful point of law ariſe; the court is the priſoner's only counſel; and the behaviour of the priſoner in his own defence, is one means of diſcovering the truth: but this ſeems to be a defect in our common law; which ſtrictly is, in this reſpect, no part of our ancient law; for the Mirror (c. iii. § 1.), having obſerved the neceſſity of counſel in civil ſuits, immediately ſubjoins, that the neceſſity is greater in defence upon indictments and appeals of felony, than upon other venial cauſes. The judges themſelves are ſo ſenſible of this defect, that they never ſcruple to allow a priſoner counſel to inſtruct him what queſtions to aſk, or even to aſk queſtions for him, with reſpect to matters of fact; for, as to matters of law, ariſing on the trial, they are entitled to the aſſiſtance of counſel. Proviſion is made by ſtat. 7 W. III. c. 3. and by ſtat. 20 Geo. II. c. 30. for counſel for priſoners in treaſon. See Treason. Blackſt. Com. vol. iv. See Trial.

COUNSELLORS *of the king, hereditary*. See Council and Peers.

Counsellors *of honour*. See Honour.

Counsellors, *Privy*. See Privy-Council.

COUNT, Countee, Comes, a nobleman who poſſeſſes a domain erected into a County; which ſee. See alſo Viscount.

Engliſh counts we diſtinguiſh by the title of *earls*; foreign ones ſtill retain their proper name.

The dignity of a count is a medium between that of a duke and a baron.

According to modern uſe, many plenipotentiaries and ambaſſadors have aſſumed the title of counts; though they have no county; as the *count d'Avaux*, &c.

Anciently, all generals, counſellors, judges, and ſecretaries of cities under Charlemagne were called *counts*; the diſtinguiſhing character of a *duke* and *count* being this, that the latter had but one town under him, but the former ſeveral.

A count has a right to bear on his arms a coronet, adorned with three precious ſtones, and ſurmounted with three large pearls, whereof thoſe in the middle and extremities of the coronet advance above the reſt.

Counts were originally lords of the court, or of the emperor's retinue, and had their name *comites*, *à comitando*, or, *à commeando*: hence, thoſe who were always in the palace or at the emperor's ſide, were called *counts palatine*, or *co-*

mites à latere. See Palatine.—In the times of the commonwealth, *comites*, among the Romans, was a general name for all thoſe who accompanied the proconſuls and proprætors into the provinces, there to ſerve the commonwealth; as the tribunes, præfects, ſcribes, &c.

Under the emperors, *comites* were the officers of the palace. The origin of what we now call counts ſeems owing to Auguſtus, who took ſeveral ſenators to be his *comites,* as Dion obſerves, *i. e.* to accompany him in his voyages and travels, and to aſſiſt him with their advice in the hearing of cauſes; which were thus judged with the ſame authority as in full ſenate. Theſe counſellors were ſtyled "comites Auguſtales," or "comites Auguſti," companions of the emperor, becauſe they were conſtant attendants on his perſon. They were divided into three orders or degrees; and thoſe of each order had certain privileges and appointments, while they attended the imperial court. As they had frequent acceſs to the emperors, they often ſtood high in their favour, and obtained from them the government of provinces, towns, forts, and caſtles, and other offices of profit and honour. When they left the imperial court, to take upon them the government of a province, town, or caſtle, or the exerciſe of any office, they were no longer called "comites Auguſtales," companions of the emperor, but "comites" of ſuch a province, town, caſtle, or office, as the *counts* of Britain, of the Saxon ſhore, &c. Gallienus ſeems to have aboliſhed this council, by forbidding the ſenators being found in the armies: and none of his ſucceſſors re-eſtabliſhed it.

Theſe counſellors of the emperor were really *counts*, *comites*, *i. e.* companions of the prince; and they ſometimes took the title, but always with the addition of the emperor's name whom they accompanied: ſo that it was rather a mark of their office, than a title of dignity.

Conſtantine was the firſt who converted it into a dignity; and under him it was that the name was firſt given abſolutely.

When Conſtantine determined to ſeparate the military from the civil adminiſtration, he transferred the ſupreme juriſdiction exerciſed by the prætorian prefects over the armies of the empire, to the two "maſters general," *magiſtri militum,* whom he inſtituted; the one for the cavalry, the other for the infantry; and though each of theſe *illuſtrious* officers, as they were denominated, was more peculiarly reſponſible for the diſcipline of thoſe troops that were under his immediate inſpection, they both indifferently commanded in the field the ſeveral bodies, whether of horſe or foot, which were united in the ſame army. Their number was ſoon doubled, by the diviſion of the Eaſt and Weſt; and as ſeparate generals of the ſame rank and title were appointed on the four important frontiers of the Rhine, of the Upper and the Lower Danube, and of the Euphrates, the defence of the Roman empire was at length committed to eight maſters-general of the cavalry and infantry. Under their orders, 35 military commanders were ſtationed in the provinces; three in Britain, ſix in Gaul, one in Spain, one in Italy, five on the Upper, and four on the Lower Danube, in Aſia eight, three in Egypt, and four in Africa. They were properly diſtinguiſhed by the titles of "counts," and "dukes;" the latter of which appellations, being a corruption of the Latin word *dux*, was indiſcriminately applied to any military chief. All theſe provincial generals were therefore *dukes*; but no more than ten of them were dignified with the rank of *counts* or companions, as a title of honour, or rather of favour. A gold belt was the enſign which diſtinguiſhed the office of the counts and dukes; and beſides their pay, they received a liberal allowance, ſufficient to maintain 190 ſervants, and 158 horſes. They were ſtrictly prohibited from interfering in any matter which related to the adminiſtration of juſtice or the revenue; but the command which they exerciſed over the troops of the department was independent of the authority of the magiſtrates.

The name of count being once eſtabliſhed was in a little time indifferently conferred, not only on thoſe who followed the court, and accompanied the emperor, but alſo on moſt kinds of officers; a long liſt whereof is given us by Du-Cange.

Euſebius tells us, that Conſtantine divided the counts into three claſſes: the firſt bore the title of *illuſtres:* the ſecond that of *clariſſimi,* and afterwards *ſpectabiles;* the third were called *perfectiſſimi.*

Of the two firſt claſſes was the ſenate compoſed; thoſe of the third claſs had no place in the ſenate, but enjoyed ſeveral other of the privileges of ſenators.

There were counts who ſerved on land, others at ſea; ſome in a civil, ſome in a religious, and ſome in a legal capacity: as, "comes ærarii, comes ſacrarum largitionum, comes ſacri conſiſtorii, comes curiæ, comes capellæ, comes archiatrorum, comes commerciorum, comes veſtiarius, comes horrearum, comes opſoniorum *or* annonæ, comes domeſticorum, comes equorum regiorum *or* comes ſtabuli, comes domorum, comes excubitorum, comes notariorum, comes legum *or* profeſſor in jure, comes limitum *or* marcarum, comes portus Romæ, comes patrimonii, &c."

Among thoſe on whom Conſtantine conferred the rank of "illuſtrious," we may mention the "count of the camp," *comes caſtrenſis*, to whom was committed the principal adminiſtration of public affairs. He was the ſupreme magiſtrate of the palace, inſpected the diſcipline of the civil and military ſchools, and received appeals from all parts of the empire; the cauſes which related to that numerous army of privileged perſons, who, as the ſervants of the court, had obtained, for themſelves and families, a right to decline the authority of the ordinary judges. Another officer belonging to the ſame claſs was the treaſurer-general of the revenue, denominated "count of the ſacred largeſſes;" probably to inculcate the notion, that every payment flowed from the voluntary bounty of the monarch. Twenty-nine provincial receivers, of whom eighteen were honoured with the title of count, correſponded with the treaſurer. The imperial eſtates, independently of the public revenue, were under the adminiſtration of another officer, called the "count" or treaſurer of "the private eſtate." Moreover, the choſen bands of cavalry and infantry, which guarded the perſon of the emperor, were under the immediate command of the "two counts of the domeſtics." The whole number conſiſted of 3500 men, divided into ſeven ſchools, or troops, of 500 each; and in the eaſt, this honourable ſervice was almoſt entirely appropriated to the Armenians. Theſe counts of the domeſtics had ſucceeded to the office of the Prætorian præfects; like the præfects, they aſpired from the ſervice of the palace to the command of armies.

The Franks, Germans, &c. paſſing into Gaul and Germany, did not aboliſh the form of the Roman government; and as the governors of cities and provinces were called *counts*, *comites*, and *dukes*, *duces*, they continued to be called ſo.

Theſe governors commanded in time of war; and in time of peace they adminiſtered juſtice. Thus, in the time of Charlemagne, counts were the ordinary judges and governors of the cities.

Theſe counts of cities were beneath the dukes and counts who preſided over provinces; the firſt being conſtituted in the particular cities under the juriſdiction of the latter. The counts of provinces were in nothing inferior to dukes, who themſelves were only governors of provinces. Under the laſt of the ſecond race of French kings, they got their dignity rendered hereditary; and even uſurped the ſovereignty when Hugh Capet came to the crown: his authority was not ſufficient to oppoſe their encroachments: and hence it is they date the privilege of wearing coronets in their arms; they aſſumed it then, as enjoying the rights of ſovereigns in their particular diſtricts, or counties. But, by degrees, moſt of the counties became re-united to the crown.

We learn from Tacitus, that the chief men among the Germans endeavoured to attach to their perſons and intereſts certain adherents, whom he calls “Comites.” Theſe fought under their ſtandard, and followed them in all their enterpriſes. The ſame cuſtom continued among them in their new ſettlements, and theſe attached or devoted followers were called “fideles,” “antruſtiones,” “homines in truſte Dominica,” and “leudes.” Tacitus informs us (De Mor. Germ. c. 13.) that the rank of “a comes” was deemed honourable; and the compoſition paid for the murder of one “in truſte dominica” was triple to that paid for the murder of a freeman. While the Germans remained in their own country, they courted the favour of theſe “comites” by preſents of arms and horſes, and by hoſpitality. As long as they had no property in land, theſe were the only gifts which they could beſtow, and the only reward which their followers deſired. But upon their ſettling in the countries which they conquered, and when the value of property came to be underſtood among them, inſtead of theſe ſlight preſents, the kings and chieftains beſtowed a more ſubſtantial recompence in land on their adherents. Theſe grants were called “beneficia,” becauſe they were gratuitous donations; and “honores,” becauſe they were regarded as marks of diſtinction. See Beneficium.

The quality of count is now become very different from what it was anciently; being now no more than a title, which a king grants upon erecting a territory into a county, with a reſerve of juriſdiction and ſovereignty to himſelf.

At firſt, there was no clauſe in the patent of erection, intimating the reverſion of the county to the crown in default of heirs male; but Charles IX., to prevent their being too numerous, ordained that duchies and counties, in default of heirs male, ſhould return to the crown.

The point of precedence between counts and marquiſes has been formerly much controverted; though anciently, when counts were governors of provinces, they were on a level even with dukes.

William the Conqueror, as is obſerved by Camden, gave the dignity of counts in fee to his nobles; annexing it to this or that county or province, and allotting for their maintenance a certain proportion of money, ariſing from the prince's profits in the pleadings and forfeitures of the provinces. To this purpoſe he quotes an ancient record, thus, “Hen. II. Rex Angliæ his verbis *comitem* creavit; ſciatis nos feciſſe Hugonem Bigot *comitem* de Norf. &c. de tertio denarii de Norwich & Norfolk, ſicut aliquis *comes* Angliæ, &c.

The Germans call a count, *graf*, or *graff*; which, according to a modern critic, properly ſignifies *judge*; and is derived from *gravio*, or *graffio*, of γραφω, *I write*. They have ſeveral kinds of theſe *counts*, or *graffs*; as *landgraves*, *marchgraves*, *burg-graves*, and *palſgraves*, or *counts palatine*. Theſe laſt are of two kinds; the former are of the number of princes, and have the inveſtiture of a palatinate; the others have only the title of *count palatine*, without the inveſtiture of any palatinate.

Some aſſert, that by publicly profeſſing the imperial laws for twenty years, the perſon acquires the dignity of a *count palatine*; and there are inſtances of profeſſors in law, who have aſſumed the title accordingly; but there are others who queſtion this right.

Counts *of Britain*, “Comites Britanniarum,” officers who commanded the Roman forces in the interior parts of Britain, diſtributed into the towns, forts, and caſtles in theſe parts. The forces under the counts of Britain are ſuppoſed to have been originally about 3000 foot and 600 horſe; but after the internal tranquillity of the country was fully ſecured, theſe forces ſeem to have been removed out of the iſland, or to have been ſtationed on the frontiers; for in the 53d ſection of the “Notitia Imperii,” where the court of this count is deſcribed, no notice is taken of any forces under his command.

Count *of the Saxon ſhore* in *Britain*, “Comes littoris Saxonici per Britanniam,” an officer who commanded in chief all the forts and garriſons, eſtabliſhed along the ſouth and eaſt coaſts of Britain, in order to protect the country from the depredations of Saxon pirates, who infeſted theſe coaſts. Of theſe forts there were nine in the following order, beginning at the moſt northerly, and advancing ſouthwards: *viz.* 1. Branodunum, or Brancaſter;—2. Garionnonum, Burghcaſtle, near Yarmouth; both on the Norfolk coaſt;—3. Othona, Ithancheſter, not far from Malden in Eſſex; now overflowed by the ſea;—4. Regulbium, Reculver;—5. Rutupæ, Richborough;—6. Dubris, Dover; 7. Lemanæ, Lime; theſe four laſt on the coaſt of Kent;—8. Anderida, Haſtings, or Eaſt-Bourn, in Suſſex—and 9. Portus Adurnus, Portſmouth, in Hampſhire. Theſe 9 forts were garriſoned by about 2200 foot, and 200 horſe. The enſigns of the count of the Saxon ſhore in Britain were, a book of inſtructions, and the figures of 9 caſtles, repreſenting the 9 forts under his command. The court of this count was compoſed of the following officers; *viz.* A principal officer from the court of the maſter of the foot; two auditors and a maſter of the priſons, both from the ſame court; a ſecretary; an aſſiſtant; an under-aſſiſtant; a regiſter; clerks of appeals; ſerjeants; and other under-officers.

Count, in *Law*, denotes the original declaration of complaint in a real action; as the declaration is in a perſonal one; the libellus of the civilians anſwers to both.

Yet, count and declaration are ſometimes confounded; and uſed for each other: as, *count in debt*, *count in appeal*, &c. See Declaration.

Count-*wheel*, in *Clock-work*, a wheel which moves round in twelve hours; called alſo the *locking-wheel*. See Clock.

Countee, Fr. *Comte*, denoted the moſt eminent dignity of a ſubject, before the conqueſt; ſo that thoſe, who in ancient times were created “Countees,” were men of great eſtate; for which reaſon, and becauſe the law intends that they aſſiſt the king with their counſel for the public good, and preſerve the realm by their valour, they had great privileges; as that they might not be arreſted for debt or treſpaſs, or be put upon juries, &c. Of old the countee was *præfectus*, or *præpoſitus comitatus*, and had the charge and cuſtody of the *county* (which ſee); but this authority now belongs to the ſheriff. 9 Rep. 46. A countee or count is in the law French, an earl. See Earl.

COUNTENANCE, ſeems to have been uſed for credit or eſtimation; Old Nat. Brev. III. and ſtat. 1 Ed. III. c. 4. See Contenement.

COUNTER, from *computare*, is the name of two priſons in London, for the uſe of the city, to confine debtors, breakers of the peace, &c.

COUNTER, among *Engineers*, is a term often uſed for the over-looker upon canals and other great works, whoſe buſineſs it is to count the men employed at different times of the day, and keep an account of the time and number of labourers' days-work, ſpent on different departments of the work, both as a check upon the charge of ſuch men as are paid by the day, and as a rule for the ſums which contractors for large pieces of work, are to be allowed to draw, on account, for paying their men: this information is alſo of the moſt eſſential uſe in forming the reſident engineer's judgment on the time neceſſary for performing any future piece of work, and the proper prices to be allowed for works of different kinds, as obſerved under the article CANAL, which ſee.

COUNTERS, in *Ship-Building*, are diſtinguiſhed into *upper* and *lower*. The *upper counter* is reckoned from the gallery to the lower part of the ſtraight piece of the ſtern. The *lower counter* is between the tranſom and lower part of the gallery.

COUNTER *of a horſe*, that part of a horſe's fore-hand which lies between the ſhoulders and under the neck.

COUNTERS, Fr. JETTONS, from *jetter*, to caſt, in the *Hiſtory of Coinage*, are pieces of coin iſſuing from modern mints that frequently occur; they are ſmall, and very thin, commonly of copper or braſs, but ſometimes of ſilver, and even of gold. The intention of the common counters, as their name imports, was merely for calculation. This was performed by means of a board marked with parallel lines. (See ABACUS.) Pieces of this kind were moſt commonly uſed in abbeys and other places, where the revenue was complex and difficult of adjuſtment. For this reaſon, a great number of them is found in the ruins of our Engliſh abbeys, whence they are commonly called "Abbey-pieces." But almoſt all of them are coined abroad, from the 14th century down to the preſent times; though ſome few have been likewiſe ſtruck in England, from the time of Henry VIII. downwards. Moſt of the gold and ſilver counters are within the laſt century, and ſtruck in France. They are readily known from the arms of the companies on them, and from other marks, ſo that it is needleſs to give any particular account of them. The Engliſh "touch-pieces" may be claſſed with ſilver counters; they commonly bear on one ſide St. Michael and the dragon, and a ſhip on the other; and they were deſigned to be hung round the neck when the king touched the party for the evil: the lateſt are of James II., Anne, and the Pretender. The ancient copper counters are the moſt likely to impoſe upon the younger amateurs in the ſcience of medals; who may be ſo impoſed upon as to pay for them as coins, though they are not worth a penny a-piece. Mr. Snelling has, in his treatiſe, given plates of them of all ages; in which it will be ſeen, that the moſt ancient have croſſes with pellets on both ſides, and ſimilar devices; the next, globes ſurmounted by croſſes, &c.; and the moſt modern, portraits of princes and dates, with the arms of the kingdoms on the reverſe. Beſides, they are eaſily diſtinguiſhed by their thinneſs, which degrades them from all other coin; for, as medals are ſuperior to coin, ſo counters of all kinds are inferior. The ancient ones cannot impoſe on any perſon; for copper was coined for currency in France, and other countries where they are principally ſtruck, till about the year 1580; and braſs never was common coin of any ſtate in modern times. The modern counters have almoſt always a legend in Latin, French, or Flemiſh, which marks their intention; being ſo many maxims of juſtice in accompts. The ancients had counters of the ſmall braſs ſort, that were ſtruck for their domeſtic games; *e. g.* that with four dyes, QUI LUDET ARRAM DET QUOD SATIS SIT, and the like: a claſs, ſays Pinkerton, that has hitherto totally eſcaped our medalliſts. In this connection we may mention the "Nummi bracteati," (ſee BRACTEATED), a ſpecies of the early modern coins between counters and money. They are ſmall thin plates, commonly of ſilver, ſtamped with wooden dyes, as it ſhould ſeem, upon one ſide only, with the rude impreſſion of various figures and inſcriptions. Moſt of them are eccleſiaſtical, as appears from the croſs, &c. being ſtruck by the archbiſhops, biſhops, and abbots, in Germany, Switzerland, Denmark, Sweden, Norway, and a few in Poland. But ſome alſo occur of ſecular princes and ſtates. Sperlingius has publiſhed a curious treatiſe on the origin and progreſs of bracteate coins, (Lubec, 1700, 4to.) from which it appears that the oldeſt are of Henry the Lion, duke of Saxony, 1180; and it is certain they were unknown in Germany till that century. There are ſeveral bracteate coins of the counts of Thuringia, bearing their figures on horſe-back, with legends of name and title. The Byzantine baſe ſilver, in the form of a cup, with figures only on the concave ſide, ſeems to have given riſe to the German bracteate coins. And they continued to be uſed in Germany till the end of the 15th century; and in ſome parts of Switzerland they are uſed even now; though at Zurich they ceaſed about the year 1400. There are many of biſhops in Denmark, as of Sueno, 1370, and others; as there are of Swediſh biſhops; and of Norwegian, which laſt bear NI for Nidaros, now Drontheim, the archiepiſcopal ſee. Some opulent trading towns in Norway alſo appear to have ſtruck them; and A occurs for Aſloa, or Opſloa, and B for Bergen, as Sperling explains them. Thoſe of German cities and ſtates, are moſtly known by the arms. Pinkerton's Eſſ. on Medals, vol. ii.

COUNTER, of the Latin prepoſition *contra*, againſt, is uſed in the compoſition of divers words in our language; and generally implies the relation of oppoſition, as,

COUNTER-*Alley*, in *Gardening*. See ALLEY.

COUNTER-*Approach*. *Line of counter-approach*, is a ſort of trench, which the beſieged make from their covert-way to the right and the left of the attacks, in order to be able to enfilade the enemy's works. This line ſhould take its commencement, or begin, in the angle of the place of arms of the ravelin, that is not attacked, and of the baſtion attacked, at the diſtance of 50 or 60 toiſes from the attacks; and ought to be prolonged, or carried on as far as may be judged neceſſary for ſeeing the enemy in his trenches and parallels. This line or trench, ought to be completely commanded, and ſeen directly from the covert-way and ravelin, to prevent the beſiegers, ſhould they drive the troops out of it, to derive any benefit or advantage from it.

There ſhould be placed on each ſide of the opening of this line of counter-approach, ſmall pieces of artillery, and in the demi-lune, or ravelin directly oppoſite to the ſaid opening, ſome large cannon to ſcour and look along it, ſhould the enemy wiſh to eſtabliſh himſelf in it after drawing the beſieged out of it.

The enemy will either endeavour to cover himſelf againſt this line of counter-approach, or he will puſh on a line to join it, expecting to render it uſeleſs. But ſuch a line, if he makes it, will render his cavalry of but little uſe againſt the ſallies of the beſieged. Beſides, another line of counter-approach more diſtant from the attacks, and more extended, will produce the ſame effect with the firſt, and will render the firſt uſeful for the purpoſe it was intended for, before the enemy made ſuch a junction with it. For the fire from this ſecond line of counter-approach will ſee in flank and in the rear the line of junction, which, being ſeen, will become uſeleſs to the beſiegers and favourable to the beſieged.

If the beſiegers' trenches are in right lines, that cannot be enfiladed from the works of the places, and are ſecured only by redoubts from diſtance to diſtance, the lines between theſe redoubts will aſſuredly be ſeen by the line of counter-approach, and of courſe will be bared to view and diſcovered. And if the enemy make, beſides theſe redoubts, large places of arms, the only remedy is to attack them in front, and with a quantity of grenades, whilſt the troops commanded to attack them charge them in flank, and the cannon and muſketry of the place keep up a conſtant fire on the redoubts.

Counter-*Bande*, or *Contre-Bandé*. By this term the French expreſs what we term *Bendy of ſix per bend ſiniſter counter-changed*.

Counter-*Barry*, or *Contre-Barre*, is uſed by the French heralds for what we more ordinarily call *bendy ſiniſter per bend counter-changed*. See Barry.

Counter-*Battery* is, ſtrictly ſpeaking, a battery directed againſt another battery, in order to diſmount the guns in it, and deſtroy it. This term, however, is commonly given to a battery, which the beſieged oppoſe to a battery of the beſiegers, in order to ruin it, particularly when he gets pretty near to the counterſcarp of the great ditch, and is erecting batteries for the purpoſe of deſtroying the flanks, and diſmounting the guns on them.

Counter-*Bendy*. See Counter-*Bande*.

Counter-*Bond*, is a bond given to ſave a perſon harmleſs, who has given his bond for another. This is alſo called *counter-ſecurity*.

Counter-*Bracing*. See Tacking.

Counter-*Breaſtwork*, in *Fortification*, denotes a *Fauſſe-braye*; which ſee.

Counter-*Cartelé*, or *Contre-cartelé*, in *Heraldry*, the French term for *counter-quartered*, or *quarterly-quartered*; that is, when the grand quarterings are quartered.

Counter-*Change*, in *Commerce*, a mutual exchange between two parties. See Exchange.

Counter-*Changed*, in *Heraldry*, is when there is a mutual changing of the colours of the field and charge in an eſcutcheon, by means of one or more lines of partition. Thus, the coat of the celebrated Chaucer, is "Party per pale argent and gules a bend counter-changed," that is, that part of the bend which is on that ſide of the eſcutcheon which is argent is gules; and that part of it which is on the other is argent.

Counter-*Charge*, is a reciprocal charge, or recrimination, brought againſt an accuſer. See Recrimination.

Counter-*Charm*, a charm, or ſpell, contrived to hinder the effect of another. See Ligature.

Counter-*Cheveronné*, in *Heraldry*, denotes a field divided cheveronways, and is now more frequently termed *per Cheveron*.

Counter-*Coloured*. See Counter-*Bande*.

Counter-*Componé*. See Compone'.

Counter-*Deed*, a ſecret writing, or a private act, either before a notary, or under a privy-ſeal; which deſtroys, changes, annuls, or alters, ſome more ſolemn and public act.

Counter-deeds are rather tolerated than permitted: in many caſes they are actually prohibited; as being uſually no better than frauds. The cuſtom of Paris annuls all counter-deeds, contrary to the tenor of a marriage.

Counter-*Drain* is a ditch or channel, parallel to a canal or embanked water-courſe, for collecting the ſokage water, or for conveying any brook or ſtream of water by the ſide of the canal or embankment, to a culvert or arch under the canal, by which it is to be conveyed away to lower ground.

Counter-*Drawing*, in *Painting*, &c. the copying of a deſign or painting, by means of a fine linen cloth, an oiled paper, or other tranſparent matter; whereon the ſtrokes appearing through, are followed and traced with a pencil, with or without colour.

Sometimes they counter-draw on glaſs, and with frames or nets divided into ſquares, with ſilk, or with thread; and alſo by means of inſtruments invented for the purpoſe, as the parallelogram. See Designing.

Counter-*Embattled*, in *Heraldry*. When an ordinary is embattled counter-embattled, the indents on the upper edge muſt anſwer the projections on the under.

Counter-*Ermined*, is the reverſe of ermine, being a black ſhield with white ſpots; and is now generally termed *Ermines*. See Ermine.

Counter-*Extenſion*, in *Surgery*, is the act of ſtretching or drawing a limb in a direction contrary to that which is required for its reduction, when fractured or diſlocated; ſo that the patient cannot be pulled along by the force employed *ab extra*. Thus, if a ſurgeon pulled at the arm, to reduce a luxated ſhoulder, he would require one or more perſons to hold the body of the patient ſteady, which would be employing counter-extenſion; or, if the ſurgeon were to pull at a diſlocated finger, an aſſiſtant holding the wriſt or fore-arm would produce counter-extenſion.

Counter-*Faced*, or *Contre-facé*, is a French term, expreſſed by the Engliſh heralds by Barry per pale counter-changed; always mentioning the number of bars the field is divided into.

COUNTERFEIT Medals. See Medals.

COUNTERFEITING *the King's Coin and Seals*. See Treason.

COUNTERFEITS, in *Law*. See Cheats.

COUNTER-Fissure, a *Surgical* term, denoting a fiſſure or fracture, produced by a blow or fall, in a part of the body (ſuppoſe the occipital bone) quite remote or even oppoſite to that which had received the mechanical violence. This accident may happen in many parts, but eſpecially the head, where it is the moſt dangerous of all.

Counter-fractures or counter-fiſſures of the head, are taken notice of by Celſus, but denied to exiſt by Paulus Ægineta. Thoſe of the head are of different kinds. The external table ſometimes remains whole at the part to which the violence has been applied, whilſt the internal one is fractured; ſometimes that part of a bone of the cranium which has received the blow remains entire, whilſt another at its ſide is fractured; ſometimes the bone to which violence has been applied remains entire, whilſt the neighbouring one is fractured; and ſometimes the fracture appears in the bone directly oppoſite to that which has received the blow. Sometimes, alſo, both the bone that has received the blow, and that directly oppoſite, are fractured at the ſame time. Sometimes a ſingle blow produces ſeveral counter-fiſſures in different places.

A counter-fiſſure produced without any leſion of the neighbouring parts, that is, without extravaſation, inflammation, ſuppuration, &c. is a very trifling circumſtance, which gives riſe to no bad conſequences, and exhibits no particular ſymptoms by which it can be diſcovered; neither is it neceſſary that it ſhould be diſcovered. Very rarely, and only when the counter-fiſſure is extremely large, can it be felt through the integuments. The external ſwelling and redneſs over the fiſſure generally appears very late, or not at all: and probably only when the external violence has acted immediately upon the part, ſo that it is properly no counter-fiſſure. In general, all other ſymptoms of a counter-fiſſure are uncertain. Beſides that, the parts in the vicinity of a counter-fiſſure are far more rarely affected at the ſame time, than in fractures of the cranium; and, conſequently, any very minute examination is ſeldom required.

In one particular caſe, a fracture, or even counter-fracture, requires the operation of the trepan; that is, when the inner ſharp and rugged margin of the fiſſure, or a ſplinter of the inner table of the cranium, preſſes upon and irritates the dura mater. The ſurgeon may ſuppoſe this circumſtance to exiſt, when, in a caſe of fracture without depreſſion, ſpaſms and convulſions come on ſoon after the violence has been inflicted, and the patient is in complete poſſeſſion of his ſenſes; and in theſe caſes he may apply the trepan. Sometimes the conſequence is an inflammation of the dura mater, which is diſtinguiſhed by its peculiar ſymptoms, and requires a peculiar method of treatment. This circumſtance may alſo happen in counter-fiſſures. When inflammation comes on, we may poſſibly diſcover the ſituation of the counter-fiſſure by the topical inflammatory ſymptoms; but this will be much more difficult if it only produces ſpaſms and convulſions, unleſs perhaps the local ſenſations of the patient may tend to point it out. The ſame circumſtance may alſo take place when the external table is entire, and only the internal one fractured. The diagnoſis and treatment in this caſe are the ſame as in the preceding. To ſuppoſe a fracture of the internal table, whenever there is a depreſſion at the place to which the external violence has been applied, is probably erroneous.

The lower extremities are liable to counter force, in conſequence of falls upon the legs, and in leaping; and the ſame circumſtances may alſo occaſion counter-force in ſome parts of the pelvis, which may produce various irregularities in the ſyſtem. The ſuperior extremities are liable to counter-force, when a perſon falls down whilſt he is walking, or from a height, and thruſts out his hands or elbows to receive the ſhock. The conſequences of ſuch counter-force are various: it may produce diſlocations, twiſtings, ſeparation of the bones, contuſions in the joints, ſeparation of the os ſacrum from the oſſa innominata, laceration of the ligaments, &c.

Counter-*Foil*, or *Counter-Stock*, is that part of a tally, ſtruck in the exchequer, which is kept by an officer of the court.

Counter-*Forts*, are bodies of maſonry built behind walls, from diſtance to diſtance, and joined to, or cemented with, them, in order to ſtrengthen them, and leſſen the preſſure of the earth behind them. In fortification, there are commonly 18 feet between the centre of one counter-fort and another.

Counter-*Fugue*, in *Muſic*, is when fugues proceed contrary to one another.

Counter-*Gage*, in *Carpentry*, a method uſed to meaſure the joints, by transferring, *v. gr.* the breadth of a mortiſe to the place in the timber where the tenon is to be, in order to make them fit each other.

Counter-*Guard*, in *Fortification*, is a work compoſed of two faces, forming a ſaliant angle, which is in the capital of the baſtion or of the ravelin produced, according as it is placed before the one or the other; for it is ſometimes placed before both. When it is placed before the baſtion, however, it is ſuppoſed to be a work of good defence.

Counter-*Harmonical*. See Contra-*Harmonical*.

Counter-*Indication*. See Contra-*Indication*.

Counter-*Irritation*, in *Surgery*, is the effect occaſioned by any irritating application on a part at ſome diſtance from that which is diſeaſed; *e. g.* in an inflammation of the eye, a counter-irritation is produced by applying a bliſter behind the ear; or, if the vital parts be affected by gout, a counter-irritation may be excited on the foot by friction with any ſtimulating ſubſtance, or even by bathing the foot in hot water, &c. Again, if there be ſigns of oppreſſion upon the brain, a ſtrong veſicatory applied to the neck may produce a counter-irritation, and relieve the patient. In all theſe caſes, there is not merely a local ſtimulus or nervous excitement produced in the part, attended with an increaſed ſenſibility, but there is alſo an increaſed action of the blood in the part which is irritated, as appears by redneſs and heat of the ſkin.

Counter-*Light*, a window, or light, oppoſite to any thing, which makes it appear to a diſadvantage. A ſingle counter-light is ſufficient to take away all the beauty of a fine painting.

Counter-*Line*, the ſame as Contravallation; which ſee.

COUNTERMAND, in a general ſenſe, a revocation of an order; or an excuſe for ſetting aſide, or deferring, a thing ordered to be done.

By the French law, a countermand differs from an *eſſoin*, 1. In that, in the countermand, the conſignment is propoſed to be deferred to a day certain, which is not in the *eſſoin*. 2. In the *eſſoin*, the cauſe of deferring the conſignment is expreſſed, and affirmed to be true; but in a countermand that affirmation is not required.

Countermand, in the *Engliſh Law*, is where a thing, formerly executed, is afterward, by ſome act or ceremony, made void by the party that firſt did it.

This is either actual, by deed; or implied: *actual*, where a power to execute any authority, &c. is given by a formal writing, for that very purpoſe put off for a time, or made void; and *implied*, where a man makes his laſt will, and deviſes his land to T. S., and afterwards enfeoffs another of the ſame land: this feoffment is a countermand to the will, without any expreſs words for the ſame, and the will is void as to the diſpoſition of the land. Alſo, if a woman, ſeiſed of land, in fee-ſimple, makes a will and deviſeth the ſame to C. D. and his heirs, if he ſurvive her; and after ſhe intermarries with the ſaid C. D.: in this caſe, by taking him to huſband, and coverture at the time of her death, the will is countermanded. Terms de Ley. But if a woman makes a leaſe at will, and then marries, this marriage is no countermand to the leaſe, without expreſs matter done by the huſband to determine the will. A perſon may countermand his command, authority, licence, &c. before the thing is done; and if he dies, it is countermanded. There is alſo a countermand of notice of trial, &c. in law proceedings.

Countermand, or Counter *Order*, in the *Detachments*. When the troops commanded, although on a march, are countermanded, the ſervice of the detachments is accounted performed, and they go to join their reſpective corps.

To *countermand* is alſo to iſſue contrary orders to thoſe already given; to contradict or forbid the execution of former orders, &c.

COUNTER Mandate. See Contramandatum.

Counter-*March*. This is when an army, a regiment, or a detachment, performs a march different from what it originally intended. This is what is called a counter-march, in the ſtrict ſenſe of the word. This appellation is alſo given to a change of the wings or of the face of a battalion, by which the men who were on the right, or in the front, take up the ground originally occupied by thoſe on the left or in the rear.

Counter-*Mark*, a ſecond or third mark, put on any thing marked before.

The word is applied, in commerce, to the ſeveral marks put on a bale of goods belonging to ſeveral merchants; that it may not be opened but in the preſence of them all, or their agents.

In goldſmith's works, &c. the counter-mark is the mark or punchion of the hall, or company, to ſhew the metal is ſtandard, added to that of the artificer who made it.

Counter-mark of a horſe, is an artificial cavity, which the jockeys make in the teeth of horſes that have out-grown the natural mark; to diſguiſe their age, and make them appear as if they were not above eight years old.

Counter-mark of a medal, is a mark added to a medal, a long time after its being ſtruck.

Counter-marks appear to be faults, or flaws, in medals, disfiguring the ground, ſometimes on the ſide of the head, and ſometimes on the reverſe; particularly in the large and middle-ſized braſs: yet they are eſteemed as beauties among the curious, who ſet a particular value on ſuch medals, becauſe they know the ſeveral changes in value they have undergone, which are expreſſed by thoſe counter-marks; as was the caſe with the counter-marked coins of Henry VIII. and of Mary of Scotland, in modern times. They are alſo very rare.

Antiquaries, however, are not well agreed about the ſignification of the characters they find on them. On ſome, N. PROB. on others, N. CAPR. on others, CASR. RM. NT. AUG. SC. Some have, for their counter-mark, an emperor's head; ſome ſeveral; ſome a cornucopia.

Care muſt be taken not to confound the monograms with the counter-marks: the method of diſtinguiſhing them is eaſy. The counter-marks, being ſtruck after the medal, are dented, or ſunk in; whereas the monograms, being ſtruck at the ſame time with the medals, have rather a little relievo.

Counter-*Mines*, ſubterraneous excavations or cavities, made by the beſieged, to counteract and render uſeleſs the beſieger's mines, which are hollows or cavities that they make under thoſe places, which they intend to blow up with gunpowder. The diſtinction, then, between mines and counter-mines conſiſts in this, that the firſt are made by the beſiegers, and the laſt by the beſieged. Both mines and counter-mines, however, are made in the ſame manner, and for the ſame purpoſes; namely, to blow up their enemies, their batteries, and works. But the principal galleries and mines of the beſieged are commonly made before the place is inveſted, and frequently at the time the fortifications or works themſelves are erected, in order to ſave expence; whereas all the mining operations of the beſiegers are commenced and carried on after the inveſtiture. Writers on mining are generally apt to expreſs themſelves in terms rather looſe, taking into the definition of a mine or counter mine the paſſage under ground leading to it, and part of the communications, if it communicates with other mines or counter-mines. A mine or counter-mine, however, ſtrictly ſpeaking, is the hollow or cavity which is made or excavated under the place intended to be blown up, and where the quantity of powder, neceſſary for producing the propoſed effect, is placed or lodged. This hollow, or cavity, is uſually called by them the *chamber*, or *fourneaux;* and the paſſage leading to it, the *gallery*. The perpendicular diſtance from the centre of the chamber, or place where the powder is lodged, to the neareſt ſurface of the ground, is called the *line of leaſt reſiſtance*.

The pit or hole, made by the ſpringing of a mine or counter mine, is called the excavation.

The fire is communicated or conveyed to mines or counter-mines by means of a pipe or hoſe, made of coarſe cloth, the diameter of which is about an inch and a half, called *ſauciſſon*, extending from the chamber to the entrance of the gallery, where there is fixed a match to the end of it, in order that the miner, who ſets fire to the powder contained in it, may have ſufficient time to retire before the match is burnt up to the powder.

In order to prevent the powder from contracting any dampneſs, the *ſauciſſon* is laid in a ſmall trough, called *auget*, about 3½ inches broad, and made of boards joined together lengthways, with ſtraw in it, and a wooden cover nailed upon it at top.

For filling this pipe that conveys fire to the mine or counter mine, about half a pound of powder is uſually required for every foot of it in length. The exact quantity, however, depends on the ſize or diameter of the *ſauciſſon*. The *ſauciſſons* are generally tarred.

The beſieged commonly make a great many ſmall mines under the glacis, of about ſix, ſeven, or eight feet deep only under ground, which are called *fougates*, or *fougaſſes*. They alſo make what are called *coffers*, or *caiſſons*, which are a kind of barrels or boxes, from three to four feet long, and from a foot to eighteen inches wide, which they place four, five, or ſix feet under the ſurface of the glacis, and about four yards diſtant from one another.

The whole art of mining and counter-mining depends on the four following operations or particulars:

1ſt. The making of the galleries and the *fourneaux*, or chambers; and the ſecuring of the earth againſt falling in, by means of wooden frames and props.

2dly. In the loading and the ſtopping up of the mines or counter-mines, in ſuch a manner as to be ready for ſpringing when neceſſary.

3dly. In knowing the proper charges for mines or counter-mines, placed in different ſoils, and at different depths under the ſurface of the ground, in order that the effects ariſing from the ſpringing of them may anſwer the intentions or purpoſes for which they were made.

Laſtly. In carrying on the galleries, according to given directions and to given length, in ſuch a way as to place the *fourneaux*, or chambers, directly under the objects intended to be blown up, and at the proper depths under ground. For theſe particulars, ſee the article Mine.

Anciently a counter-mine was a vault made and prepared in the earth, or rampart of the *enceinte* of a place, behind the wall. Such counter-mines, however, are at preſent rejected, becauſe of the conveniencies for the miners of the beſiegers to make their mines.

A counter-mine, in a baſtion, ſhould be joined by ſeveral ſmall channels or branches, which ought to traverſe the earth of the baſtion in ſuch a manner, that on whatever ſide the beſieger's miner opens the ground, or the wall, he ſees every where openings and chimneys, capable of giving vent to his powder, and preventing its intended effects. It is by means of ſuch openings, which reach quite to the foundations, and have vents and air-holes behind, that the beſieger's miners are often deſtroyed; and the powder they place in their mines is wetted or moiſtened with water, and rendered uſeleſs.

There are two ſorts of counter-mines. Thoſe of one ſort are made at the time the place is built or conſtructed: theſe are arched or vaulted galleries, about ſix feet high and from three to four feet broad, and are called *galeries majeures*. The other counter-mines are made in time of a ſiege, and people go along them on their knees, or at leaſt ſtooping, and they are called channels, branches, or *rameaux*.

The counter-mines of the body of a place are made under the terre-plain of the rampart, on a level with the bottom of the ditch. The entrances to them are by the gorges of the baſtions. They are about ten feet diſtant from the revetement, to which they are parallel, and with which they communicate, by means of *rameaux*, from diſtance to diſtance. Theſe *rameaux* are of the ſame materials, and in the ſame proportions, as the *galeries majeures*.

From the counter-mines of the place one deſcends into the caponiers, and then aſcends from theſe into the counter-mines of the covert-way, from which *rameaux* are carried towards the field, that ſerve, in time of a ſiege, for making *fourneaux*, or ſmall mines, which blow up the works of the beſiegers, and retard their approaches.

In order to diſcover the beſieger's mines, *caſcans*, wells, or pits, are made obliquely in the ground, where a miner is ſuſpected to be at work; and when theſe wells or pits are judged to be lower than the beſieger's mines, little heads or channels are driven in every direction, to find the enemy's mine, or to encloſe it and render it uſeleſs, by giving vent to it; cutting the train, to prevent him from ſpringing it; taking the powder away, or ſpoiling it, by pouring a quantity of water on it or round it.

Theſe heads ſhould be driven perpendicularly to the capital of the baſtion, when you ſuppoſe or apprehend there is a mine in or near its ſaliant angle, and parallel to the face, if you are fearful there is a mine in it; and if the ditch be dry, they ſhould be driven under the bottom of it, as the enemy may then have a gallery under it alſo.

We know from different writers and hiſtorians, that the ancients made mines to ſurpriſe towns, and throw down their walls. We have every reaſon, therefore, to believe, that they alſo had methods for diſcovering them. And Vitruvius, in the laſt chapter of his laſt book, informs us, that the inhabitants of Marſeilles, when it was beſieged, ſuſpecting the enemy of carrying mines under the ditch, dug it deeper all round the town, and thereby diſcovered under the ditch the avenues or galleries of thirty mines, which the beſiegers had prepared for ſurpriſing them.

Counter-mines both have been, and may be, made uſe of to great advantage in the defence of places, from the moment the beſiegers approach the foot of the glacis.

As in the courſe of time, during a ſiege, the beſieged will find it neceſſary to retire from advanced or out-works, and leave them in the hands of the enemy; whether the beſiegers render themſelves maſters of them by force or by ſap, they ought to make in them a quantity of ſmall *fourneaux*, to which they may ſet fire in retiring, and by means of them deſtroy the beſieger's lodgments and works.

They ſhould have a number of *fourneaux* under the glacis, to be made uſe of in time of need or neceſſity. Theſe will deſtroy the beſieger's works in his whole progreſs through it, unleſs, ſeeing his firſt labours overturned and taken, and apprehending ſimilar accidents, he do not carry his lodgment to the creſt of the glacis, but content himſelf with the ſurrounding of it by ſap, and, by means thereof, with giving vent to the *fourneaux*; which, though a tedious method of proceeding, is the ſafeſt and ſureſt one he can adopt. But if the ditch be dry, though he may give vent to the *fourneaux*, or ſmall counter-mines, that have been made under the glacis, the lodgments which he makes a-top of it will not be ſecure againſt the effects of other counter-mines: for the beſieged can make counter-mines under theſe *fourneaux*, that vent has been given to; and theſe counter-mines, when ſprung, will be attended with more dangerous and ſurpriſing effects, as they will do more execution, and the ſnare will be leſs expected. A ſally or ſortie made by the beſieged, at the time of ſpringing them, will increaſe the ſurpriſe, aſtoniſhment, and confuſion of the enemy.

There is one eſſential circumſtance to be attended to in the conſtruction of counter-mines, which is to guard againſt their producing the effect, when ſprung, of throwing any part of the covert-way into the ditch, inſtead of overturning the adjoining lodgment of the enemy, and the ſap, which he may have commenced for his deſcent into the ditch. For this reaſon, care ſhould be taken to keep the chamber of the counter-mine farther from the counterſcarp, or exterior ſide of the ditch, than the perpendicular height of the earth above it, which it has to raiſe or throw up.

It is not neceſſary to wait till the beſiegers have made their lodgments acroſs the glacis, to annoy and diſquiet them by means of counter-mines, unleſs it be well known and aſcertained that they are not deſcending, or making excavations under ground, for the purpoſe of giving vent to the ſubterraneous works that may have been prepared by the beſieged. In this caſe, the beſieged ought even to amuſe them as much as poſſible, by diſputing with them their lodgments. But after they ſhall ſuppoſe that they have well eſtabliſhed the head of their trench, and their lodgments, the beſieged ſhould blow them up, by means of *fourneaux* and counter-mines, and alſo overthrow, if poſſible, the place of arms which they may have made for the ſecurity of their advanced works, and thereby oblige them to look for that ſecurity under ground which they cannot find above it. Thus they would be forced to make a number of ſubterraneous works, to which the beſieged ought to oppoſe themſelves, by means of interſecting branches or *rameaux*, which have all of them a communication with the grand gallery or canal of the counter-mines. Theſe *rameaux* being properly made, will facilitate the conſtruction of the *fourneaux* and counter-mines that will be made where they may be wanted, for overturning the works of the beſiegers, and thereby either rendering them uſeleſs or greatly retarding the progreſs of them.

As theſe contrivances depend on the ſkill and management of the commandant or governor, the neceſſity of times and occaſions, and the convenience of places, will furniſh him with the means of inventing new ones. Certain it is, that if he is determined to defend the works entruſted to his care, and knows how, the enemy will not gain one foot of ground, after he once gets within piſtol-ſhot of the outwork, without loſing a good deal of time. It would otherwiſe be uſeleſs to fortify places, and to know how to defend them, if this knowledge did not lead us to underſtand that the uſe of it is to render a moderate number of troops equal to the force of a powerful army.

If the ditch be dry, *fourneaux* prepared beforehand will be very uſeful for overturning both the ſap and the adjoining lodgment: and when this cannot be done, in conſequence of the ditches being full of water, the beſiegers will not even then be maſters of the covert-way, although the ſap be commenced, and even open for entering it; for the beſieged ought not to abandon it entirely, till the beſiegers have placed their cannon along the faces of its parapet, to deſtroy the paliſades and moveable traverſes that are placed within it. Under theſe faces of the parapet of the covert-way there ſhould be good large *fourneaux*, for overthrowing the batteries on them, when they are ready to fire or open. Nevertheleſs, the beſieged ought not to put fire to theſe *fourneaux*, but as late as poſſible; but ſhould wait till the cannon of the flanks of the place, high and low, have endeavoured to ruin or deſtroy the conſtruction of thoſe batteries that are oppoſite to them. Meanwhile the beſieged need not entirely abandon the covert-way, ſince they can always go to it and return on one ſide and the other, under cover of the moveable traverſes, and the retrenched places of arms; and when they are forced to quit it, without any hopes of returning to it, they can ſpring the *fourneaux* already mentioned.

The beſiegers, having no longer an enemy to combat in the covert-way, will attack the retrenched places of arms; the taking of which will give them a good deal of trouble, if they be rivetted with maſonry, and well fraiſed and paliſaded in the bottom of the ditch. They will, in ſuch caſe, be obliged to open a paſſage for themſelves into them by means of *fourneaux*, which they will not be able to make eaſily, if the ditch be well defended. Thus the attack of theſe ſmall works will retard, for ſome days, that of others of more importance for the preſervation of the place. The officer, who commands in ſuch a ſmall out-work, ſhould retrench himſelf in it with good paliſades, for the ſecurity of his retreat; and in retiring, he ſhould ſpring the *fourneaux* that have been made there, to deſtroy the whole work, or to wait till the enemy has made his lodgment within it before he ſprings them, in order to envelope or bury him in the ruins of it.

By means of counter-mines, the defence of the ravelin and its retrenchment may alſo be rendered very obſtinate, and the taking of them troubleſome to the beſiegers; and when the troops employed in their defence are obliged to quit them entirely, they ſhould ſpring the *fourneaux* that have been made, for the deſtruction of the retrenchment.

It rarely happens that the beſieger, in his attack, embraces more than one front of the place attacked. What he principally occupies is commonly the ground neceſſary for placing or erecting the batteries oppoſed to the flanks of the baſtions attacked. As theſe batteries cannot exiſt without an epaulement, to cover them from thoſe parts of the place that can otherwiſe ſee them, and are not embraced by the attack, it is this epaulement that ſhould be attacked and deſtroyed. In order to accompliſh this object eaſily, the beſieged ſhould puſh a ſubterraneous gallery, beginning from the ditch of the ravelin not attacked, and the neareſt to the attack, till it be carried quite under this epaulement. There they ſhould make *fourneaux* or counter-mines, which, by their effects in ſpringing, will uncover the flanks of the batteries, that will ſoon be diſmounted by the cannon of the ravelin not attacked, and of other parts of the place that can diſcover them. This ſhould be practiſed both on the right and left of the attacks, if poſſible, at the ſame time, in order to ſurpriſe the enemy at the ſame inſtant with a ſally, ſupported from all the works of the place the neareſt to the attack. The beſieged ſhould even attack the enemy in thoſe places where he has leaſt reaſon to ſuppoſe he can be attacked; and to do it with the greater certainty and ſafety, they ſhould have a ſubterraneous gallery from the middle of the curtain to the angle formed by the two demi-gorges of the ravelin. This gallery would, in its paſſage, ſerve as a caponier for the defence of the ditch, as well as a way or road to the ravelin, under which ſeveral counter-mines ſhould be made, but not ſprung till the enemy is occupied in giving the aſſault to the body of the place. The fire being put to the counter-mines under the lodgment, which they will of courſe deſtroy, the beſieged ſhould, ſome of them, return into the ravelin, and eſtabliſh a lodgment there, if it be poſſible. This diverſion will produce a good effect, will furniſh reaſon or an occaſion for the enemy to abandon the breach made in the body of the place, and will afford them ſufficient time for eſtabliſhing themſelves in the ravelin: for it is doubtful whether the enemy will then perſevere in his attack on the body of the place, or, leaving it, will go to ſupport the troops attacked, overcome in the ravelin. In truth, things of this nature happening at the ſame time, are apt to embarraſs the greateſt commander. But if the beſieged have taken care to have a branch of the canal of counter-mines made under the ravelin, and this branch puſhed quite under the ruins of the breach in the ſame, theſe ruins may be eaſily thrown away or aſide by a *fourneaux*, and the enemy thereby deprived of a paſſage into the ravelin, which will force him to attack it anew as at firſt.

A miner that knows how to make a proper uſe of counter-mines, conſtructed as they ought to be, may ſtop the enemy's miners, ſtifle them, or deſtroy their works in ſuch a manner, as to make it impoſſible for others to return to the ſame place; or, if he pleaſe, let them enter the galleries of the counter-mines, block up the paſſages, and either take them priſoners or kill them as he thinks proper. The beſieged, indeed, who know how to avail themſelves of all advantages, will be for a conſiderable time, and in a great meaſure, maſters of the fate of their enemies. For without mentioning all the ſnares and ſtratagems, which the beſiegers cannot foreſee, who, finding it impoſſible for them to advance, and the under-ground paſſages ſtopped, and unable to make mines that can be of any uſe to them, are driven by neceſſity to brave the mines, and carry on their attack above ground; which, if they be obſtinately oppoſed or reſiſted, expoſes them to many diſaſters, hardſhips, and difficulties, not only in making their approaches, but alſo in making their lodgments on the covert-way, and in every other place where they dare to carry on their works. If they advance by ſap towards the covert-way, it will be proper to give them notice, from time to time, by ſome *fourneaux* or counter-mines, of the danger they are in. But if they make their attack ſword in hand, it will be in a great meaſure uſeleſs to make uſe of the counter-mines; for, though they might ſtartle and alarm the troops during the attack, and bury ſome men in the earth they throw up, the excavations made by them might ſerve for lodgments. It is, therefore, better and adviſable to reſerve them for diſturbing the beſieger's works, and of courſe for gaining time. Beſides, the counter-mines, intended for being firſt ſprung, ſhould not be loaded till they are about to be uſed, that they may be always ready for preventing the enemy from advancing, which they cannot do, if they are charged beforehand. The beſiegers, on reaching the covert-way, may attempt to re-enter the ground, whilſt he completes his lodgment; but they will be again obſtructed by the counter-mines, and be expoſed on all ſides to the ſame difficulties as before. The moment they begin to raiſe batteries for making a breach, it is proper to deſtroy all their lodgments on the covert-way, by ſpringing the uppermoſt counter-mines, without waiting till the guns are mounted: for theſe ſmall counter-mines looſen the earth where the cannon are to be mounted; and the next counter-mines that are ſprung throw them, after they are mounted, towards the town. After theſe batteries are repaired, and the guns are again mounted, which cannot be done in a very ſhort time, the next counter-mines, if they be properly diſpoſed of and charged, will, when ſprung, throw the guns a ſecond time towards the place, and into the ditch. And if there be a depth of earth from 25 to 30 feet, the ſame thing may be done ſix or ſeven times, which muſt aſtoniſh and diſhearten even the moſt obſtinate and perſevering enemy.

COUNTER-*Mure*, or COUNTER-*Wall*, a little wall built cloſe to another, to fortify and ſecure it, that it may not receive any damage from the buildings contiguous to it.

By the cuſtom of Paris, if a ſtable be erected againſt a partition-wall, there muſt be a counter-wall added, eight inches thick. M. Buller obſerves, that the counter-wall ought never to be bound, or connected, with the proper wall.

COUNTER-*Mure*, in *Fortification*. See CONTRA-*Mure*.

COUNTER-*Opening*, in *Surgery*, is an inciſion made in the moſt dependent part of an abſceſs or wound, oppoſite to ſome other wound already exiſting.

COUNTER-*Pale*, in *French Heraldry*, denotes what we term paly of ſix per feſſe counter-changed; the number of diviſions being always expreſſed.

COUNTER-*Part*, a part of ſomething oppoſite to another part. Thus, in *Muſic*, the baſs and treble are two counter-parts, or oppoſite parts.

COUNTER-*Part*, in *Law*. When the ſeveral parts of an indenture are interchangeably executed by the ſeveral parties, that part or copy which is executed by the grantor is called the *original*, and the reſt are *counter-parts*; though it is better, and of late it is moſt frequent, for all the parties to execute every part, which renders them all originals.

COUNTER-*Paſſant*, in *Heraldry*, denotes two animals paſſing or walking different ways, one to the dexter, the other to the ſiniſter.

COUNTER-*Plea*, in *Law*, a replication to a plea, or prayer.

When a tenant by courteſy, in dower, or other real action, prays the view or aid of the king, or him in the reverſion, for his better defence; or if a ſtranger to the action begun deſire to be admitted to ſay what he can for the ſafeguard of his eſtate: that which the demandant alleges againſt this requeſt, why it ſhould not be admitted, is called a counter-plea.

In this ſenſe it is uſed in ſtat. 25 Edw. III. c. 7. So that counter-plea is, in law, a replication to "Aid Prier," and is called "counter-plea to the voucher." But when the voucher is allowed, and the vouchee comes and demands what cauſe the tenant hath to vouch him, and the tenant ſhews his cauſe, upon which the vouchee pleads any thing to avoid the warranty; this is called "a counter-plea of the warranty." Terms de Ley. Stat. 3 Edw. I. c. 39. There is alſo a counter-plea to the plea of clergy; ſee *Benefit of* CLERGY.

COUNTER-*Plot*, a plot, or intrigue, contrived to thwart and overthrow another.

COUNTERPOINT, *contrapunctum*, Lat. *Contrappunto*, Ital. in *Muſic*, is nearly ſynonymous with *compoſition*; with this difference, according to Rouſſeau, that "the invention of *melody*, or a ſingle part, may be called *compoſition*; but that *counterpoint* implies the *harmony* of two or more parts." To this difference we cannot ſubſcribe: as it extends the title of *compoſer* to the inventor or compiler of a high part; an honourable title, due only to the maſters of harmony, whence almoſt all good melody is derived. There is as much difference between the arranging ſingle ſounds into a tune, and compoſing a piece of muſic in many parts, as between writing a ballad and an epic poem. The ſubject of a ballad, indeed, may be made the foundation of a poem of great length, and that of a naked melody may be the theme of compoſition in many parts; but if the author of the melody is incapable of cloathing it with harmony, he is no *compoſer*.

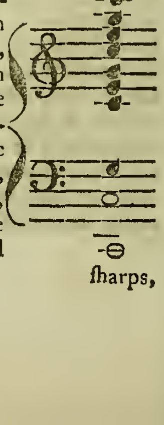
Of the natural production of harmony, or chords, from the vibrations of a ſingle ſtring, or ſounding body, we have given an account in the article BASSE *fundamentale*. This is the only natural harmony with which we are acquainted; the reſt is metaphorical, and alluſive to practical muſic; and even this fundamental chord cannot be called a work of nature, for the materials by the medium of which it arrives at our ears are artificial; nature neither caſts a bell, nor twiſts a ſtring. The Mercurian lyre, if we may believe the poets and fabuliſts, was not only formed but ſtrung by nature. For among the various opinions of the ſeveral ancient writers who have mentioned the *Chelys*, or *Teſtudo*, and aſcribed the invention to the Egyptian Mercury, that of Apollodorus is the moſt intelligible and probable. "The Nile," ſays this writer (Biblioth. lib. ii.), "after having overflowed the whole country of Egypt, when it returned within its natural bounds, left on ſhore a great number of dead animals of various kinds, and, amongſt the reſt, a tortoiſe, the fleſh of which being dried and waſted by the ſun, nothing was left within the ſhell, but nerves and cartilages, and theſe being braced and contracted by deſiccation, were rendered ſonorous; Mercury, in walking along the banks of the Nile, happening to ſtrike his foot againſt the ſhell of this tortoiſe, was ſo pleaſed with the ſound it produced, that it ſuggeſted to him the firſt idea of a lyre, which he afterwards conſtructed in the form of a tortoiſe, and ſtrung it with the dried ſinews of dead animals."

When perſons unacquainted with the refinements of the art, talk of *natural* muſic, they only mean ſuch ſtrains as are common, and which, by frequent hearing, they think they underſtand; but, literally, there is no *natural muſic*; the whole is a work of *art*.

The title of *counterpoint*, given to compoſition, or muſic in parts, preceded not only the invention of clefs, but of lines and ſpaces. In many miſſals we have ſeen the infancy of ſimultaneous ſounds in *points*, or marks over particular words and ſyllables, like accents; and, afterwards, as the *monks* and *prieſts* began to feel a pleaſure in the conſonance of a 4th, a 5th, or an 8th, a ſecond point or dot was placed over the firſt. Theſe were not in the beginning regulated by lines, but by their greater or leſs degree of elevation and diſtance from each other. After ſome time, we found a line drawn through ſuch dots or points as were on its level; then two lines, one red and the other yellow, to denote the tenor and baſe.

After this, two or three centuries elapſed before a third and fourth line were added, at which the Roman miſſals have remained ever ſince. This is the ſhort hiſtory and origin of the term *counterpoint*.

We take it for granted that whoever thinks of compoſing knows how to perform with his voice, or ſome inſtrument, the productions of others—knows a common chord, and ſomething of thorough baſe—and if the inſtrument on which he plays is the piano-forte or harp, ſo much the better.



As a foundation for the whole art of muſical compoſition, we ſhall give the common chord of C natural in all its ſtages: after this, the table of intervals ſhould be ſtudied, in order to know in half-notes or ſemitones, the diſtance between ſound and ſound. See INTERVAL. Then the 8 notes in the diatonic ſcale, which form a key in ſimple *melody*, making C the repreſentative of all major keys, and A of the minor. We at firſt give the minor key *deſcending*, to avoid accidental ſharps, of which we ſhall ſpeak hereafter. See the terms MAJOR, MINOR, and KEY.

Concords are the uniſon 8th, 5th, 4th in a common chord, and with a 6th. The only intervals that can riſe and fall together, gradually, are the 3ds, and 6ths, and of theſe the union and progreſs are unlimited. An entire movement may be compoſed in any notes of the time table, put into meaſure, conſiſting of nothing but a ſeries of 3ds, or 6ths. See *Plate* VI. N° 3.

For the fundamental baſe to every ſound of the ſcales major and minor, aſcending and deſcending. See *Plate* VI. N° 5.

See in *Plate* XII. an aſcending and deſcending ſcale with two fundamental baſes to each note, and another with three fundamental baſes.

Aſcending and deſcending ſcales in the baſe, with a treble, or diſcant. See *Plate* VII.

A ſuppoſed baſe to the ſcale aſcending and deſcending, major and minor. *Plate* VII. III.

The uniſon 8th, 5th, and 4th, are called perfect concords, as they admit of no change, without becoming diſcords. No two of theſe are allowed to riſe or fall together, gradually, or by a leap.

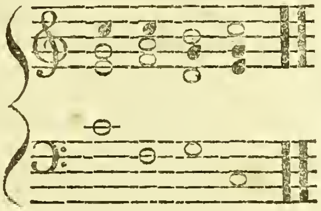
For a baſe, or 3d part, to a ſeries of 3ds and 6ths. See *Plate* VII. N° 2.

Suppoſed baſe to the ſcales. *Ib.* 3.

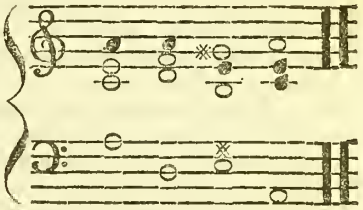
The fundamental, or principal baſe, is that which carries a common chord, as a 3d, 5th, or 8th, or two of the three, or all three together.

The three fundamental baſes to every key, are the key-notes, the 5th above, and 5th below, or 4th and 5th of every key; in the common chords of which baſes the ſtudent may pick out a regular ſeries of ſounds.

Example in C major.



Example in A minor.



See THOROUGH-*baſe*, BASSO PRINCIPALE, and *Plate* II.

Out of the ſcale of each key, he ſhould try to form melodies in various meaſures; at firſt, totally without accompaniment, and then from the fundamental and ſuppoſed baſes to the ſcales, *Plate* VII., III., try to diſcover what baſe will ſuit the paſſages in his melodies.

Thus far no notice has been taken of *diſcords*, except ſometimes adding the 7th to the common chord, which is the only addition to it, that would not *rob* the baſe of the title of fundamental.

Diſcords are the 2d ſharp, 4th or tritonus, the 7th and the 9th. But every concord may be made a diſcord by the note above it: as the 3d by the 4th, the 4th by the 5th, the 5th by the 6th, the 6th by the 7th; and indeed the 8th by the 9th.

Every interval that exceeds the bounds of the octave, is termed a compound interval, or octave of ſome ſimple interval: as the 9th is a recurrence of the 2d, the 10th of the 3d, the 11th of the 4th, the 12th of the 5th, and the 15th of the octave.

The fifth is compoſed of two thirds, a major and a minor, or a minor and a major; the 3d of two ſeconds; the major 2d of two ſemitones.

Before we enter on the preparation and reſolution of diſcords, it may be neceſſary to characterize all the natural intervals within the limits of the octave.

The ſucceſſion of *uniſons* (though they cannot be called intervals) is prohibited in *counterpoint*, unleſs when two treble parts ſing or play throughout in *uniſon*, with deſign.

The ſecond is a diſcord, and prepared and reſolved in the baſe: it is accompanied by the $\substack{6\\4}$.

The 3d, an imperfect concord, is wanted in the accompaniment of every other concord and diſcord, except the 2d and $\substack{6\\4}$.

The 4th is a perfect concord, when uſed in the common chord between the 5th and 8th, as it is when joined to the 6th and 8th; but with the 5th or the 2d it is a diſcord. The 4th is accompanied by the $\substack{8\\5}$.

The 5th is a perfect concord, but made a diſcord when united with the 6th. The complete chord is $\substack{8\\6\\5\\3}$.

The 6th is an imperfect concord, often doubled and accompanied by the 3d.

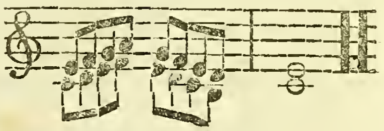
The 7th is a diſcord joined to the common chord, or $\substack{8\\5\\3}$.

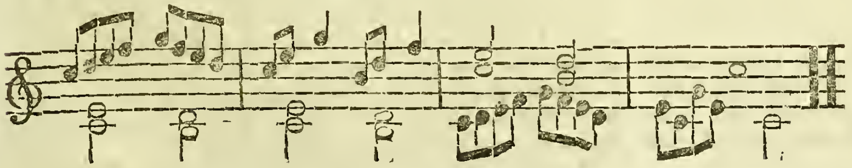
The 8th is a perfect concord; and wanted in all chords, except thoſe of the 2d or 9th.

The 9th is a diſcord, and octave of the 2d, but differently accompanied $\substack{9\\5\\3}$. See *Plate* V. an engraving of a thorough-baſe. Card.

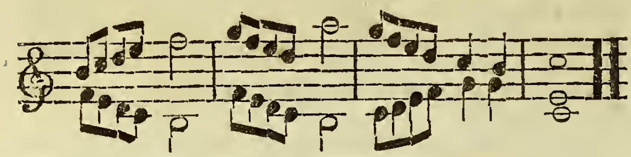
There are in melody three progreſſions, or ways of moving from ſound to ſound:

Moto retto, when two parts riſe or fall gradually together.





Moto obliquo, oblique motion; one part moving, and the other remaining ſtationary, *Moto contrario,* contrary motion; one part riſing and the other falling.



Plain counterpoint, is note againſt note, in ſounds of equal duration, and without diſcords.

Figurative, or *florid counterpoint,* requires meaſure, in notes of different lengths.

Relative ſounds, are ſuch as belong to two or more chords; as C is related to F and A, as G is to C and E, being eſſential ſounds to the chords of each. See *Plate* XII.

The ſucceſſion of *two* 5ths riſing or falling together, is prohibited from the want of relation; as there is no ſound in common with the chords of G and A, or G and F. In the conſtruction of a grammatical ſentence every word has its relative, and the breach of the rule againſt 5ths in ſucceſſion, is equally offenſive to a cultivated ear, with a falſe concord to the mind in grammar.

Two uniſons, or two octaves in ſucceſſion, in full harmony, are prohibited from their want of variety; but theſe can not only be borne, but, when admitted with deſign, have a good effect. The ancients ſeem to have had no other ſimultaneous harmony or muſic in parts, than what was produced by a ſucceſſion of multiplied uniſons and octaves; nor, except in Europe, is counterpoint cultivated, or does it afford pleaſure to the natives of three parts of the globe.

It is become neceſſary, in modern compoſitions, that the melody ſhould be *phraſed;* that is, divided into periods of an equal number of bars; as 2, 4, 8, 12, or 16. As verſe is regulated by feet and ſyllables, melody is lame and ungraceful if its periods conſiſt of an unequal number of bars, as of 5, 7, 9, 15, or 17. A verſe with a ſyllable too much or too little, does not hobble more than ſuch imperfect meaſures in muſic. A period of this kind in melody, is called by the French *phraſe manqué.* Neither Fouchs, nor any of the theoriſts of the laſt century, gave their examples in an equal number of bars, upon *principle.* But all maſters and writers of elementary treatiſes on *counterpoint,* ſhould now enforce it as a precept, that melody ſhould be regularly phraſed by all young ſtudents in compoſition, who aſpire at grace. Every movement which derives its name from a dance, ſuch as the minuet, rigadon, gavot, ſaraband, &c. has its ſtrains regulated in this manner. In ſerious dramatic airs, in ſudden guſts of paſſion or ſurpriſe, or in comic ſcenes, to produce ſome groteſque or humorous effect, the phraſes are frequently broken with ſucceſs; but never, where either grace or energy is required, ſhould a young contrapuntiſt be inattentive to the phraſeology of his melodies, See RHYTHM.

And not only the number of bars in every ſtrain or period ſhould be regular, but the accents regularly placed in each bar. This precept concerns the performers as well as compoſers. See ACCENT.

The preparation and reſolution of diſcords require much ſtudy, experience, and reflexion. Dr. Pepuſch has given in 2, 3, and 4 parts, the ſhorteſt and moſt clear rules and examples for this important article in counterpoint, that are to be found in any elementary work.

We have not room on our plates for the notation of his examples, but ſhall give here a ſhort ſpecimen of each diſcord, and refer to his excellent little work, entitled "A Treatiſe on Harmony," for the reſt.

Diſcords.	Prepared	Reſolved on the
the 2d by the	uniſon 3. 5. 6. 8.	3. 5. 6.
4th	7th, and all the concords	3. 6. 8.
7th	3. 5. 6. 8.	3. 6. 5.
9th	3. 5. 6. never in the 8th	3. 6: 8.

Concerning diſcords, three circumſtances are to be conſidered: as on what part of a bar they are to be *prepared;* when *ſtruck;* and when *reſolved.*

In common time of two notes in a bar, the 1ſt is accented and the 2d unaccented. And, in common time of four notes in a bar, the 1ſt and 3d are accented, the 2d and 4th notes unaccented. In triple time of three minims, three crotchets, or three quavers in a bar, the firſt note only is accented, and the other two are unaccented. Of the three circumſtances, therefore, relative to diſcords, it is to be remembered, that the *preparation* is on the unaccented part of a bar; the diſcord is *ſtruck* on the accented part, and *reſolved* on the unaccented part of a bar. See examples of all diſcords in notation of 1, 2, 3, and 4 parts, *Plate* XIV. XV. XVI.

There are ſtill other diſcords that are unnoticed in the figuring, called *paſſing notes.* See ACCENT. This ſubject has been well treated by Dr. Pepuſch, and the other able theoriſts on whom we lean. But as an article in a dictionary is not a treatiſe, we muſt compreſs our examples into as ſhort a compaſs as neceſſity requires. See *Plate* XVI. See PASSING-*notes,* and DISSONANZA *alla efugita.*

Not only the ſucceſſion of 5ths and 8ths is prohibited in counterpoint, but the *ſuſpicions* of them. As Cæſar's wife was not only to be chaſte, but unſuſpected. See examples of this harmonical vice, and of the prohibitions. *Plate* IV.

P. Martini has given a general rule for avoiding the *ſuſpicion* of 5ths and 8ths, by not moving from any conſonance to a perfect concord by ſimilar motion: as from a 3d to the 5th—from the 8th to a 5th, or from a 5th to a 3d or 8th, or from a 6th to an 8th, &c.

The air, ſong, ſonata, or whatever the movement may be, which a ſtudent in counterpoint attempts to compoſe, ſhould begin and end by ſome ſound or ſounds of the common chord of the key-note. In a major key, an accidental ſharp becomes the 7th of a new key. So that if the piece begin in C, the firſt additional ſharp that occurs is uſually F♯, which leads to G, the half-note above ſuch ſharp; ſo C♯ leads to the key of D minor; G♯ to A, and D♯ to E minor. In minor keys the 7th is ſo conſtantly ſharp, as hardly to be called *accidental;* as in the key of ♮A, G the 7th requires an accidental ſharp whenever it is uſed aſcending.

An accidental flat in any of the parts of a major key becomes the 4th of a new key. As in F, which has only one flat at the clef, and a flat to E implies the key of B ♭, which has two flats at the clef, and in the key of D minor, which has but one flat at the clef, a flat occurring at E, implies the key of G minor, which has two flats, &c. See MODULATION and THOROUGH-*baſe,* or ACCOMPANIMENT *without figures.* See thorough-baſe chords, and rules for playing without figures, *Muſic, Plate* V.

A regular diſcord, eſſential to the harmony, is the ſuſpenſion or anticipation of ſome ſound of the preceding chord, by which it is prepared. Its reſolution is the deſcending one degree on a concord to the baſe, ſuppoſing it to be ſtationary. The 2d makes the uniſon a diſcord. It is prepared and reſolved in the baſe, which deſcending one degree, renders it a 3d. See examples of the preparation and reſolution of all the regular diſcords; *Muſic, Plate* XIV.

As the 3ds and 6ths of any key are the only concords that can move up and down in regular ſucceſſion, the ſtudent in exerciſing his ear in different meaſures in the two keys of C and A natural, muſt remember that a cloſe cannot be made in A minor, without an accidental G ※, expreſſed or underſtood. See ſucceſſions of 3ds and 6ths in *Muſic, Plate* VI.

Till about the middle of the laſt century, F the 6th, as well as G, the 7th of A minor, uſed to be made ſharp in aſcending. But Tartini found that F ※ in that key deſtroyed its minor effect; he rather preferred the leap of an extreme ſharp 2d from F natural to G ※, than deſtroy the natural pathos of the minor key. But as ſome writers on muſic, and compoſers, ſtill adhere to the old ſcale of A minor, aſcending to the octave through the ſharp 6th as well as 7th, we ſhall make F both natural and ſharp, in the aſcending ſcale of A minor, to give the young compoſer his choice between them.

The fundamental or principal baſe of theſe ſcales being impreſſed in the memory, and a treble drawn from the chords given to the ſcales in the baſe, the young harmoniſt ſhould try to find a baſe to the ſcales in three parts; the treble moving by 3ds. See *Plate* VII. Two fundamental baſes to each note; three fundamental baſes to each note; and the continued or ſuppoſed baſes to the ſcales.

Having given the ſeveral treble rules with their accompaniments; deſcribed the ſeveral intervals; the preparation and reſolution of diſcords; it is time to recommend to the young ſtudent in *counterpoint*, the rule which has been formed for accompanying the ſcale aſcending and deſcending, in the baſe, major and minor, which ſeems to have been invented and firſt brought into uſe in France, under the title of RE'GLE DE L'OCTAVE; (which ſee;) but by whom is not ſettled. Rouſſeau, in the article, ſays, "this harmonic formula was firſt publiſhed in 1700 by the Sieur Delaire." But in treating of accompaniment, he aſſigns it to Campion. If it could be aſcertained that either of theſe muſicians was author of the rule, we ſhould have no doubt of its being the latter. In 1700, no ſuch harmony as that of the *regle de l'octave* was given to the ſcale; nor, till about the middle of the laſt century, was it ſo accompanied. But of late years, almoſt all harmony ſeems built on the chords given to the ſcale in this rule; which is not only uſeful in accompanying a baſe without figures, but in harmonizing the ſcale in four parts, by young compoſers, and in extracting melody from its chords. A ſpecific harmony being given to each note of the ſcale, aſcending and deſcending in every key; if the young compoſer, or performer, is certain what key he is in, the knowing this rule alike in all keys, will remove every doubt as to the harmony of each baſe which he wiſhes to uſe or accompany. We ſhall therefore, in the plates, give this rule in a figured baſe, and write the chords in notation with their full complement, which may be drawn out into a ſcore, making the upper part the firſt treble, the middle note of the chord the 2d treble, and the loweſt note the tenor.

For fundamental baſe, and ſuppoſed baſe, to the treble ſcale, ſee *Muſic, Plate* VI. and VII. And for a diviſion baſe to the treble ſcale major and minor, aſcending and deſcending, ſee *Muſic, Plate* VIII.

The young muſician muſt remember, that this *rule* is only to be rigidly followed, when the baſe riſes or falls *gradually*. In wider intervals, as in leaps from the key note to the 3d, 4th, 5th, or 6th, common chords will do, in writing or playing, unleſs ſome diſcord is prepared for the ſecond ſound of ſuch intervals, ſuch as a 4th, 7th, or 9th, which never occur in the *regle de l'octave*. See *Muſic, Plate* V.

As florid, or figurative *counterpoint*, includes every ſpecies of compoſition, ſuch as *imitations*, *fugues*, *canons*, *double counterpoint*, &c. though theſe will be found fully deſcribed and diſcuſſed, ſeverally, in their places, yet they muſt be ſpoken to here, *in order;* as conſtituent and important parts of the preſent article.

Imitation is an irregular fugue. When a paſſage led off by any one of the ſeveral parts of a compoſition is repeated by another in the ſame kind of notes in any part of the ſcale, it is called *imitation*, to diſtinguiſh it from a regular anſwer to a ſubject of fugue.

Fugue requires an anſwer in the uniſon, octave, 5th, or 4th of the key, in which the ſubject is led off, to be accounted regular: as in thoſe keys alone, the intervals will be the ſame. This rule will be illuſtrated with examples in notes, in the muſic plates.

Canon, is a perpetual fugue; as the part which leads off the ſubject gives law to the reſt, from the beginning to the end of the movement: thence *canon*, from κανων, Gr. *regula, norma*, a rule or law. In Bird's well known canon of *Non nobis Domine*, the firſt treble ſings in the key of G major, the ſecond in D, the fourth below, and the third, or baſe, in the double octave, or 15th below the firſt treble; but always in the ſame intervals.

The contrivances and difficulties of this ſpecies of compoſition, with which ingenious men have loaded it in pure pedantry, and ambition to be thought more cunning artiſts than their neighbours, have loſt that reverence which uſed to be paid them, ere melody was cultivated, and its more intelligble merit was taſted and underſtood. Yet, as *canons* are ſtill reſpected by maſters, who know the difficulty of their conſtruction, the young contrapuntiſt, at his leiſure hours, as an intellectual employment, ſhould try his ſtrength in exerciſes of this kind. Though out of the infinite number of *canons* known in our own country, and compoſed by natives, the only two that continue in favour, and general uſe, may be ſaid to be *Non nobis Domine*, of Bird, and "Let's drink and let's ſing together," by Dr. William Hayes of Oxford; but the favour of theſe, in private ſociety, is nearly equal to that of the two national ſongs, "God ſave Great George our king!" and "Rule Britannia," in public.

Examples of fugue and canon are given in notation in the muſic, *Plates* IX, X, and XI.

Double counterpoint is not ſo eaſy to deſcribe as fugue and canon. There is no chapter on the ſubject in Pepuſch, nor do we remember its being mentioned in his treatiſe. Graſſineau is ſilent on the ſubject, and Broſſard juſt mentions, *Fuga di contrappunto doppio*, without explanation. In later writers, however, it makes a long article, of no very eaſy comprehenſion. The ſhorteſt and moſt intelligible explanation which we can give of this artful contrivance is: "a compoſition written in ſuch a manner, as that the ſeveral parts can be inverted, and reciprocally ſerve as accompaniments to each other, and the harmony ſtill be good."

Rouſſeau does not mention this ſpecies of counterpoint; but in the Supplement to the firſt edition of the Encyclopédie, there is a long, though an obſcure article, on *double counterpoint*, but illuſtrated with no good examples. It is mentioned in Walther, from a work of Mattheſon, but unnoticed in the plates. The invention, however, is not new, for *Pedro Cerone, della Muſica*, publiſhed in Spaniſh at Naples, 1613, in folio, contains a long chapter on the ſubject, lib. xiii, p. 734, which he thus introduces: "To the end that nothing in counterpoint may remain unexplained, we ſhall ſhew in what an artificial and wonderful manner, and with what good effect, the Italians can treat a ſimple melody *(canto llano)*, in *contrappunto doppio (contrappunto doblados)*, which is nothing more than changing the parts, making the higheſt the loweſt, and loweſt the higheſt, in various ways; by which a new melody and a new harmony are produced, and effects totally different from thoſe of the firſt performance. And this may be effected in three different ways; in the 8th, the 10th, and 11th."

This is a very clear and accurate definition, written more than 100 years before Mattheſon's book was publiſhed. For the full title of Cerone's work, which is extremely ſcarce, ſee his biographical article.

Pedro Cerone de Bergamo has calculated the mutations of intervals by inverſion, and his explanation is ſo ample and ſatisfactory, that there ſeems little occaſion to have recourſe to more modern authors for further information on the ſubject of *double counterpoint*. Yet, leſt the ſtudent ſhould ſtill be perplexed with doubts and difficulties, and perhaps, not perfectly convinced of the utility of this contrivance, we ſhall give him the good Padre Martini's opinion and precepts on the ſubject, who was always the zealous friend and patron of ſtudious youth.

Padre Martini tells us, that among all the moſt profound and uſeful contrivances in the muſical art, is that of *double counterpoint*, concerning which Padre Camillo Angleria, in his "Regole di Contrappunto," cap. xxv. p. 94, writes thus:

"After the ſtudent is able to write with facility in good harmony for four voices, arranging the ſeveral parts agreeable to the ſubject which he has choſen, and wiſhes to proceed to the moſt ſublime inventions of ſo noble a profeſſion, he muſt begin to ſtudy *double counterpoint*, and all its ſubtilties; changing the grave to the acute, and the acute to the grave, with elegance, grace, and good harmony."

The reader will ſee on our muſic plates his firſt examples of double counterpoint to the ſcale in the octave, which he purſues in 2, 3, 4, and 5 parts, with great abilities. Theſe examples in notation are followed by inſtructions for the different ſpecies of this kind of compoſition, with liſts of the concords and diſcords to be avoided; informing the ſtudent that by double counterpoint is meant an ingenious and artful compoſition in various kinds of concords and diſcords, regularly prepared and reſolved, particularly in the octave, which has been long practiſed by maſters of the higheſt claſs, inverting the parts an 8th above or below its firſt ſituation, at which pitch the inverſion is moſt clear and obvious, avoiding the uſe of the 5th, which by inverſion becomes a 4th. In this moſt ſimple ſpecies of double counterpoint the movement or period ſhould begin and end in the octave; as the following intervals or numbers will ſhew:

1. 2. 3. 4. 5. 6. 7. 8.
8. 7. 6. 5. 4. 3. 2. 1.

Double counterpoint in the 10th has not been ſo frequently uſed by renowned old maſters as in the octave, whether from being more difficult and leſs pleaſing, we will not determine; it is however practicable under the following reſtrictions: two-thirds or two-tenths cannot ſucceed each other aſcending or deſcending diatonically, as they involve the compoſer in two 8ths, or two uniſons. In like manner two 6ths are prohibited, which by inverſion would become two 5ths; no more can two 4ths or two 7ths be uſed in ligatures or binding notes, as the following numbers will manifeſt:

1. 2. 3. 4. 5. 6. 7. 8. 9. 10.
10. 9. 8. 7. 6. 5. 4. 3. 2. 1.

Rules for double counterpoint in the 12th.

Counterpoint in the 12th, is a compoſition in which one, two, or more parts may be tranſpoſed a 12th above or below, in which the compoſer may uſe all the concords and diſcords, except the 7th reſolved on the 6th, which has not a good effect. If the 7th is uſed it ought to be reſolved on the 5th, the baſe riſing one note. (See *Diſappointed* CADENCE.) It is to be remembered that the part or parts tranſpoſed a 12th ſhould begin and end in the 5th, the reſt remain in their firſt ſituation. This kind of double counterpoint is ſeldom uſed on account of its difficulty; but it not only produces pleaſing harmony, but allows of modulation. In this ſpecies of counterpoint, the following is the inverſion of the intervals:

1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12.
12. 11. 10. 9. 8. 7. 6. 5. 4. 3. 2. 1.

This excellent theoriſt (Padre Martini), has traced *double counterpoint* up to the time of Zarlino, who ſays (Inſtit. Harmon. p. 3. cap. 56.), "Il contrappunto doppio non è altro che una compoſizione fatta ingegnoſamente, che ſi puo cantare a più modi, mutando le ſue parti; di maniera, che replicata ſi oda diverſo concento da quello, che nelle ſteſſe premieramente ſi udiva." And this paſſage P. Martini introduces by ſaying, that "of all the moſt erudite and uſeful contrivances in muſic, there can be no doubt but that *double counterpoint* is of the firſt importance." Many are the modes in which maſters have reverſed the parts upon this principle; but for more clearneſs and certainty, we ſhall reduce them to five ſpecies. The firſt will be that of writing or compoſing a part upon a fragment, real or imaginary, of canto fermo, which may be tranſpoſed in various ways above or below the text; as in the octaves, 5th, 3d, or 6th. The ſecond ſpecies is that in which the upper part, as well as the lower, may be tranſpoſed in various ways. The third ſpecies is when the parts may be tranſpoſed in contrary motion *(moto contrario)*. In the fourth ſpecies the parts are invertible, as in the ſecond and third ſpecies; but require a free baſe to complete the harmony. The fifth ſpecies reſembles *imitation* in fugues, by ſome irregularities of characters or intervals. How uſeful and neceſſary *double counterpoint* is to compoſers, ſeems moſt apparent in writing fugues of all kinds, canons, madrigals, and other compoſitions, which cannot be rendered complete, without a perfect knowledge of *double counterpoint*. And if, at preſent, the art of compoſition is conſigned to genius alone, without ſcience, it is owing to the ignorance or neglect of this moſt uſeful contrivance." Indeed a fugue is little more than a ſeries of paſſages in *double counterpoint:* and Haydn and Mozart ſeldom, in their ſymphonies, loſe an opportunity of availing themſelves of their knowledge in the art of *inverſion*.

The examples of double counterpoint in notation, we ſhall give from the Regole di Contiappunto, Rules of Counterpoint, by Sala, the laſt writer and the beſt on the ſubject, in Italy, of whom we ſhall have frequent occaſion to ſpeak hereafter.

Modulation, another very important part of counterpoint, will be amply treated, generally, in its proper place. But here we ſhall only point out the natural and uſual modulation in any given key, in the courſe of a movement of conſiderable length: For example; if the key is C natural, the firſt modulation or change of key, is made by an F ※, which leads to G major, the 5th of C. The ſecond modulation is uſually into D minor, by an accidental C ※ or B flat. Then into A minor, by a G ※; and if the movement is long, into E minor, by a D ♯. After this, the ſubject is generally reſumed in the original key. Then a modulation into F major, by an accidental B ♭; which when annulled by a ♮, reſtores the key of C, and leads to a concluſion in the ſame kind of cloſe, as at the end of the firſt ſtrain in $\overset{\natural}{G}$.

In A natural, the repreſentative of all minor keys, the moſt agreeable modulation is firſt into C major, the minor 3d above. Then into D minor, or F major by a C ♯ or B ♭. From D or F to C by a B ♮ as a 6th to D or 3d to G, is a pleaſing modulation into C. Then by a G ♯ in one of the parts, the original key of A minor is reſtored. In old muſic, the firſt modulation from A natural, was into its 5th of E natural by a D ♯; but this ſo ſeldom happens in modern muſic, that the modulation into E ſeems unpleaſant and old faſhioned.

The fundamental and ſuppoſed baſes to chromatic ſcales, are given in the plate referred to in the article MODERN CHROMATIC; which ſee, *Plate* XVI. The term STRAIN, in *Muſic*, is uſed for a whole movement, and for a part of a movement, as a pleaſing ſtrain; or ſpeaking of a movement divided into diſtinct parts, or portions, by double bars, each portion is numerically diſtinguiſhed; as the firſt ſtrain, the ſecond ſtrain, &c.

Variation, which, for a long time, was only multiplying the notes of an air, without embelliſhing it, or improving the compoſition, and with which the muſical world was tired; the fertility, taſte, and reſources of Haydn and Mozart have rendered intereſting and delightful.

Time, muſical *meaſures*, *accents*, and *phraſeology*, upon which grace and energy ſolely depend, muſt be ſtudied by a young compoſer, or contrapuntiſt, as ſeduloufly as melody and harmony. See their diſtinction and rules under their ſeveral heads.

Some knowledge of the eccleſiaſtical modes of the Romiſh church ſeems neceſſary to an Engliſh compoſer, to enable him to aſcertain the anſwer to ſubjects of regular fugue: All the Roman catholic writers on muſic, recommend this method. See ECCLESIASTICAL MODES, AUTHENTIC, and PLAGAL. Dr. Pepuſch, a Lutheran, prefers SOLMIZATION. Both methods are doubtleſs good; but the being careful that the anſwer is made preciſely in the ſame intervals as the ſubject, ſeems to include a more extenſive modulation and general uſe of keys. Pepuſch confined all fugues, and almoſt all melody to the three hexachords: *Durum*, *Natural*, and *Molle*; which ſee: and the eccleſiaſtical modes exclude all tranſpoſed keys, as the writers on canto fermo, call all keys with more than one ſharp or one flat, admitting only ſuch as belong to the 8 or 12 modes. See MODES of the Ancient Greek Muſic, and ECCLESIASTICAL MODES.

Thus far we have ventured to advance in the rules of *counterpoint* from our own ſtudies and experience; but the authors of higheſt authority, whom we can recommend to muſical ſtudents to ſupply our deficiencies, either from want of knowledge or want of room, are Fouchs, Dr. Pepuſch, Padre Martini, and Sala; whoſe works we ſhall ſeverally characterize in the biographical articles, which we ſhall aſſign to theſe able and ſafe counſellors. We ſhall here only give the titles of their ſeveral works, and ſpecify the peculiar manner adopted by each, in treating the ſubject.

The Treatiſe, on Compoſition by Fouchs, firſt maeſtro di cappella to the emperor Charles VI., was originally written in Latin, and publiſhed at Vienna in 1725, under the following title, "Gradus ad Pernaſſum, ſive Manuductio ad Compoſit. Muſicæ Regularem." The author begins with harmonies and the ratio of ſounds. The practical inſtructions are given in dialogue, between a maſter and ſcholar. All the examples are written on canto fermo.

This work was tranſlated into German, in 1742, by Lorenz Mizlern, and publiſhed at Leipſig, 4to. In 1761, an Italian tranſlation in folio, appeared at Carpi, by the eccleſiaſtic Manfredi, recommended in ſtrong terms to lovers of muſic by the celebrated Niccola Piccini, in a letter to the tranſlator. And, in 1767, a tranſlation into Engliſh of the practical part of the work, without the harmonics, by Hoeck, was publiſhed by Welcker, in folio: all theſe ſeveral editions are now become ſcarce.

Dr. Pepuſch's excellent little Treatiſe on Harmony, containing the chief rules for compoſing in *two*, *three*, and *four parts*, was publiſhed in London, 1731. In this work the precepts are ſhort, clear, and well-arranged. The author goes through the concords and diſcords, ſhewing the uſe of each, ſeparately. His rules for fugue and canon are admirable.

In the introduction, his definitions are ſhort and clear, except *modulation*, which, at preſent, is confined to change of key; but he talks of *modulating in one key*. In our old authors, indeed, to *modulate* was ſimply to ſing, p. iv. for *motions*, read progreſſions from one part of the ſcale to another.

He rightly confines plain counterpoint to muſic without diſcords, and moving note for note, but p. 8, where, he ſays, that the ſkip in melody to a tritonus, or 5♭ is abſolutely forbidden, he muſt not be rigidly followed, as ſome of the moſt beautiful effects are produced by thoſe intervals.

We do not quite underſtand his going from the uniſon to the 3d minor, preferably to the third major. His recommendation of doubling the 3d or the 6th in accompanying the 6th preferably to the 8th, is good in ſlow movements; but in quick, a ſmall hand would be embarraſſed by frequent octaves: And in quick movements, a 3d is under the hand. Ex. 37. The avoiding 5ths, in a ſucceſſion of common chords to fundamental baſes, Ex. 39, by contrary motion deſerves retention. Ex. 41. G 44. Fundamental and ſuppoſed baſes, by turns, is always pleaſing.

P. 25. The venerable doctor is, however, a little miſtaken in his definition of *canto fermo*, making it ſynonimous with *plain counterpoint*. Canto fermo is a chant or ſingle part, and has no reference to counterpoint or chords in the Romiſh church, where it is never ſung, as with us, in four parts.

Neither our ears nor our eyes have been quite reconciled to "the 7th prepared and reſolved in the baſe." p. 37. Nor the jumping up to the 7th, which we were before told ſhould be prepared and reſolved in the treble. This harmony ſeems never to have been much in uſe, and the examples from No. 84 to 91, are little better than jargon. About the middle of the laſt century the frequent uſe of the $\begin{smallmatrix}7\\4\\2\end{smallmatrix}$ ſometimes for 2 or 3 bars together, made us ſtare; but we were ſoon familiarized to it by the German ſymphoniſts of the Manheim ſchool. A new combination has ſince been introduced, we believe, for the firſt time, by Krumpoltz: $\natural\begin{smallmatrix}9\\7\\6\\4\end{smallmatrix}$, in a concerto compoſed for the harp of that exquiſite performer his ſcholar and wife Mad. Krumpoltz; it was ſoon ſanctioned by Haydn and Mozart, who have given it currency; and now, though it ſurprized at firſt, the public ear is reconciled to it, and minor contrapuntiſts will not let it be forgotten. But the unprepared minor 7th reſolved in the 8th has not met with favour from the *ſervum pecus*.

Dr. Pepuſch's chapter on paſſing-notes, is very clear and uſeful, and will remove many fears of young harmoniſts.

His diſcords by ſuppoſition are only appoggiaturas, and need no notice in figuring a baſe. Rameau's chords by ſuppoſition are different things. The comparing the ſeveral kinds of cadences to breathing places, as it were in muſic, to punctuation or ſtops in literature, is juſt and happy. Pret. p. iv.

Modulation is ſo much extended, and indeed now become ſo unlimited, that Dr. Pepuſch's ſober, relative, and eccleſiaſtical modulation, which by having ſo long ſtudied the compoſitions of celebrated and curious old contrapuntiſts, narrowed his ideas ſo much, that he regarded even Handel as an innovator. So that his chap. vii. p. 38, will carry a ſtudent but a little way on the myſtic and difficult road of modulation.

Padre Martini's inſtructions are excellent, as far as they go; but the compoſitions which he gives in illuſtration being all rigidly formed on the eccleſiaſtical modes and canto fermo, few of them are applicable to ſecular muſic of the preſent times. We ſhall, however, give his authority for ſome of the rules laid down in this article (*counterpoint*), and occaſionally quote him.

“Regole del Contrappunto pratico di Nicola Sala Napolitano, Primo Maeſtro nel reale Conſervatorio della Pietà de Torchini, Napoli,” 1794. This is the laſt capital work publiſhed in Italy, on the ſubject of compoſition. The author, who died in 1795, had been 40 years principal maſter of the conſervatorio of la Pietà, and was the ſcholar and ſucceſſor of Durante. During the long ſeries of years in which he had been inſtructing the muſical ſtudents in that celebrated ſeminary, he formed this regular ſyſtem of *counterpoint*, which is printed at the royal preſs in two huge folio volumes, as large as De Liſle's maps; admirably engraved, and containing a regular ſeries of well digeſted examples of compoſition of the moſt clear, neat, and correct kind, that have ever yet been publiſhed in any elementary muſical work ſince the invention of counterpoint.

Theſe four theoriſts are all excellent harmoniſts; and if the ſtudent has any genius or ſpirit of invention, he can have no ſafer guides in the flights he may take.

Counterpoint forms a long and elaborate article in the Encyclopedie Methodique. The ſubject has been taken up *ab ovo*, and its hiſtory and progreſs traced from the principal writers of the laſt century, adding, however, little new information from their own reſearches. Extracts are given from friends and foes to the art. Imitations, fugues, canons, and learned modulation, are called gothic and barbarous inventions by ſome, and ſublime productions by others. We have the ſarcaſms of Rouſſeau, and abuſe of Eximeno, againſt all learning and contrivance in muſical compoſitions; and Padre Martini and German and Engliſh writers in their favour. Rameau, the French Coryphæus of the laſt century, is not even allowed a *repieno* part in this. The uſual rules and exceptions are, however, at length given.

In ſpeaking of Aleſſandro Scarlatti, and Durante, and their ſcholars, M. Ginguené has done juſtice to the Neapolitan ſchool of counterpoint, though he afterwards invalidates his praiſe, by quoting the cenſures of the ſuperficial *Eximeno*, who has nothing but *belle parole* with which to defend his prejudices and erroneous opinions. He is a far better maſter of the Italian language, than the art of muſic. How men who have read, and meditated on the ſubject, as much as Meſſrs. Ginguené and Framerie have done, could become the dupes of his eloquence and falſe reaſoning, we know not! particularly after ſeeing the kind of compoſition for which he would ſuperſede that of the church, by Aleſſ. Scarlatti, Leo, Durante, Pergoloſi, Jomelli, Perez, Galuppi, Sacchini, &c.; who, though their dramatic ſtyle is all grace, elegance, and paſſion, have produced muſic for the church, of the moſt grave, ſolemn, learned and ſublime kind, which Signor Eximeno qualifies with the epithets of *gothic* and *barbarous*! M. Ginguené has detected him in his chronology, and proved that during the reign of the Goths in Italy, ſo far from fugues, canons, and pedantic complication having their riſe, no attempts at even plain counterpoint had been made. The work of Eximeno was unnoticed in Italy, except by foreigners who had ſubſcribed to it, as they are called upon by artiſts and projectors to do to every thing, was, we believe, never read by three maſters among the natives, and has long been as much forgotten as if it had never been written. However, among evocations, and the phantaſmagoria of the Illuminati, Signor Eximeno has had a momentary reſuſcitation in France.

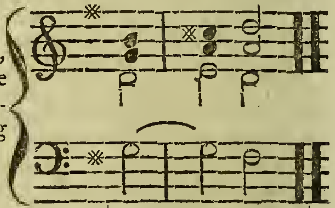
Among the general rules for counterpoint in the New Encyclopedie, a uſeful precept is given to the young harmoniſt, to avoid, in vocal compoſitions, every thing that offends a cultivated ear, or that is too difficult to be performed unleſs purpoſely intended to diſplay a peculiar talent, capable of executing difficulties out of the reach of common abilities.

No muſical article is more amply treated in that immenſe work than *counterpoint*. After a ſketch of its hiſtory, taken chiefly from one of our Engliſh muſical hiſtorians, eleven rules are given for counterpoint in general: 1ſt. To avoid the tritonus or ſharp 4th in melody, unleſs as a ſharp 7th it mounts to the octave.

2. The leap of a major 6th is prohibited in the treble, we know not why, as we could give ſeveral agreeable inſtances of its uſe in the melody of Italy, as well as that of our own country.

3. The major or ſharp 7th, and all intervals in general, that are difficult of intonation.

4. Two major 3ds, which, however, to a binding note in the baſe, frequently happens, as in the following paſſage.



5. Falſe relation, as C ※ againſt C ♮, or B ♭ againſt B ♮. But Eman. Bach, in appogiaturas, has violated that rule.

6. No compoſition ſhould begin on the 3d in the treble. A rule which has been abandoned more than a hundred years, as “Sweet Bird,” by Handel, *Voi Aonanti*, by Giardini, and “Would you Taſte the Noon-tide Air,” by Arne, would ſhew.

7. It is neceſſary always to paſs from a perfect to an imperfect concord, in contrary or oblique motion.

8. Neither the 8th nor the 5th ſhould be uſed in two parts, in the middle of a movement, much leſs the uniſon, as they afford no variety in the harmony.

9. All diſcords ſhould be prepared and reſolved, except the 7th, which is uſed in melody, as well as harmony, without reſtriction; as well as its derivatives, the 2d and 4th.

10. In counterpoint of many parts, if any of the intervals are doubled, the 8th ſhould be preferred to the 5th, the 5th to the 3d; which laſt, at a cloſe, would occaſion two octaves. But we think that the 3d, whether major or minor, has the moſt pleaſing effect, when doubled, of any of the

intervals. Even at a cloſe, in many parts, one of the ſharp 3ds may fall on the 5th of the baſe.

11. The diſtance between the firſt treble and tenor, in four parts, ſhould never be more than a 10th.

Many of theſe rules are become obſolete, ſuch as the four firſt, the 6th, 7th, 8th, and 10th.

But of Padre Martini's ten rules of counterpoint, eight remain, even in ſecular muſic.

Though almoſt all theſe rules have been already given in the courſe of this article, we ſhall inſert them here in regular order.

I. The firſt rule in counterpoint is to begin and end in perfect harmony with the ſounds that compoſe the common chord of the key-note, and their compounds or octaves.

II. Prohibits the ſucceſſion of two uniſons, two octaves, or two fifths, in ſimilar motion.

III. Contains prohibitions in muſic, *a cappella*, which have been long aboliſhed in ſecular muſic; ſuch as the avoiding the leap of a ſharp 4th, or flat 5th, in melody; the major 6th, minor 7th, a diminiſhed or falſe octave, muſt always be difficult to execute with the voice, and deteſtable to the ear.

IV. To remember that major intervals naturally aſcend, and minor deſcend; of the firſt kind are the 3d, 6th, and 7th major; and of the latter, the flat 5th and flat 7th.

V. Falſe relations prohibited.

VI. *Mi* againſt *Fa*, or the tritonus $\overset{B}{F}$. This prohibition, already given in the IIId. rule, has been taken off long ſince, in ſecular muſic; where the moſt expreſſive and impaſſioned paſſages have been produced by this interdicted interval.

VII. That the ſeveral parts ſhould be as compact and near each other as poſſible.

VIII. The paſſage from any conſonance to a perfect concord by regular motion, is prohibited. See in *Pl.* IV. Martini's examples, in which ſuſpicions of 5ths and 8ths appear.

IX. That *ſimple counterpoint*, or note againſt note, ought to be compoſed of concords only, and of notes of equal length.

X. In florid or *figurative counterpoint*, in which notes of different duration are uſed, there are two kinds of diſcords, the one by gradation, or *paſſing notes*; (which ſee,) the other by ſuch diſcords as are regularly *prepared* and *reſolved*, (which terms ſee in their places.)

A ſhort and intelligible rule for tranſient modulation from note to note in any given key, would be to ſay, that an accidental ※ or ♭ in any of the parts, changes the modulation to a new key; the ſharp, in ſharp keys, and the natural in keys with flats, lead to the half note above ſuch ſharp or natural. The accidental ♭ in a major key with flats, and a natural in keys with ſharps, lead to the 4th below in major keys; and in minor keys to the minor 6th below; as in C ♮ a flat to B implies the key of F major or minor.

Of Padre Martini's ten rules of *counterpoint* the third and fixth rules may be ſpared. His collection of paſſages that involve a *ſuſpicion* of 5ths and 8ths contains uſeful beacons.

Dr. Pepuſch ſeems beſt to have explained what is meant by *paſſing-notes*, which imply ſuch ſounds in the melody of any part, as are not in the chord to the baſe.

Double counterpoint has been more laboured in the new 4to. edition of the Encyclopédie, and has had more pages beſtowed upon it than any muſical article in that voluminous work. Calculations are made of the inverſion of all the intervals in this artful and ingenious ſpecies of *counterpoint*, the moſt uſeful and pleaſing perhaps in figurative harmony. But of this, Sala has given ſuch numerous and excellent examples in his *Regole del Contrappunto*, that nothing more ſeems neceſſary on the ſubject. See an account of this admirable work in the biographical article concerning the author. However, after M. de Caſtilhon has beſtowed ten pages in the New Encyclopédie upon the *theory* of *double counterpoint*, M. Ginguené takes it up practically, and gives ten or twelve excellent examples of it in notation, from Padre Martini's *Saggio di Contrappunto*, who chiefly ſelected them from the works of Paleſtrina. For the hiſtory of counterpoint, ſee Composition.

Counter-*Pointed*, in *Heraldry*, by the French called *contre-pointé*, is when two cheverons in one eſcutcheon meet in the points, the one riſing, as uſual, from the baſe, and the other inverted, falling from the chief. They may alſo be counter-pointed the other way; that is, when they are formed on the ſides of the ſhield and the points meet that way, called counter-pointed in feſſe.

COUNTERPOISE, or Counterpoize, (from *counter*, oppoſite, and *poize*, a weight, or balance,) is a weight ſtanding in oppoſition to another weight. The word is principally uſed in *Mechanics*. When a weight is placed in each ſcale of a balance, ſo that neither of the two preponderates, each weight is ſaid to be a counterpoiſe to the other. And the ſame thing muſt be underſtood of all other mechanical engines; obſerving, however, that in every mechanical engine, the balance excepted, they are not the weights themſelves that muſt be equal, but their *momenta*; that is, the weight of each multiplied by its velocity. Thus, ſuppoſe that a wheel of two feet in diameter is fixed to an axis of one foot in diameter, and that a rope faſtened with one of its extremities to the rim of the wheel, goes round it, and hangs down with its other extremity; alſo, that another rope faſtened with one end to the axis, goes round it in the oppoſite direction, and hangs down with its other end. Now if a weight of three pounds be faſtened to the end of the rope which proceeds from the wheel, and a weight of ſix pounds be faſtened to the rope which proceeds from the axis; each of thoſe weights will be a counterpoiſe to the other, and the wheel with its axis will, of courſe, remain motionleſs; for ſince the diameter of the wheel is two feet, and that of the axis one foot; their circumferences are in the ſame ratio; *viz.* that of two to one; therefore the weight of three pounds multiplied by the velocity two, produces the momentum ſix; and the weight of ſix pounds multiplied by the velocity one, produces the momentum ſix, *viz.* equal to the former.

When objects, eſpecially thoſe of a heavy and bulky kind, are properly ſituated upon whatever they ſtand; ſuch as ſtatues, men on horſeback, rope dancers, veſſels upon water, &c. they are ſometimes ſaid to be well poiſed, or properly counterpoiſed; meaning that they are ſo ſituated as to have as much weight, or rather momentum, on one ſide of the line of direction as on the other; hence they remain perfectly ſteady and firm. The line of direction of a body, is a line which paſſes through the centre of gravity of that body, and is perpendicular to the horizon.

Sometimes the word counterpoiſe is uſed to expreſs any inſtrument or any weight which may be occaſionally

ally uſed for the purpoſe of reſtoring the equilibrium of a body, or of a ſyſtem of bodies connected together.

COUNTERPOISE, in the *Manege*, denotes the liberty of the action and ſeat of a horſeman; ſo that in all the horſe's motions he continues in the middle of the ſaddle, bearing equally on the ſtirrups.

COUNTER-POISON, an antidote or remedy, which prevents the effect of a poiſon.

Of this kind are Venice treacle, mithridate, orvietan, &c. *Counter-poiſons* are either *general*, or *ſpecific*: to the general kind belong angelica, carduus benedictus, the vincetoxicum, dittany, ſcorzonera, citrons, bezoar, hartſhorn, &c. For ſpecifics, citron-bark is ſuppoſed a *counter-poiſon* to nux vomica; Venice treacle to the bite of a viper; oil of ſcorpion to the bite of ſcorpions; oil of pine-apples to orpiment; gentian to the cicuta, &c.

Vander Linden, in his treatiſe De Venenis, ſays, that in every putrid indiſpoſition, whether ariſing from the bite of venomous beaſts, or from an alcali formed by putrefaction, vinegar drank is ſovereign, either ſimple or diſtilled; either with honey in form of oxymel, or with ſquills.

COUNTER-*Potent*, in *Heraldry*, is reckoned a fur as well ermine and vair; but is compoſed of ſuch pieces as repreſent the tops of crutches, in French called *Potences*, and in old Engliſh *Potents*.

COUNTER-*preſſure* of fluids, (from *counter*, oppoſite, and preſſure,) in *Hydraulics*, means the preſſure which is produced by a ſtream of fluid in a direction oppoſite to its own, and which is rendered active when the reſervoir, from which the ſtream iſſues, is moveable. Upon this principle mills and other machines have been contrived by Euler, Segner, and others. We ſhall endeavour to convey to our readers a clear idea of the counter-preſſure of fluids, and of the general application of the principle to uſeful machines, by means of *fig.* 5, in *Plate* I. *Hydraulics*. A B G C repreſents a hollow veſſel of wood, or tin, or iron, or, in ſhort, of any ſubſtance ſufficiently hard and durable. It has three apertures; *viz.* a large one C G, a ſmall lateral aperture on one arm at B, and another lateral aperture equal to the laſt on the other arm, but on the other ſide of it, that is, oppoſite to A. The whole machine is faſtened to an axis, the extremities of which turn in the holes D and E: this axis ſtands perpendicular to the horizon. F is a ſpout proceeding from a reſervoir or ſpring, and continually pouring water into the aperture C G. Now, the water which thus comes into the veſſel, finding the two apertures at B, and on the ſide oppoſite to A, comes out of the ſame, and forms two ſtreams; then the oppoſition which the air offers to thoſe ſtreams produces a counter-preſſure on the arms of the machine in a direction contrary to that of the ſtreams; in conſequence of which the whole machine is cauſed to turn round in the direction contrary to the ſtreams, and this rotatory motion will continue as long as the ſpout, F, continues to pour water into the aperture C G. When a motion or moving power is thus obtained, the application of it to mills, pumps, and other engines, is ſufficiently eaſy. Where a ſufficient ſupply of water from a proper height may be had, a machine of this ſort may be rendered very powerful; *viz.* by increaſing the perpendicular height of the vertical tube and the length of the horizontal arms, and by enlarging the apertures on the arms, the power may be increaſed to a very conſiderable degree. In this machine the whole veſſel, C G A B, is the moveable reſervoir of the ſpouts at B, and oppoſite to A.

The wheels of fire-works, which are commonly exhibited, turn round their axis upon the ſame principle; that is, the ſtream of fire comes out in one direction, and the oppoſition which the air makes to it, produces a counter-preſſure, which forces the wheel to turn round its axis in the oppoſite direction.

A well known electrical experiment, called the *electrical fly*, is another inſtance of this kind. The apparatus, which is particularly deſcribed amongſt the electrical inſtruments, conſiſts of three or four wires faſtened to a cap, like the magnetic needle of a compaſs, which reſts upon, and turns round, a vertical pointed wire. The extremities of the wires are turned ſideways. When this little apparatus is electrified, the ſtream of electric fluid which comes out of the extremities of the wires forces the fly to turn in the oppoſite direction.

When an aeolipile is ſet upon a little wheel carriage, and its aperture is turned horizontally, the ſteam, which iſſues from it, produces a counter-preſſure, (in conſequence of the oppoſition which the air makes to it) which impels the aeolipile with its carriage into the oppoſite direction. See ÆOLIPILE.

COUNTER-*Proof*, in *Rolling-preſs Printing*, a print taken off from another freſh printed; which, by being paſſed through the preſs, gives the figure of the former, but inverted.

To counter-prove, is alſo to paſs a deſign in black lead, or red chalk, through the preſs, after having moiſtened with a ſponge, both that, and the paper on which the *counter-proof* is to be taken.

COUNTER-*quartered*. See COUNTER-CARTELE'.

COUNTER-*Roll*, a copy of the rolls relating to appeals, inqueſts, &c. ſtat. 3 Ed. I. c. 10. See ROLLS.

COUNTER *round*, a particular round made by officers to know if a round ordered has been exactly performed.

COUNTER-*ſalient*, in *Heraldry*, expreſſes two animals leaping different ways.

COUNTER*ſcarp* is, properly ſpeaking, in *Fortification*, the ſlope or talus of the exterior ſide of a ditch; or it may be called the outſide or outward edge of a ditch towards the field oppoſite to the rampart and parapet of the work behind the ditch. As the outward ſlope or *talus* of the rampart or the ſide of the ditch that looks towards the field is called the *eſcarpe*, or ſcarp, ſo by way of contradiſtinction the outward ſlope or ſide of the ditch oppoſite to this and looking towards the place is called counterſcarp. And it goes by this name whether it have a *talus* or not, particularly if it be reveted. This term is alſo uſed in a more extended ſenſe, and is employed to expreſs the glacis, covert way, and talus or ſlope of the ditch, that looks towards the body of the place or the work oppoſite to it. For it is frequently ſaid, that the beſiegers have carried their lodgments upon the counterſcarp when they are lodged on the covert-way.

COUNTER-*ſcarp, angle of the*. See ANGLE.

COUNTER-*Sign*, in the general acceptation of the term, means any particular word, ſuch as the name of a place or perſon, which like the parole is exchanged between guards, entruſted to perſons, who viſit military poſts, go the rounds, or have any buſineſs to tranſact with officers or ſoldiers in camp or garriſon. It ought always to be given in the language beſt known to the troops.

COUNTER-*Signing*, the ſigning of an order or patent of a ſuperior, in quality of ſecretary; to render the thing more authentic.

Charters, &c. are ſigned by the king, and *counter-ſigned* by a ſecretary of ſtate, or the lord-chancellor.

Counter-*Stratagem*, or *Counter-Fineſſe*, is that by means of which the intended effect of another is prevented. Contre-fineſſe, or contre-ruſe, ſtill goes by the appellation of *contre-mine*.

Counter-*ſtroke*, a *Surgical* term, explained under the article Counter-*Fiſſure*.

Counter-*Swallow-Tail*, or *Contre queue d'Hironde*, or *Contre queue d'Hirondelle*. The queue d'Hironde or queue d'Hirondelle is a term commonly applied in fortification to a detached work made in the form of a ſimple tenaille or ſwallow's tail and wider outwards towards the field than it is inwards at the gorge. The term contre-queue d'hirondelle is on the other hand applied to a detached work, which is alſo in the form of a tenaille, but is wider inwards at the gorge than it is outwards towards the field. The ſituation of the ground does not always admit of making the wings of a horn-work parallel to one another. When they approach each other inwards, or when it widens towards the field, this work is alſo frequently called a *queue d'hirondelle* or *ſwallow-tail*; and when its wings approach nearer to each other outwards or towards the field it is called a *contre queue d'hironde-work*, or *counter-ſwallow-tail*. When a ſwallow's tail has two tenailles it is called *bonnet a pretre*, or *prieſt's cap*.

Counter-*Tally*, one of the two tallies whereon any thing is ſcored.

Counter-*Tenor*, is one of the mean or middle parts of muſic: ſo called, as being oppoſite to the tenor. It is likewiſe applied to a voice which is of a higher pitch than the tenor, but lower than the treble. See Contralto.

Counter-*Time*, in the *Manege*, ſignifies the defence or reſiſtance of a horſe that interrupts his cadence, and the meaſure of his manege, occaſioned either by a bad rider, or a malicious horſe.

Counter-*Time*, or *Contre-Temps*, in terms of fencing, is ſaid of two champions, who make a paſs at each other at the ſame time and give an interchanged thruſt alike fatal to both.

Counter-*Time*, in *Muſic*. See Contre-temps.

Counter-*Trenches*, are trenches made againſt the beſiegers to ſtop their going on with their trenches and to keep them as far from the place beſieged as poſſible; it being well known that the farther the beſiegers are from the place the leſs they can annoy it. As they are oppoſed to the beſiegers' trenches or approaches, which have their parapets turned towards the place or the beſieged, it is eaſy to conceive that the counter-trenches muſt have their parapets turned towards the beſiegers or the field, in order that the beſieged may be covered by them. It is alſo evident, that they ought to be looked along and ſeen from different parts of the place to prevent their affording any cover or ſhelter to the beſiegers, ſhould they take them. They ſhould be carried on to ſuch places as are advantageous for the town and prejudicial to the enemy that they may be defended from the outworks without being enfiladed or commanded by any height, which the beſiegers are in poſſeſſion of, or are poſted on.

Counter-trenches are the ſame as Counter-*Approaches*, which ſee.

The phraſe, *to ſcour the Trench*, is to make a vigorous ſally againſt thoſe that guard it, and force them to give way or to quit their poſt and loſe ground, and to put the pioneers to flight.

Counter-*Trippant*, in *Heraldry*, has the ſame meaning as counter-paſſant, but is only applied to different ſpecies of deer.

Counter-*Vair*, is when bells or cups of the ſame tincture are placed baſe againſt baſe, and point againſt point.

Counter-*vallation*. See Circumvallation.

Counter-*vention*. See Contravention.

Counter-*Word*, in *Military Language*, a ſecond parole or counterſign which is given in times of alarm.

Counter-*Working*, in the *Military Art*, the raiſing of works, in order to oppoſe thoſe of the enemy.

COUNTERLY, in *Heraldry*, is the ancient term for what we now call Parted per pale.

COUNTESS's Powder. See Suffolk *Powder*.

COUNTING, or Compting-*Houſe*. See Compting-House and Green-Cloth.

Counting-*Board*. See Abacus.

COUNTORS, Contours, or *Counters*, have been uſed for ſerjeants at law, retained to defend a cauſe, or to ſpeak for their client in any court of law. It is of theſe Chaucer ſpeaks:

——A ſheriff had he been, and a *countour*,
Was no where ſuch a worthy vavaſour.

They were anciently called ſerjeant-*contours*. 1 Inſt. 17.

COUNTRIES, among the *Miners*, a term or appellation they give to their works under ground. Phil. Tranſ. No. 198.

COUNTRY-Dance is of Engliſh origin, though tranſplanted into almoſt all the countries and courts of Europe. There is no eſtabliſhed rule for the compoſition of tunes to this dance, becauſe there is in muſic no kind of time whatever which may not be meaſured by the motions common in dancing; and there are few ſong-tunes in any favour within the laſt century, that have not been applied to *country dances*. See Contre-*dance*.

Country *Faſt*. See Shelf.

Country *Harbour*, in *Geography*, a harbour of America, about 20 leagues to the eaſtward of Halifax in Nova Scotia.

Country, *Trial by*, the ſame with trial by jury. See Jury and Trial.

Country-*Wakes*. See Wakes.

COUNTY, Comitatus, originally ſignifies the territory of a count, or earl. But now it is uſed in the ſame ſenſe with ſhire; the one word coming from the *comes*, the count of the Franks, the other from the Saxon and ſignifying a diviſion.

In this view, a county is a circuit, or portion of the realm; into fifty-two of which the whole kingdom is divided, for its better government, and the more eaſy adminiſtration of juſtice: England containing 40, and Wales 12 counties.

Theſe counties are ſubdivided into rapes, lathes, wapentakes, hundreds; and theſe again into tithings: a diviſion owing, as it has been ſaid, to king Alfred.

For the execution of the laws in ſeveral counties, officers are appointed, under the denomination of *ſheriffs*. See Sheriff.

Other officers of the ſeveral counties are, a *lord lieutenant*, who has the command of the militia of the *county*: *cuſtodes rotulorum*, *juſtices of peace*, *bailiffs*, *high conſtable*, and *coroner*. See farther under Lord Lieutenant, Militia, Custos *rotulorum*, Justice *of the peace*, *High*-Constable, Bailiff, and Coroner.

Of the fifty-two counties, there are three of ſpecial note, which are therefore termed *counties palatine*, as Lancaſter, Cheſter, and Durham. The two latter are ſuch by preſcription, or immemorial cuſtom, at leaſt as old as the Norman conqueſt; the former was created by Edward III. in favour of Henry Plantagenet, firſt earl and then duke of Lancaſter; whoſe heireſs being married to John of Gaunt, the king's ſon, the franchiſe was greatly enlarged and confirmed in parliament (Cart. 36 Edw. III. *n.* 9.) to honour John of Gaunt himſelf, whom, on the death of his father-in law, the king had alſo created duke of Lancaſter. (Pat. 51 Ed. III. *m.* 33.)

Counties palatine are ſo called *a palatio*; becauſe the owners thereof, the earl of Cheſter, the biſhop of Durham, and the duke of Lancaſter, had in theſe counties *jura regalia*, as fully as the king hath in his palace; *regalem poteſtatem in omnibus*, as Bracton expreſſes it. (l. iii. c. 8. § 4.) They might pardon treaſons, murders, and felonies; they appointed all judges and juſtices of the peace; all writs and indictments ran in their names, as in other counties in the king's: and all offences were ſaid to be done againſt their peace, and not, as in other places, *contra pacem domini regis*. Theſe palatine privileges (ſo ſimilar to the regal independent juriſdictions uſurped by the great barons on the continent, during the weak infant ſtate of the firſt feodal kingdoms in Europe) were in all probability originally granted to the counties of Cheſter and Durham, becauſe they bordered upon inimical countries, Wales and Scotland; in order that the inhabitants, having juſtice adminiſtered at home, might not be obliged to go out of the country, and leave it open to the enemy's incurſions; and that the owners, being encouraged by ſo large an authority, might be the more watchful in its defence. On this account there were alſo formerly two other counties palatine, Pembrokeſhire and Hexhamſhire, which laſt belonged to the archbiſhop of York, and was ſtripped of its privilege in the reign of queen Elizabeth, and reduced to be a part of the county of Northumberland: the former was aboliſhed in 27 Hen. VIII. the latter in 14 Eliz.

In 27 Hen. VIII. likewiſe, the powers before mentioned of owners of counties palatine were abridged; the reaſon for their continuance in a manner ceaſing:—though ſtill all writs are witneſſed in their names, and all forfeitures for treaſon by the common law accrue to them. 4 Inſt. 205.

Of theſe three, the county of Durham is now the only one remaining in the hands of a ſubject. For the earldom of Cheſter, as Camden teſtifies, was united to the crown by Henry III., and has ever ſince given title to the king's eldeſt ſon. And the county palatine, or duchy of Lancaſter, was the property of Henry of Bolingbroke, the ſon of John of Gaunt, at the time when he wreſted the crown from king Richard II., and aſſumed the title of king Henry IV. But he was too prudent to ſuffer this to be united to the crown; leſt, if he loſt one, he ſhould loſe the other alſo. He therefore procured an act of parliament, in the firſt year of his reign, ordaining that the duchy of Lancaſter, and all other his hereditary eſtates, with all their royalties and franchiſes, ſhould remain to him and his heirs for ever; and ſhould remain, deſcend, be adminiſtered, and governed, in like manner, as if he never attained the royal dignity; and thus they deſcended to his ſon and grandſon, Henry V. and Henry VI.; many new territories and privileges being annexed to the duchy by the former. (Parl. 2 Hen. V. *n.* 30. 3 Hen. V. *n.* 15.) Henry VI. being attainted in 1 Edw. IV., this duchy was declared in parliament to have become forfeited to the crown (1 Ventr. 155.), and at the ſame time an act was made to incorporate the duchy of Lancaſter, to continue the county palatine, (which might otherwiſe have been determined by the attainder, 1 Ventr. 157.) and to make the ſame parcel of the duchy: and further to veſt the whole in king Edw. IV. and his heirs, *kings of England*, for ever; but under a ſeparate guiding and governance from the other inheritances of the crown. And in 1 Hen. VII. another act was made, to reſume ſuch part of the duchy lands as had been diſmembered from it in the reign of Edw. IV., and to veſt the inheritance of the whole in the king and his heirs for ever, as amply and largely, and in like manner, form, and condition, ſeparate from the crown of England and poſſeſſion of the ſame, as the three Henries and Edward IV., or any of them, had and held the ſame.

The iſle of Ely is not a *county palatine*, though ſometimes erroneouſly ſo called, but only a royal franchiſe: the biſhop having, by a grant of king Henry I., *jura regalia* within the iſle of Ely; by which he exerciſes a juriſdiction over all cauſes, as well criminal as civil. 4 Inſt. 220.

The *counties palatine* are reckoned among the ſuperior courts; and are privileged as to pleas, ſo that no inhabitant of ſuch counties ſhall be compelled by any writ to appear or anſwer out of the ſame; except for error, or in caſes of treaſon, &c.: and the counties palatine of Cheſter and Durham are, by preſcription, where the king's writ ought not to come but under the ſeal of the counties palatine; unleſs they be writs of proclamation, (Cromp. Juriſ. 137. 1 Danv. Abr. 750.) But *certiorari* lies out of B. R. to juſtices of a county palatine, &c. to remove indictments, and proceedings before them. (2 Hawk. P. C. c. 27. § 23.) There is alſo a court of chancery in the counties palatine of Lancaſter and Durham, over which there are chancellors: that of Lancaſter, called chancellor of the duchy. (See Chancellor.) And there is a court of exchequer at Cheſter, of a mixed nature, for law and equity, of which the "Chamberlain of Cheſter" is judge. There is alſo a chief juſtice of Cheſter; and there are other juſtices in the other counties palatine, to determine civil actions and pleas of the crown.

The biſhop of Durham has that county palatine; and if any erroneous judgment be given in the courts of the biſhopric of Durham, a writ of error ſhall be brought before the biſhop himſelf; and if he give an erroneous judgment thereon, a writ of error ſhall be ſued out in B. R. (4 Inſt. 218.) Infants in counties palatine are enabled to convey by order of the reſpective courts belonging to thoſe counties. (4 Geo. III. c. 16.) The king may make a county palatine by his letters patent without parliament. (4 Inſt. 201.)

County-*Corporate*, is a title given to ſeveral cities and towns, on which the Engliſh monarchs have thought fit to beſtow extraordinary privileges; annexing to them a particular territory, land, or juriſdiction; and making them counties of themſelves, ſo as not to be compriſed in any other county; and to be governed by their own ſheriffs and magiſtrates, without the interference of the officers of the county at large. The ſtatute 3 Geo. I. c. 15, for the regulation of the office of ſheriffs, enumerates 12 cities, and 5 towns, which are counties of themſelves, and which conſequently have their own ſheriffs. The cities are, London (by grant of Hen. I.), Cheſter, (42 Eliz.), Briſtol, Coventry, Canterbury, Exeter, Glouceſter, Litchfield, Lincoln, Norwich, Worceſter, York, (32 Hen. VIII.) The towns are, Kingſton-upon-Hull, Nottingham, Newcaſtle-upon-Tyne, Pool, Southampton. To theſe Cirenceſter is added in "Impey's Sheriff;" but it does not appear on what authority.

County-*Court*. See *County* Court.

County-*Lieutenant*. See Lieutenant.

County-*Rates*, are thoſe ordered by juſtices of peace at their quarter-ſeſſions, (and by juſtices of liberties and franchiſes, not ſubject to the county-commiſſioners, ſtat. 13 Geo. II. c. 18.) aſſeſſed on every pariſh, and collected by high-conſtables of hundreds, and paid to treaſurers appointed by the juſtices, for repairing bridges, gaols, or houſes of correction, on preſentments made by the grand jury at the aſſiſes or quarter-ſeſſions, of their need of reparation; but appeal lies by the church-wardens and overſeers of the poor of the pariſhes to the juſtices at the next ſeſſions, againſt the rate on any particular pariſh. 12 Geo. II. c. 29. As to the appeal, ſee 22 Geo. III. c. 17.

County, *Rier*. See Rier.

County-*Treaſurer*. See Treasurer and County-*rates*.

COVOLO, in *Geography*, a fortreſs of Germany, which defends an important paſs between the country of Tyrol and Italy, with a garriſon and ſtores.

COVORDEN, or Coworden, a city of the Netherlands, in Overyſſel, the capital of Drent; one of the ſtrongeſt places in the United Provinces, fortified in the form of a regular pentagon, with ſeven large baſtions, called after the names of the provinces, ſeven half-moons, and ſeven ravelins; and beſides, a fortreſs ſurrounded with five other baſtions, and a double ditch, very large and deep; the ramparts are high and thick; and its ſituation, in the midſt of a moraſs, renders the approach extremely difficult. It has frequently been taken and retaken by the Spaniards and the Dutch: 60 miles N. E. of Arnheim, and 45 S. of Embden. N. lat. 50° 42′. E. long. 6° 33′.

COUP, Fr. a touch or ſtroke. In *Muſic*, *coup de langue*, with flute players, is the accent given to notes by the tip of the tongue, inſtead of ſlurring them in an inarticulate manner.

Coup *d'Archet*, on the violin, is a ſtroke of the bow.

Coup *de Bride*, in the *Manege*. See Ebrillade.

Coup *de Grace*, in the *French Muſic*, the ſame as what the Italians call *tronco per grazia*.

Coup *de Main*, *Fr*. A ſudden and bold action or enterpriſe. As the ſucceſs of a *coup de main* depends on ſecreſy and ſurpriſe, it ſhould always be a primary conſideration to get as near to the object you have in view as poſſible, without being diſcovered or ſuſpected whether you go to it by land or by water. But if you intend to go by water to carry on war in any country, you ſhould land at a diſtance from the object you have in view, in order to have time to bring your ſtores on ſhore, to fortify a camp, to take ſome capital poſition, and then proceed gradually towards the accompliſhment of the main enterpriſe. See the articles Parties, Partisans, and Petite *Guerre*.

Coup-*d'Oeil Militare*, military glance of the eye, in *Military Tactics*, that fortunate aptitude or fitneſs of eye in a general or other officer, which enables him at one glance, as it were, to diſtinguiſh a ſtrong from a weak, an advantageous from a diſadvantageous poſition, and to ſee at once on the map the weak parts of an enemy's country as well as the ſtrong ones on his own, or to diſcover immediately the nature and divers ſituations of a country in which he carries on war; by means of which he diſtinguiſhes between the advantages or diſadvantages of poſts, which he wiſhes to occupy, or which he thinks may be uſeful or uſeleſs to the enemy. A general, who poſſeſſes a ready *coup d'œil*, may ſurmount the greateſt difficulties, particularly in offenſive operations, and find reſources in every ſituation. This faculty is of the greateſt uſe even on a ſmall ſcale. Actions have frequently been recovered by a conception of turning to account the ſmalleſt miſtakes on the part of the enemy, which, during the rapid and often confuſed movements of oppoſing armies, could only be diſcerned and aſcertained by a quick and ready eye.

The military glance of the eye is reducible to two points or particulars. The firſt of theſe comprehends the talent or faculty of judging, at one view, what number of troops a certain piece of ground will contain. This is acquired by practice. After a perſon has marked out ſeveral camps, his eye will become capable of meaſuring ſo exactly, that he will ſeldom be miſtaken in his eſtimate.

The other point, or talent, is of a ſuperior nature, and conſiſts in conceiving, at firſt ſight, every poſſible advantage that the ground affords. This is ſometimes conſidered as the gift of nature. But it may alſo be acquired by ſtudy, application, and an extreme deſire to excel and do what is right. And by thoſe, who are born with a happy genius for the art of war, it may, by means of ſtudy, be carried to a great degree of perfection. The chace is a good ſchool for acquiring a juſt *coup d'œil*. John, duke of Marlborough, poſſeſſed it in an eminent degree, as did alſo marſhal Luxembourg, and Louis XV., and ſeveral great captains or generals of the 16th, 17th, and 18th centuries. Frederic II., or the Great, expreſsly ſays, "that the baſis of this glance of the eye is the knowledge of fortification, the rules of which are to be applied to every poſition of an army." An able and experienced general who poſſeſſes it, will avail himſelf of every height, encloſure, building, defile, hollow-way, moraſs, &c.

He alſo ſays, "that in the ſpace of two ſquare leagues, it may be poſſible to take two hundred different poſitions; that a good general will perceive at the *firſt glance* that which is moſt advantageous; that he will aſcend every eminence in order to explore and reconnoitre the country; that the ſame rules of fortification will ſhew him the weakneſs of the enemy's order of battle; and that it is alſo of great importance, after he has taken his poſition, if time will permit, to know the preciſe extent of the ground which he occupies, and the number of paces it contains."

In ſpeaking of the military glance of the eye, he likewiſe obſerves, "that there are many other advantages to be drawn from the rules of fortification; as, for example, to chuſe your heights, and to poſſeſs them in ſuch a manner, that they may not be commanded by others; that your flanks may be covered and defended; that each poſt may be capable of defence; and to avoid thoſe, in which a brave officer cannot maintain his ground without riſking his reputation; that, by the ſame rules, you will be able to judge of the defects in the poſition of your enemy, whether they ariſe from the diſadvantage of his ſituation, or the injudicious diſtribution of his troops."

COUPED, or Coupe'e, in *Heraldry*, a term uſed to expreſs a head, or any other thing borne, cut off ſtraight in oppoſition to its being torn off, which is called *eraſed*.

Thus, the arms of Ulſter, which all baronets carry, is a dexter-hand *couped*, or cut off at the wriſt.

Couped, *Coupée*, is alſo uſed to denote ſuch croſſes, bars, ends, cheverons, &c. as do not touch the ſides of the eſcutcheon, but are, as it were, cut off from them.

COUPE'E, a motion in dancing, wherein one leg is a little bent, and ſuſpended from the ground; and with the other a motion is made forwards.

The word, in the original French, ſignifies a *cut*.

Coupe'e, or *Cut point*, in *Geography*, a ſhort cut in the river Miſſiſſippi, about 35 miles above Mantchac fort, at the gut of Ibberville, and 259 from the mouth of the river. The Spaniſh ſettlements of Point Coupeé extend 20 miles on the weſt ſide of the Miſſiſſippi; and there are ſome plantations on the ſide of La Fauſe Riviere, through which the Miſſiſſippi paſſed about 70 years ago. The fort at Point

Coupeé is of a ſquare form, having four baſtions conſtructed with ſtockades. Some years ago, there were in theſe ſettlements about 2000 white inhabitants and 7000 ſlaves. They cultivate Indian corn, tobacco, and indigo; and they breed a large number of poultry, which they ſend to New Orleans. They alſo ſend to that city ſquared timber, ſtones, &c.

COUPELLE, Fr. a ſort of ſhovel of white iron or braſs, neceſſary for cannoniers to handle, or manage the powder whilſt they are filling cartridges with it.

COUPER, Fr. to *cut*, is a term in inſtrumental *Muſic*, equal to *ſciotto* and *ſtaccato*, *Italian*, which ſee. It implies cutting the notes ſhort, in oppoſition to *tenuto* and *legeto*, Ital. and ſlurring, ſwelling, and ſuſtaining in Engliſh. In rapid paſſages on the violin *couper* ſometimes implies the letting the bow of the violin vibrate on the ſtrings without preſſure, which the Italians expreſs by *ſpiccato*.

COUPERIN, Francois, in *Biography*. So many muſicians of the name of Couperin have diſtinguiſhed themſelves in France, for more than 200 years, that the family has rendered itſelf illuſtrious by its talents, particularly on the organ and harpſichord, and in compoſition.

Three brothers, Louis, François, and Charles Couperin, are the ſtock whence all the reſt have ſprung. Louis, celebrated for his abilities in his profeſſion, was appointed organiſt to the king, and the place of treble viol was expreſsly created for him. He died about 1665, at the age of ſeventy.

François was alſo much celebrated for his excellent method of teaching the harpſichord; and Charles, the youngeſt of the three brothers, played the organ in a very ſuperior manner: but dying in 1669, he left a ſon, François Couperin, only a year old, who became ſo eminent a muſician, that he was entitled the Great Couperin, for his admirable performance on the organ; and the many leſſons which he compoſed for the harpſichord, and which were univerſally known and admired in their day. He was organiſt to the king, and the church of St. Gervais, as well as chamber-muſician to his majeſty, and died in 1733. The females of this family were likewiſe ſuch excellent performers on the harpſichord, as to be high in the favour of the court and the public.

Another François Couperin, couſin to the great Couperin, lived till 1778, and left a ſon, Armand Louis, who inherited his talents and fame, having ſucceeded to all his appointments; as that of one of the two organiſts of the king's chapel, and one of the four of Notre-dame, as well as organiſt of St. Gervais. He had, in 1780, a large family of ſons and daughters, whoſe muſical abilities beſpoke their deſcent; ſome had already endeared themſelves to the public by their performance, and others excited expectation for the future. Laborde. Eſſais ſur la Muſique.

The ſecond François Couperin in 1713, printed two books of harpſichord leſſons, that were of ſuch difficult execution as to impede their ſale, and to need a commentary. Theſe he publiſhed in 1717, under the title *L'Art de toucher le Clavecin*—"The Art of Playing the Harpſichord." The whole, both examples and precepts, beautifully engraved on copper plates, folio. The French taſte in muſic, at this time, was excluſively, that of Lulli, and truly national, to which the reſt of Europe was not partial. Couperin's inſtructions, however, for forming a player on keyed-inſtruments, with reſpect to placing the ſcholar at the keys, the carriage of the perſon and the hand, with evolutions of fingering, or exerciſes to ſtrengthen the hand, which, though written for his immediate ſcholars, and to facilitate the execution of his own printed leſſons, are long ſince forgotten; yet, many of his precepts are ſtill uſeful and worthy of being adopted at the time of forming the hand, as they are applicable to the muſic of all times and all places. See Fingering.

But we muſt not delude our readers with exaggeration of praiſe, or excite too great a deſire to be in poſſeſſion of a work now become ſcarce; but frankly own that though we approve ſome ingenious expedients in his method to lighten the hand, and multiply the fingers, there are rules for executing ſome common paſſages, that are at once inconvenient and clumſy. We ſhall extend our remarks on this work no further at preſent; but refer our readers to the articles Doighter, Fr. (which Rouſſeau, even with the aſſiſtance of M. Duphly, has not rendered totally unexceptionable,) and Fingering, Eng.

COUPIAC, in *Geography*, a town of France, in the department of the Aveyron, and diſtrict of St. Afrique.

COUPLE-Close, in *Heraldry*, ſhould contain the 4th part of a cheveron; and is always borne in pairs, one on each ſide the cheveron. The couple-cloſe is to the cheveron what the cottiſe is to the bend, and may be blazoned both ways, *viz.* a cheveron between two couple-cloſes, and a cheveron cottiſed.

COUPLED Columns. See Column.

COUPLET, Fr. formed from the Latin *copula*, a diviſion of a hymn, ode, ſong, or the like, wherein an equal number, or equal meaſure, of verſes is found in each part.

In odes, theſe diviſions are more ordinarily called ſtrophes.

This word which, uſually, in Engliſh, is underſtood to imply a couple of lines or verſes in poetry, which rhyme to each other; in Fr. is equivalent to ſtrophe and ſtanza, in odes and ballads. In the latter, when many verſes or ſtanzas go to the ſame tune, the poet ſhould be careful that the accents fall on the ſame part of each verſe. In many of our beſt ballads of this deſcription, the accents frequently fall on ſuch different portions of the ſtanzas, as by no means to ſuit the ſame melody. The poet, if he knows one tune from another, ſhould write his firſt ſtanza to ſome well-known tune, and let that regulate the accents of the reſt.

COUPLING-Box, among *Mill-Wrights*, is a contrivance very frequently uſed in large mills, for quickly diſuniting, or connecting, two parts of any ſhaft, which is to convey a rotatory motion from one part of a mill to another, in order to ſtop or put in motion any particular machine worked by that ſhaft.

Plate XVII. *Mechanics*, *figs.* 6, 7, and 8, repreſent three of the moſt common coupling-boxes. In *fig.* 6, A, B, repreſent the two ſhafts working in centres C, D, between which they are formed into two heads exactly like ſcrew-heads, with a large notch acroſs them; in the ſituation the drawing repreſents, they are quite independent of each other, and either of them may be turned round without moving the other, but they are eaſily united by driving a wedge, E, into the notch made in each head.

Fig. 7, repreſents another ſort; the heads in this are ſquare, and are connected by driving a looſe ſquare ring, E, over them both, and are diſunited by knocking it back on to one of them, as in the figure; the ſquare heads are a little tapering, ſo that the ring may fit tight when it is drove on.

In *fig.* 8, one of the heads, F, has two ſtubs projecting from it, which take into holes, made to correſpond with them in the other G, and when they are to be joined the head of the ſhaft, F, is puſhed up towards the other, by a lever, H, moving round a centre *a*; it has a fork at its end, which embraces a groove, cut in the head F. This laſt coupling-box has the advantage of being able to be caſt on, or off, without ſtopping the leading ſhaft, as the other two muſt, though it would be only for a ſhort period.

COUPTRIN, in *Geography*, a ſmall town of France in the department of Mayenne. It is the chief place of a canton, and contains 500 inhabitants. The canton itſelf has a population of 14,107 individuals in eleven communes, upon a territorial extent of 175 kiliometres.

COUPURES, Fr. ſeparations or cuts made in works attacked for diſputing them inch by inch with the enemy. Theſe in *fortification* are paſſages ſometimes cut through the glacis of about 12 or 15 feet broad in the re-entering angles of the covert-way, to facilitate the ſallies of the beſieged. They are alſo made ſometimes through the lower curtain, to let boats into a little haven built on the re-entering angle of the counterſcarp of an outwork.

COUR, in *Geography*, a town of France, in the department of the Loir and Cher; 3 leagues S. E. of Blois.

COURA, a river of Portugal, which runs into the Duero; 4 miles N. E. of Lamego.

COURAGE, in *Ethics*, is that quality of the mind, derived either from conſtitution or principle, or both, that enables men to encounter difficulties and dangers. It is active *fortitude*, which meets dangers and attempts to repel them.

On this article it is unneceſſary to ſay much, except by way of illuſtration as an eſſential *military* qualification. True courage is ſo much connected with fortitude or reſolution of mind, which has always been juſtly claſſed among the virtues, that the ancients, particularly thoſe, who were moſt accuſtomed to the ſtudy and practice of war, gave the ſame name or appellation to virtue and to valour. Thus virtue among the Romans, and ἀρετὴ, were terms employed to expreſs both equally.

Without courage, both in the commander and in the troops commanded, military operations cannot, in caſes of real difficulty and danger, prove ſucceſsful. Soldiers may be ſufficiently brave, without poſſeſſing, however, on all occaſions, the courage neceſſary for making a diſplay of their bravery. A general poſſeſſing talents, and a knowledge of human nature, (an acquaintance with which forms the firſt and principal ingredient in generalſhip), always knows in trying ſituations, how to inſpire his troops with courage, provided they be well diſciplined. Of this truth many inſtances might be adduced. Confidence in their leader never fails to give courage and reſolution to troops. No commanders among the ancients poſſeſſed the confidence of their men more than Hamilcar Barcas and his ſon Hannibal, and none perhaps among the moderns more than the celebrated Turenne, Maurice of Naſſau, and John, duke of Marlborough. Every ſort of trick, ſubtlety, and fineſſe is ſometimes had recourſe to for the purpoſe of elevating and raiſing the courage of ſoldiers. A general with an inferior number of troops who finds it impoſſible to avoid battle, by making his men believe, that the enemy will not give quarter or take priſoners, will generally ſucceed in animating them with a deſperate ſpecies of courage. To ſhew and convince them alſo, that there are no hopes of ſafety but in victory, produces a ſimilar effect. Of this there is a remarkable inſtance on record in modern hiſtory in the conduct of Ferdinand Cortes, who had only five hundred infantry and twenty horſemen for making the conqueſt of Mexico. Obſerving that his ſmall force, which he was pleaſed to call his army, was alarmed at the great number of Indians aſſembled againſt them, he ordered his ſhipping to be ſet fire to. He was ſucceſsful againſt the Mexicans. It muſt be allowed, however, that he only had to engage ſavages, who took his twenty horſemen for monſters, and the fire of muſketry and artillery for thunder deſcended upon the earth. See CORTES.

Courage is a quality eſſentially requiſite in the commander or leader of an army. For without it he cannot be ſelf-poſſeſſed in the hour of difficulty and danger, or give his orders in the face of an enemy with coolneſs, preciſion, and diſtinctneſs. He will otherwiſe, when any unexpected or unforeſeen occurrence takes place, become agitated, embarraſſed, confuſed, and utterly at a loſs how to act. We do not however mean to aſſert, that a general ſhould ever be actuated by or under the impulſe of ſuch a headſtrong, fierce, and ungovernable impetuoſity, as ſpurns the control of reaſon, and deſpiſes precautions as unneceſſary, which has often proved the ruin of both leaders and their armies, and generally leads to that abſurdity of conduct, which ariſes out of oſtentation, youthful folly, preſumption, want of experience, or a contempt of the enemy, that is commonly dangerous or fatal. The commander of an army ſhould keep himſelf, as much as it is poſſible, out of little combats, which decide nothing with reſpect to the whole or the iſſue of the enterpriſe in which he is engaged. And if ever any occaſion ſhould oblige him to take a part in ſuch engagements, he ought to ſee many fall before he ſuffers the danger to approach himſelf. As all depends on him, he ſhould remember the old proverb, "let the baſe Carian riſk his life and not the general." But when the leader of an army expoſes himſelf on every trivial occaſion, he gives the ſtrongeſt proof, he poſſibly can, of his want of both ſenſe and capacity. He ought to be attentive both to his own ſafety and that of his army, which though it ſhould ſuffer a defeat may be enabled through him, whilſt he remains ſafe and unhurt, by a concurrence of favourable circumſtances, to repair the loſs that has been ſuſtained. But as the hopes of every man under his command are centered in him, if he, who is, as it were, the pilot in a veſſel, and the mover of the whole machine, falls, his army though ſuperior to the enemy, perhaps in the action, may not be able to draw any ſolid advantage even from victory. How great ſoever his courage may be, he ſhould never deſpiſe his enemy ſo much as on any occaſion to neglect guarding againſt every thing like ſurpriſe. Among all the generals that have appeared in ancient and modern times, there is not one more entitled to admiration, on this account, than Hannibal, who, during the length of time, he waged war in a hoſtile country, without once diſmiſſing his army from the field, amidſt much variety of fortune, being ſometimes preſſed with difficult conjunctures, and involved in ſtorms; and ſometimes carried in his courſe by the moſt favourable gales, and notwithſtanding the many and great battles he fought, as well as little combats, he was engaged in, and the ſieges he undertook, though he often ſurpriſed his enemies, was never ſo much as once himſelf ſurpriſed. So great was the judgment and prudence with which he always provided both for his own ſafety and for that of his troops.

Though the general or commander of an army ought not to expoſe himſelf wantonly or unneceſſarily, yet there are occaſions and conjunctures, which imperiouſly require his throwing himſelf into danger, and call on him to prefer laſting fame, reputation, and honour to an inglorious and ignominious exiſtence, which would naturally be the conſequence of his diſhonouring his former life and actions by a mean, unbecoming, or unreaſonable deſire of life. This doctrine is beautifully illuſtrated by Polybius in his account of the conduct of Aſdrubal the brother of Hannibal, who after croſſing the Pyrenæan mountains, and entering Italy with an intention to join his brother, fell in a battle he fought with the conſuls Livius and Claudius. That ſenſible and judicious hiſtorian after obſerving, that moſt generals, when they are ready to engage in a deciſive action, conſider only the honour and advantages that may reſult from victory, but never turn their view towards the conſequences of a defeat, or form for themſelves any rule of conduct in caſe of a miſfortune; and that many through ſuch inattention have diſhonoured all their former actions, and loaded the remainder of their lives with reproach and infamy, uſes the following words: "But Aſdrubal diſplayed a very different conduct. As long as any hope remained of his performing actions not unworthy of his former glory, he attended to nothing ſo much in every battle as the care of his own ſafety. But when fortune had taken from him every future proſpect, and confined him to the laſt deſperate extremity, though he neglected nothing that might ſecure the victory either in the diſpoſition of his army, or in the time itſelf of the engagement; yet he conſidered alſo, with no leſs attention, in what manner, in caſe that he ſhould be defeated, he might ſubmit with dignity to his adverſe fortune, and not ſuffer any thing unworthy of his former actions. Let other commanders then be taught by this example; as on the one hand not to fruſtrate the hopes of thoſe who depend on them, by throwing themſelves unneceſſarily into danger; ſo on the other never to add diſgrace to their misfortunes by cheriſhing an immoderate deſire of life."

COURANT, or Current, a term uſed to expreſs the preſent time: thus, the year 1808 is the *courant* year; the fifteenth *courant*, the fifteenth day of the month now running.

The term is French, and properly ſignifies *running*.

With regard to commerce, the *price courant* of any merchandize, is the known and ordinary price accuſtomed to be given for it.

Courant is alſo uſed for any thing that has courſe, or is received, in commerce: in which ſenſe, we ſay, *courant*, or *current*, coin, &c.

Courant is alſo a term in *Muſic* and *Dancing;* being uſed to expreſs both the tune or air, and the dance.

With regard to the firſt, *courant*, or *currant*, is a piece of muſic in triple time; the air of the courant is ordinarily noted in triples of minims; the parts to be repeated twice. It begins and ends, when he who beats the meaſure falls his hand; in contradiſtinction from the faraband, which ordinarily ends when the hand is raiſed. With regard to dancing, the courant was long the moſt common of all the dances practiſed in England: it conſiſts, eſſentially, of a time, a ſtep, a balance, and a coupee; though it alſo admits of other motions.

Formerly they leaped their ſteps; in which point the courant differed from the low dances and pavades. There are *ſimple courants*, and *figured courants*, all danced by two perſons. See Coranto.

Courant, *Current*, or *Curſant*, an heraldic term to expreſs a horſe or any other animal in full ſpeed.

COURANTIN, Fr. a ſquib; a term uſed by French artificers.

COURAP, in *Medicine*, the Indian name for a diſtemper, which, as Bontius informs us, is very common in Java and other parts of the Eaſt Indies. It is a ſort of herpes or itch, which generally breaks out on the arm-pits, breaſt, groin, and face, with ſuch an intolerable itching, that the perſons affected cannot forbear ſcratching themſelves perpetually: but they pay very dear for the eaſe this gives them; as an inſufferable pain ſucceeds in thoſe parts which are rendered bare and denudated of the cuticula by the nails; theſe diſcharging an acrid humour which vellicates the parts, and cauſes the linen to adhere ſo faſt to them, as not to be ſeparated without tearing the cruſt formed thereon.

Courap is a general name for any ſort of itch, but the inhabitants call this diſtemper thus by way of eminence. It is ſo extremely contagious, that very few eſcape it; and though it is an unſeemly diſorder, cauſing a roughneſs of the ſkin with ſcales and furfures, yet the inhabitants imagine it is attended with this advantage, that while a perſon is affected with it, he is ſure to be troubled with no other dangerous diſtemper: and they look upon the diſappearing of this, as a prognoſtic of ſome worſe diſorder. They are therefore very eaſy under it for years together, without being very ſolicitous about curing it. It is remarkable that the vulgar in Scotland are poſſeſſed of the ſame opinion with reſpect to the itch; and even carry it ſo far as to affirm, that the catching this diſtemper proves a cure for any other previous to it; conſidering it in the ſame light as others do the gout, and perhaps with equal foundation. James.

COURAYER, Peter Francis, in *Biography*, a learned French divine, born at Vernon in Normandy, in 1681. Of his early life we have no certain account. As a writer one of his publications was a diſſertation on the Validity of Engliſh Ordinations, which he undertook to defend, in two vols. This work was publiſhed in 1723. It was printed at Nancy; but not being able to obtain the requiſite licence, it was ſent forth to the world as from the Bruſſels preſs. The author was violently attacked by ſeveral writers in the church of Rome, to whom he replied in 1726. His original treatiſe and the defence were both tranſlated into Engliſh, and ſo highly were they eſteemed, that the univerſity of Oxford readily conferred on M. Courayer the degree of doctor of divinity. The honours conferred upon him here excited the wrath of his own countrymen, who were reſolved to compel him to recant his opinions; but he choſe rather to quit his country than riſque a perſecution in defence of ſentiments, which he had formed on deliberation. In his eſcape from France he was aided by the exiled biſhop Atterbury, and, in 1728, he arrived in England, where he met with every attention and kindneſs that he had anticipated. Beſides the liberality which he experienced from individuals, he obtained a penſion of 100*l.* from the court. In 1729 he publiſhed at Amſterdam, a vindication of his opinions and conduct, explaining the reaſons, and ſetting forth the neceſſity he was under of quitting France. At the command of queen Caroline, the ſteady friend, and liberal patron of literary merit, he undertook a French tranſlation of father Paul's "Hiſtory of the Council of Trent, with Notes critical, hiſtorical, and theological, in 2 vols. folio." This work proved a ſource of conſiderable profit to the tranſlator, and his penſion was now doubled, ſo that he found himſelf in very eaſy circumſtances. He was moreover held in very high eſtimation by perſons of the firſt rank, whoſe houſes were ever open to him, and who were beſt pleaſed when they had an opportunity of rendering him that attention which his talents and virtues merited. He died in 1776 at Weſtminſter, in the 95th year of his age; having been a reſident in England almoſt half a century. In his laſt will he declared, "that he died a member of the church of Rome." He left however a manuſcript, entitled "Declaration des mes derniers ſentimens ſur les differens dogmes de la Religion," which was given by him to the princeſs Amelia, who bequeathed it to Dr. Bell, prebendary of Weſtminſter, by whom it was publiſhed in 1787, and which would lead to a very different concluſion. In this, Courayer rejects the commonly received opinion of the Trinity, and appears to hold ſentiments very ſimilar to thoſe maintained by the modern Unitarians: he diſavows alſo the plenary inſpiration of the Scriptures, which he confines to the doctrines and precepts contained in them, without extending it to the relation of hiſtorical facts.

Many other ſentiments contained in theſe laſt words of the excellent doctor, prove him to have been almoſt, if not altogether, a real proteſtant, though perhaps not aware himſelf to what extent his confeſſions had led him. Biog. Britan.

COURBAN-Ajatou, in *Geography*, a poſt of Chineſe Tartary, in the country of the Kalkas. N. lat. 42° 24′. E. long. 107° 48′.

COURBARIL, in *Botany*, Plum. See HYMENÆA.

COURBES de, Jean, in *Biography*, an engraver, born in France, about the year 1592. Few of his works are known, and thoſe which we do poſſeſs do not impreſs us with a high idea of his abilities. He worked chiefly for the bookſellers, both in France and in England. In the latter country he engraved his ſmall octavo plates, one of ſir Philip Sydney, the other of ſir Philip's ſiſter, Mary counteſs of Pembroke, with an eulogium in French verſe at the bottom of each portrait. Theſe, probably, are from his own deſigns, as they are marked *J. de Courbes fecit.* The time of his death is not known. Huber. Strutt. Heinecken.

COURBEVILLE, in *Geography*, a town of France, in the department of the Mayenne; 7 miles S.W. of Laval.

COURBIERES, a village of France, in the department of the Lower Alps, formerly a lordſhip, from which the veteran Pruſſian field-marſhal *L'homme de Courbières*, who diſtinguiſhed himſelf at the defence of Graudentz againſt the French in 1807, derives his name.

COURCELLE, a town of France, in the department of the ſtraits of Calais, and diſtrict of Arras; 2 leagues N.W. of Bapeaume.

COURCELLES, a town of France, in the department of the Upper Marne, and diſtrict of Langrès; 4 leagues S. of Langrès.

COURCELLES, Stephen de, in *Biography*, deſcended from a family in Picardy, was born at Geneva in 1586. He officiated many years among the reformed in France, till he became a follower of Arminius, when he was obliged to retire into Holland. He ſucceeded the celebrated Epiſcopius as profeſſor of theology at Amſterdam, whoſe works he publiſhed, with a life of the author. He was alſo the author of many theological and controverſial pieces, which were afterwards collected by Elzevir in 1675. He was a capital Greek ſcholar, and paid great attention to different Greek copies of the New Teſtament, of which he gave a new edition, with various readings; and a preface, to ſhew that thoſe various readings, though numerous, do not tend in the leaſt to affect the credit and authenticity of the work itſelf. Moreri.

COURCHAMP, in *Geography*, a town of France, in the department of the Maine and Loire, and diſtrict of Saumur; 1½ league S.W. of Saumur.

COURCITE′, a town of France, in the department of the Sarthe; 20 miles S.W. of Le Mans.

COURÇON, a ſmall town of France, in the department of the Yonne. It is the chief place of a canton, and has a population of 1204 individuals; but the canton reckons only 5796 inhabitants, in nine communes, and upon a territorial extent of 217 kiliometres and a half.

Courçon, Fr. in *Gunnery*, a long and ſtrong piece of iron, which is laid along the moulds of pieces of cannon, and which ſerves to bind and tighten them.

COURCOUSON, in *Geography*, a town of Aſia, in the country of Thibet; 45 miles N.E. of Toſun-Hotun.

COURDEMANGE, a town of France, in the department of the Marne, and diſtrict of Vitry; one league S. of Vitry.

COURE, a poſt of Chineſe Tartary, N. lat. 46° 2′. E. lon. 123° 51′.

COUREURS, Fr. Scouts. Horſemen or cavalry detached to ſcour the country, and reconnoitre the enemy. This term is alſo applied by way of reproach to thoſe who on a march ſeparate themſelves, or withdraw from the reſt of the troops for the purpoſe of marauding.

COURGAINS, in *Geography*, a town of France, in the department of the Sarthe, and diſtrict of Mamers; 6 leagues N. of Le Mans.

COURGIS, a town of France, in the department of the Yonne; 5 miles E. of Auxerre.

COURGIVAUX, a town of France, in the department of the Marne; 3¼ leagues S. of Sezannes.

COURGUA, a town of Piedmont, in the Canaveſe, ſeated on the Orco; 9½ miles S.W. of Ivrea.

COURIER, or Currier, from the French *courir, to run;* a meſſenger ſent poſt, or expreſs, to carry diſpatches.

Antiquity, too, had its couriers; we meet with two kinds, *viz.* thoſe who ran on foot, called by the Greeks *hemerodromi*, q. d. *couriers of a day.* Pliny, Corn. Nepos, and Cæſar, mention ſome of theſe who would run twenty, thirty, thirty-ſix, and, in the circus, even forty leagues *per* day. And riding couriers, *curſores equitantes*, who changed horſes, as the modern couriers do.

Xenophon attributes the firſt couriers to Cyrus, as we have already ſtated under the article Angari, to which we refer for the hiſtory of their introduction.

But it does not appear, that either the Greeks or Romans had any regular fixed couriers, till the time of Auguſtus; under that prince they travelled in carts; though it appears from Socrates, they afterwards went on horſeback. Under the weſtern empire, they were called *viatores;* and under that of Conſtantinople, *curſores;* whence the modern name. See Post.

Courier, in a *military ſenſe*, ſignifies a meſſenger ſent poſt or expreſs to carry diſpatches relative to battles fought, gained, or loſt, to marches, ſieges, blockades, and other occurrences in time of war.

Couriers *des vivres*, Fr. Theſe were two well informed, active, and expert meſſengers attached to the French army. They were found to be very uſeful in carrying packets of importance to and from places, and in taking charge of tranſporting and eſcorting pecuniary remittances or ſums of money.

Couriers, *Extraordinary.* See Extraordinary.

Couriers *Muets*, Fr. Dumb or mute couriers. See the articles Hemere′scopi, Heme′re′dromi, and Telegraph.

Couriers, *Van.* See Van *Couriers*

COURIMARI, in *Botany.* Lam. Enc. Aubl. Guian. Sup. 28. tab. 384. (Oulemari Barr. Fr. Equin. 84.) A large tree. *Roots* ſeveral, riſing ſeparately, and at a diſtance from each other, ſix or ſeven feet above the ſurface of the ground, and ſometimes fifteen feet broad towards the baſe; uniting at the top, and ſupporting the trunk. *Trunk* about eighty feet high, and four in diameter, with a cracked, wrinkled, thick, brown bark; branches large, numerous, from the ſummit of the trunk. *Leaves* five inches long and three broad, alternate, oval, entire, green, and even-ſurfaced above, villous and reddiſh underneath, with prominent nerves; petioles near an inch long, channelled. *Flowers* in ſhort axillary racemes; calyx deeply divided into five acute ſegments; petals five, lanceolate, alternating with the diviſions of the calyx; ſtamens not known; germ ſuperior. *Fruit* not ſeen by Aublet in a ſtate of maturity, ſpherical, about the ſize of a plumb, five-celled. *Seeds* one in each cell. A native of Guiana. The inhabitants ſmoke their tobacco wrapped up in the thin laminæ of the bark, which ſerve them inſtead of a pipe.

COURLAN, or COURLIRI, in *Ornithology*, names given by Buffon to the ſcolopaceous heron of Latham, and ARDEA *ſcolopacea* of Gmelin; the ſpecific character of which is as follows: it is brown, its throat and breaſt ſtreaked with white, its chin and legs white; its tail and its wing-quills have a coppery gloſs. It is found in Cayenne.

COURLAND, in *Geography*, a province of Ruſſia in Europe, ſituated between E. long. 21° 26′, and between N. lat. 56° 30′, and 57° 30′, which forms a ſeparate government, and conſiſts of Courland, properly ſo called, Semigallia or Semgallen, and the diſtrict of Pilten, is bounded by the river Dwina and the gulph of Riga, which divides it from Livonia, or the government of Riga, on the eaſt; by Samogitia on the ſouth and weſt; and by the Baltic ſea on the north. It is 250 miles long, and from 80 to 40 broad.

The name Courland, or in the language of the country, *Cur*, *Kur*, or *Juhr Semme*, ſignifies a maritime country, or a tract of land that projects into the ſea.

The climate of Courland is not ſo inſupportably cold as that of the more eaſtern parts of Ruſſia. Its ſoil in general is heavy. Hence the roads are remarkably bad, and at ſome ſeaſons of the year ſcarcely paſſable. The country is moſtly open, yet in ſome parts clothed with foreſts of pine and fir, dotted with occaſional groves of fine oak, and ſprinkled with much underwood. The villages are neat; the ſcattered cottages and gentlemen's ſeats are prettily ſituated amidſt clumps of trees; and the inns afford ſuperior accommodation to thoſe of Ruſſia.

Courland produces great quantities of corn, hemp, and flax, which conſtitute its principal exports. Amber is found on the coaſt of the Baltic. It has ſome iron mines, ſeveral mineral ſprings, and quarries of ſtone and chalk.

The principal rivers are the Windau, which riſes in Samogitia, and empties itſelf into the Baltic ſea, near the town of Windau; and the Aa, which has likewiſe its ſource in Samogitia, and falls into the gulph of Riga. Theſe two rivers are navigable, and divide the country from eaſt to weſt. Several ſmall rivers as the Abau, Berſe, Bartau, Muſſa, Anger, and ſome brooks and canals, interſect it in every direction.

Mittau is the capital of Courland, and the ſeat of the Ruſſian governor. There are alſo two ports on the Baltic; Windau, which had anciently a dock for building men of war, and Libau, the harbour of which has, however, not ſufficient depth for ſhips of great burthen; they muſt be unloaded in the road. Theſe two ports employ annually from 800 to 1000 veſſels of two, three, and four hundred tons.

The inhabitants of Courland are deſcended partly from Germans, and partly from Lettonians or Lettes, whoſe language is ſtill ſpoken by the lower orders: but German may be conſidered as the language of the country. The population is ſuppoſed to exceed a million and a half. The prevailing religion is the Lutheran, which was introduced in the year 1522: but all other perſuaſions are tolerated; and even before Courland was annexed to the Ruſſian empire, the Roman Catholics were capable of holding all military and civil offices, that of chancellor and a few others excepted.

Courland, when a duchy, was a male fief, dependant on, and conferred by the crown of Poland. It anciently belonged to Livonia, and, till the thirteenth century, underwent the ſame viciſſitudes with that country, both being ſubject to the knights of the Teutonic order, who remained in poſſeſſion of Livonia and Courland, till the year 1561, when, to fruſtrate the attempts of the czar Ivan II. to recover theſe provinces, which had been torn from the Ruſſian empire, Gotthard Kettler, grand-maſter of the Livonian knights, ceded Livonia to Poland, and received at Wilna the inveſtiture of the duchy of Courland and Semigallia, as an hereditary fief of the crown of Poland. At his death, which happened in 1587, Gotthard Kettler, the firſt duke of Courland, was ſucceeded by his ſon Frederick; and in 1589 it was enacted by the diet of Poland, that, on the extinction of the heirs male of the line of Kettler, the duchy ſhould be united to Poland.

Frederick William, duke of Courland, dying in 1711, without iſſue, the right of ſucceſſion devolved on his great uncle Ferdinand, the only ſurviving branch of the Kettler line: but Peter the Great of Ruſſia took poſſeſſion of Mittau, and great part of Courland, under pretence of ſecuring the dowry for his niece Anne, widow of Frederick William. Ferdinand, who was abſent, and at variance with his nobility, was unable to enforce his right, and Courland was for ſeveral years governed by the Ruſſian court, under the name of the ducheſs Anne. Ineffectual attempts were made to raiſe, firſt, a prince of the houſe of Saxony, and afterwards Frederick William, margrave of Brandenburg Schwedt, to the ducal throne. At length the nobles being determined in 1726 to appoint a ſucceſſor to Ferdinand, who was ſtill abſent, Auguſtus II. king of Poland, ſecretly influenced the diet to nominate his natural ſon Maurice, better known as marſhal de Saxe. This appointment was conteſted by the republic of Poland, and by Catharine I. empreſs of Ruſſia.

The Poliſh diet, which aſſembled at Grodno, denied the right of the nobles to appoint a duke, declared Courland a vacant fief belonging to the republic, annulled the election of the Comte de Saxe, and propoſed, on the death of Ferdinand, to incorporate the duchy with the crown, according to the edict of 1589.

Catharine oppoſed both the election of Maurice, and the incorporation of Courland; and prince Mentchikof, who on her death aſpired to the ducal throne, diſpatched a corps of Ruſſian troops to Mittau, and drove Maurice from Courland. The fall of Mentchikof prevented his nomination; but the Ruſſians under Peter II. and Anne, maintained their influence in Courland, and promiſed to ſupport the ſtates in their right to elect a ſovereign on the deceaſe of Ferdinand.

The death of Auguſtus II. annihilated the hopes of Maurice. On the demiſe of Ferdinand, in 1737, the empreſs Anne forced the ſtates to nominate her favourite, Biron. A convention was ſigned between the empreſs and the new duke on one ſide, and the king and republic of Poland on the other, called *Pacta Subjectionis*, or Acts of Vaſſalage, which eſtabliſhed the ſucceſſion in the male line of Biron. In 1739 the chancellor of Courland did homage, in the name of the duke, to Auguſtus III. king of Poland. But Biron being impriſoned in the year 1740, the ſtates declared the ducal throne vacant, and elected, at the recommendation of the regent Anne, Louis Erneſt, prince of Brunſwick Wolfenbuttel, and brother to her huſband.

The revolution of 1741, which placed Elizabeth on the throne of Ruſſia, prevented the ratification of this election. Till 1759 the adminiſtration was nominally veſted in the council of ſtate, but the whole power centered in the court of Ruſſia.

Diſguſted with the arrangement, the nobles in 1758, choſe Charles Chriſtian, ſon of Auguſtus the Third of Poland, who obtained from the empreſs Elizabeth, the reſtitution of the duchy. But the death of Elizabeth, which happened in 1761, rendered this reſtitution ineffectual. Peter recalled Biron from exile, and Catharine II. reſtored him to his former dignity.

In 1763, Erneſt John Biron, duke of Courland, and Semigallia, repaired to Mittau twenty-eight years after his election, and for the firſt time ſince he had been raiſed to the ducal throne.

This Erneſt John Biron, was deſcended from a family of mean extraction. His grandfather, whoſe name was properly Buren or Bieren, had been head groom to James the Third, duke of Courland, and his father maſter huntſman to the ſame prince.

Biron was born in 1687, received the early part of his education in Courland, and was ſent to the univerſity of Königſberg in Pruſſia, from which he was compelled to retire for ſome youthful imprudences. In 1714, he repaired to St. Peterſburgh, and vainly ſolicited the place of page to princeſs Charlotte. He then retired to Mittau, and through count Beſtuchef, maſter of the houſehold to Anne, widow of Frederick William duke of Courland, obtained the office of gentleman of the chamber to the ducheſs. His handſome figure ſoon made him her chief favourite, and his aſcendency over her was ſo dreaded, that when Anne was declared ſovereign of Ruſſia, the council of ſtate ſtipulated that ſhe ſhould not bring Biron into Ruſſia. But the empreſs was not long in violating her promiſe, and, inſtigated by Biron, ſhe aſſumed a deſpotic authority. Within the ſpace of a few months, Biron was appointed gentleman of the bed-chamber, knight of the order of St. Andrew, and lord high chamberlain. He not only became omnipotent under her reign, but even at her death he ſecured the regency to the excluſion of Anne, mother to the young emperor Ivan. His power, however, laſted only twenty days. He was arreſted, conveyed to the fortreſs of Schlüſſelburgh, and afterwards removed to Pelim, a ſmall town in Siberia, where he was impriſoned in a wooden hovel, and from whence the empreſs Elizabeth transferred him to a comfortable houſe at Yaroſlaf. On her demiſe, Peter the Third recalled Biron to Peterſburgh, and ſoon after this emperor's fall, Catharine the Second reſtored the duke of Courland to his former dignity.

Prince Charles of Saxony, although ſupported by a large party in Courland, yet obtaining no aſſiſtance from his father, Auguſtus the Third, was compelled to retire before the Ruſſian forces. Biron received the oath of allegiance from the whole nation. In 1764, he obtained from the king and republic of Poland, the inveſtiture of Courland for his eldeſt ſon Peter, and abdicated the ducal throne five years after in his favour; and, in 1772, cloſed, at Mittau, in the eighty-third year of his age, a life of unparalleled viciſſitude.

Soon after the conqueſt and final diviſion of Poland, Peter, duke of Courland, repaired to Peterſburgh, had an audience of Catharine II. on the 12th of March 1795, and was received with the higheſt honours. During his abſence, the ſtates of Courland aſſembled, and the nobles propoſed to declare the two duchies of Courland and Semigallia abſolved from their feudal dependence on Poland, and to annex the country to the empire of Ruſſia. The principal members of the great council oppoſed this change; but the Ruſſian general Pahlen appeared in the aſſembly. His preſence ſilenced all objections. On the 18th of March 1795, an act was drawn up, by which Courland, Semigallia, and the diſtrict of Pilten, were ſurrendered to the empreſs of Ruſſia. The act was ſent to Peterſburgh, and the ſubmiſſion of the ſtates accepted by the empreſs. The duke, who was in no condition to refuſe his acquieſcence, iſſued his act of renunciation on the 28th of March 1795. He was amply rewarded for the reſignation of his duchy, and grieved little at its loſs, as he had long been at variance with his ſubjects, and ſcarcely ever reſided at Mittau. He had even foreſeen his misfortune, and ſecured large ſums of money, with which he purchaſed the duchy of Sagan, and other eſtates in the Pruſſian part of Sileſia, and in the Mark of Brandenburg. See SAGAN. Coxe's Travels in Poland, Ruſſia, &c. fifth edition, vol. ii. Tooke's View of the Ruſſian Empire, vol. i. Mirabeau. Hiſt. Secrete de la Cour de Berlin, vol. i.

Courland, as a province of the Ruſſian empire, forms a government divided into nine circles, or diſtricts, and belongs to the northern region of Ruſſia.

COURLE, a town of France, in the department of the Two Sevres; 5 leagues S.W. of Thouars.

COURLETT, in *Heraldry*, the ſame as cuiraſs, a breaſt-plate.

COURLIN ISLANDS, in *Geography*, two ſmall iſlands near the W. coaſt of Scotland; 4 miles E. from the iſland of Scalpa.

COURLIS, in *Ornithology*, a name given by Buffon to ſeveral ſpecies of *tantalus* and *ſcolopax*; which ſee.

COURMETOU, in *Geography*, a town of Aſia, in Thibet; 22 miles W. of Orto.

COURMENTERAL, a town of France, in the department of the Herault; 5 miles W. of Montpelier.

COURNILLION, a town of France, in the department of the Drôme; 4 leagues S. of Die.

COURNON, a town of France, in the department of the Puy-de-Dôme, and diſtrict of Clermont; 2 miles W. of Billom.

COURONDI, in *Botany*, Lam. Enc. Rheed, Mal. 4. 103. tab. 50. (Arbor indica; Rai. hiſt. 1664.) A lofty evergreen tree, with a thick trunk, and dark coloured rugged bark. *Leaves* oppoſite, oval-lanceolate, ſeſſile, ſlightly crenate, ſmooth, ſhining. *Flowers* ſmall, yellowiſh green, reſembling thoſe of the vine, from three to five together, in axillary corymbs; petals five, roundiſh; ſtamens numerous; germ ſuperior. *Fruit* a round purpliſh berry or drupe, with thick, ſoft, ſaffron-coloured fleſh, containing a nearly ſpherical ſtone. A native of the coaſt of Malabar. The juice of the leaves is aſtringent, and taken warm, mixed with whey, is ſaid to cure diarrhœas and dyſenteries.

COURONNE, LA, in *Geography*, a village of France, in the department of Charente, three miles S.W. of Angoulême, on the Bourdeaux road; contains the principal of nineteen paper manufactures on the rivers Bohême and Charrau, the waters of which have the ſingular property of making capital paper.

In theſe manufactories is made that fine writing paper which is equal to the beſt Dutch and Engliſh, and which is exported in large quantities by the name Angoulême paper.

COURONNE', in *Heraldry*, crowned. A bend is ſaid to be couronné, when it has on the upper edge the leaves of a coronet.

COUROUCOU, in *Ornithology*, a name given by Buffon to ſeveral ſpecies of the TROGON of Gmelin; which ſee.

COUROUCOUCOU, a name given by Buffon to the red-creſted cuckow of Latham, and CUCULUS *braſilienſis* of Gmelin; which ſee.

COUROULLAC, in *Geography*, a town of Aſia, in Thibet; 12 miles S. W. of Harchar.

COURPIAC, a town of France, in the department of the Gironde, and diſtrict of Cadilhac; 9 miles N. E. of Cadilhac.

COURPIERRE, a ſmall town of France, on the river Dore, in the department of Puy-de-Dôme, chief place of a canton in the diſtrict of Thiers. It has 3168 inhabitants, and the canton contains, in ſeven communes, and upon a territorial extent of 235 kiliometres, a population of 14,198 individuals.

COURS, a place of little note in Dar-fûr, in Africa, N. W. by W., at 5½ hours travelling from Cobbé.

COURSAN, a ſmall town of France, on an arm of the river Aude, in the department of Aude, three miles north of Narbonne. It is the chief place of a canton in the diſtrict of Narbonne, and has a population of 1436 individuals. The canton contains 6642 inhabitants, and ſeven communes, upon a territorial extent of 295 kiliometres.

COURSE, is the direction (or *route*) of any thing in motion. This word has, therefore, been extenſively uſed to denote the progreſs of any thing, as being analogous to the motion of an object which is continually changing its ſituation, as well as the track which has been run through. Hence we hear of the courſe of a ſhip at ſea, the courſe of the law, a courſe of lectures, the courſe of rivers, and ſo forth. It is alſo uſed in architecture, where it denotes a continued range of ſtones or bricks at the ſame level, all along the ſide of a wall or building. The courſe of a veſſel ſea, is expreſſed by the angle which the direction of the veſſel's motion makes with the meridian; thus they ſay that the ſhip A took its courſe weſtward or eaſtward, or ſouth-ſouth-eaſtward, &c.

Courſe of rivers means their direction or their length. The numerous advantages which mankind derives from the rivers which the Creator of every thing has providentially diſperſed throughout the ſurface of the earth, have rendered it neceſſary to examine every thing that belongs to them, in order that they may be rendered more ſecurely ſubſervient to a variety of purpoſes. The particulars which are here alluded to, concern the ſalubrity of the waters of rivers, their quantity, the rapidity of their motion, the fluctuating increaſe and decreaſe of their velocity, and ſo forth; a thorough knowledge of theſe matters being neceſſary for the proper uſe of the waters, for the erection of water-mills, and other machines, for inland navigation, for preventing inundations, &c. &c. But a full account of theſe things will be found under the article River. The only particular which we ſhall introduce in this place, as peculiarly belonging to this article, is a ſtatement of the proportional lengths, or courſes of ſome of the moſt noted rivers in the world, a liſt of which, by approximation, was given by Mr. Rennell in the 71ſt vol. of the Phil. Tranſ. and which we ſhall now ſubjoin. In this table, the length of the river Thames, from its ſource to its eſtuary in the channel, is made a unit, and the lengths of the other rivers are called four, or five, or nine, according as they are four, or five, or nine times as long as the Thames.

European Rivers.

Thames	1
Rhine	5¼
Danube	7
Wolga	9½

Aſiatic Rivers.

Indus	5¼
Euphrates	8½
Ganges	9½
Burrampooter	9½
Nou Kian, or Ava River	9½
Jenniſea	10
Oby	10½
Amoor	11
Lena	11½
Hoanho (of China)	13½
Kian Reu (of ditto)	15½

African River.

Nile	12½

American Rivers.

Miſſiſſippi	8
Amazons	15¼

If the length of the Thames, taking all its windings into the account, be reckoned equal to 300 miles, which is not very far from the truth, the prodigious lengths of ſome of the other rivers may be eaſily calculated; and it will be found that the length of the Jenniſea is about 3000 miles, the length of the Amazons river is about 4575 miles, and ſo forth.

Course, in *Navigation*, the point of the compaſs, or horizon, on which a ſhip ſteers; or the angle which the rhumb-line on which it ſails makes with the meridian.

When a veſſel begins its courſe, the wind wherewith it is driven, makes a certain angle with the meridian of the place; and, as it is here ſuppoſed, the veſſel follows exactly the direction of the wind; it makes the ſame angle with the meridian which the wind makes.

The wind is further ſuppoſed always the ſame; and becauſe each point, or inſtant of a courſe, may be regarded as the firſt; every moment of the courſe it makes the ſame angle with the wind.

Now a wind that is north-eaſt, *v. gr.* here (and by conſequence makes an angle of forty-five degrees with our meridian), is north-eaſt wherever it blows, and makes the ſame angle of forty-five degrees with all the meridians it meets.

The courſe of a veſſel, therefore, driven by the ſame wind, makes the ſame angle with all the meridians on the ſurface of the globe.

If the veſſel runs north and ſouth, it makes an angle infinitely ſmall with the meridian, *i. e.* is parallel to it, or never goes from it; if it runs eaſt and weſt, it cuts all the meridians at right angles. In the firſt caſe it deſcribes a great circle; in the ſecond, a great circle, which is either the equator or a parallel. But if the courſe be between the two, it does not then deſcribe a circle; becauſe a circle drawn in ſuch a manner, would cut all the meridians at unequal angles. It deſcribes, therefore, a ſpiral or curve, the eſſential condition whereof is to cut all the meridians under the ſame angle; called the *loxodromic curve*, or *loxodromy*, popularly *rhumb*.

The ſhip's courſe, therefore, except in the two firſt caſes, is always a loxodromic curve; and the hypothenuſe of a right-angled triangle, the two other ſides whereof are the ſhip's way in latitude and longitude.

The latitude is uſually had by obſervation.

The rhumb, or angle of the courſe, is had by the compaſs, together with the one or other of the two ſides; and what remains to be calculated in ſailing, is the quantity of the longitude, and of the rhumb, or courſe.

Course, *complement of the.* See Complement.

Course *of Crops*, in *Agriculture*, ſignifies the order or courſe in which crops are cultivated on tillage lands, or what is frequently termed the rotation of crops. See Crops, *courſe of*.

Course *of a River*. See Course and River.

Course, in *Architecture*, denotes a continued range of ſtones or bricks on a level, throughout the whole length of a building. See Building, Wall, and Masonry.

Course *of Plinths*, is the continuity of a plinth of ſtone, or plaſter, in the face of a building; to mark the ſeparation of the ſtories

Course, *in the conſtitution of canals*, ſignifies the thickneſs of puddling, which is done at once, and in the ſame layer.

Course is alſo uſed for a collection, or body of laws, canons, or the like. See Corpus.

The *civil courſe*, is the collection of Roman laws, compiled by order of Juſtinian. See Civil *Law*.—*Canonical courſe*, is the collection of the canon law, made by Gratian. See Canon *Law*.

Course, again, is uſed for the time ordinarily ſpent in learning the principles of a ſcience, or the uſual points and queſtions therein. Thus, a ſtudent is ſaid to have finiſhed his courſe in the humanities, in philoſophy, &c.

Course is alſo uſed for the elements of an art exhibited and explained, either in writing, or by actual experiment.

Hence, our courſes of philoſophy, anatomy, chemiſtry, mathematics, &c. probably ſo called, as going throughout or running the whole length or courſe of the art, &c.

Course *of the moon*. See Moon.

Course, *Paddock*. See Paddock.

Course, in *Horſemanſhip*. See Hippodrome and Race.

COURSEGOULES, in *Geography*, a ſmall town of France, in the department of Var, chief place of a canton in the diſtrict of Graſſe. It has but 540 inhabitants, and the population of the canton is 3483, ſcattered in eight communes, upon a territorial extent of 230 kiliometres.

COURSER. See Charger.

COURSES, in *Sea-Language*, are the main-ſail, fore-ſail, mizen and ſprit-ſail of a ſhip; which, the mizen excepted, are fixed on their reſpective yards at right angles with the ſhip's length; the mizen is bent to a yard or gaff parallel with the ſhip's length. See Sails.

The *Main-courſe* is a quadrilateral ſail, ſquare on the head, and bending there to the main yard, which hangs to the maſt at right angles with the ſhip's length, and parallel to the deck. This ſail extends within 18 inches of the cleats on the yard-arms, and drops to clear the foot from the boat upon the booms. It has two reef-bands, one-third the breadth of a cloth; the upper reef-band is at one-ſixth of the depth of the ſail from the head, and the lower reef-band is at the ſame diſtance from the upper one. It has alſo a middle-band of one breadth of cloth, half-way between the lower reef-band and the foot, and linings of one breadth of cloth from the clue to the earing on the leeches; and likewiſe four buntline-cloths at equal diſtances aſunder extending from the foot to the middle band. In the merchant-ſervice, a middle band is ſeldom uſed, and the buntline-cloths run up one quarter of the depth of the ſail. Two reef-cringles are made on each leech, one at each reef-band; three bow-line cringles are made at equal diſtances between the lower-reef cringle and the clue; and buntline cringles are made on the foot, one at the end of each buntline cloth. In ſewing on the bolt-rope, two inches ſlack are taken up in every cloth, in the head and foot, and 1½ inch in every yard in the leeches. The marling-holes extend from the clue to the lower bowline cringle on the leech, and to the firſt buntline cringle at the foot: the clue is wormed with ¾ inch net-line, parcelled with old canvas, well tarred, and ſerved with ſpun-yarn; it is then marled to the ſail with marline or houſe-line, and ſeized with ſeveral turns of inch-line, ſtrained tight with three croſs-turns. To find the quantity of canvas in this ſail, add the number of cloths in the head and foot, and halve the product to make it ſquare; then multiply by the depth, and add the quantity in the gores, linings, bands, and pieces. To find the quantity in the foot-gores, add together the number of inches gored in each cloth on one ſide of the ſail, and multiply the product by the number of gored cloths.

The *fore-courſe* is a quadrilateral ſail, ſquare on the head, and bent, at the head, to the fore-yard, which hangs to the fore-maſt at right angles with the ſhip's length, and parallel to the deck. This ſail extends within 18 inches of the cleats on the yard-arms, and drops to the main-ſtay at the foot. Two reef-bands, one-third the breadth of a cloth, are put on at one-ſixth of the depth of the ſail apart, the upper one being at that diſtance from the head; a middle-band of one breadth of cloth, is put on half-way between the lower reef-band and the foot; the linings on the leeches are of one breadth of cloth, and extend from the clue to the earing; and four buntline cloths, at equal diſtances aſunder, on the foot, are carried up to the middle-band. In the merchant-ſervice, middle-bands are ſeldom uſed, and the buntline cloths run up one-quarter of the depth of the ſail. Marling-holes are made in the tabling from the clue to the neareſt buntline-cringle on the foot, and one-eighth of the depth of the ſail up the leech. They are turned on the contrary ſide to the roping, in fixing the ſail. Two reef-cringles are made on the leeches, one at the end of each reef-band; as alſo are two bowline-cringles, the upper bowline cringle is made in the middle of the leech, and the lower one equally diſtant from the upper one and the clue; a buntline cringle is alſo made at the end of each buntline-cloth on the foot. The ends of the buntline-cringles, next the clues, ſhould be left long enough to be worked under the ſervice and meet the ends of the clue-rope. In ſewing on the bolt-rope, two inches of ſlack-cloth ſhould be taken up in every cloth, in the head and foot, and 1½ inch in every yard in the leeches. The clue is wormed with ſpun-yarn, parcelled with ſlips of tarred canvas; ſerved with 3 or 4 yarn ſpun-yarn, marled on with marline or houſe-line, and ſeized with ſeveral turns of inch line, ſtrained tight with three croſs-turns.

To find the quantity of canvas in this ſail, add the number of cloths in the head and foot, halve the product to make it ſquare, then multiply by the depth, and add the quantity in the gores, linings, bands, and pieces. To find the quantity in the foot-gores, add together the number of inches gored in each cloth on one ſide of the ſail, and multiply the product by the number of gored cloths.

The *mizen-courſe* is a quadrilateral ſail, the head of which is bent to the mizen-yard or gaff, and extends within 9 inches of the cleats. The fore-leech is attached to the mizen-maſt within 6 or 7 feet of the deck, ſo that it hangs fore and aft in the plane of the ſhip's keel. The head is cut with a gore of 16 to 22 inches per cloth, agreeable to the peek; the foot is gored one inch per cloth, leaving two cloths ſquare in the middle. One cloth on the maſt-leech is ſometimes gored in the navy, and ſometimes two cloths in the merchant ſervice. This ſail has a reef-band, 6 or 8 inches broad, at one-fifth of the depth of the maſt-leech from the foot. The after leech is lined from the clue with one breadth of cloth 5 yards long, and the nock and peek with pieces ſo cut from each other that each contains one yard. One cringle is made on each leech at the ends of the reef-band, and one at the diſtance of every three-quarters of a yard on the maſt-leech; or ſometimes holes are worked in the tabling of the maſt leech; a cringle is alſo made 5 yards from the clue on the after-leech for the throat-brails. Two inches of ſlack-cloth in every yard ſhould be taken up in ſewing the bolt-rope on the maſt-leech, but none in the foot or after-leech. The marling-holes extend 2 feet each way from the clue; the clue is ſeized with three-quarter-line, and is left 9 inches long from the ſeizing. To find the quantity of canvas in this ſail, add the depth of the fore and after-leech, and halve the product for a mean depth; multiply this by the number of cloths, and add the quantity of canvas in the foot-gores, pieces, and reef-band. To find the quantity in the foot-gores, multiply the number of cloths by the depth by which the ſquare cloths in the middle exceed thoſe at the tack; from the product ſubtract the gores from the ſquare cloths to the tack and clue.

The *ſprit-ſail courſe* is quadrilateral, ſquare on the head, foot, and leeches; it is bent at the head to the ſprit-ſail yard, and hangs under the bowſprit at right angles with the ſhip's length, extending within 9 inches of the cleats in the yard-arms. Two reef-bands, one-third of the breadth of a cloth, are put on diagonally; the ends on the leeches being 27 inches from the clues, and thoſe at the head on the firſt or ſecond ſeam from the earings. Sometimes a reef-band is put on from leech to leech, at one-fifth of the depth of the ſail from the head. A water-hole, from 4 to 6 inches diameter, is made in the ſecond cloth from each leech, near the foot or oppoſite the reef-cringles. The marling-holes extend two feet each way from the clues. A reef-cringle is made in the leeches at the end of each reef-band, and two buntline-cringles are made in the foot-rope, at one-third of the breadth of the foot from each clue. To find the quantity of canvas in this ſail, multiply the number of cloths by the depth, and add the quantity in the reef-bands.

A ſhip is ſaid to ſail under *a pair of courſes*, when ſhe ſails under a main-ſail and fore-ſail only, without lining or any bonnets.

COURSING, an amuſement of great antiquity, treated on by Arrian, who flouriſhed A. D. 150. It was firſt uſed by the Gauls; the moſt luxurious and opulent of whom uſed to ſend out good hare-finders early in the morning, to thoſe places where it was likely to find hares ſitting; they returned to their employers with an account of the number of hares found, who then mounted their horſes and took out their greyhounds to courſe them; not more than two greyhounds were to be ran at once, and theſe were not to be laid in too cloſe to the hare; for although that animal is ſwift, yet when firſt ſtarted, ſhe is ſo terrified by the hallooing, and by the cloſeneſs and ſpeed of the dogs, that in the confuſion of fear, the beſt ſporting hares were frequently killed without ſhewing any diverſion; ſhe was therefore allowed to run ſome diſtance from her "ſeat," before the dogs were ſet after her. The beſt hares were thoſe found in open and expoſed places; they did not immediately try to avoid the danger by running into the woods; but whilſt contending in ſwiftneſs with the greyhounds, moderated their own ſpeed according as they were preſſed; if overmatched in ſpeed by the dogs, they then tried to gain ground by frequent turns, which threw the dogs beyond them, making at the ſame time their ſhorteſt way to the covers, or neareſt ſhelter. The *true* ſportſman did not, even in Arrian's time, take out his dogs to deſtroy the hares, but for the ſake of ſeeing the conteſt between them, and was glad if the hare eſcaped, which was never prevented, by diſturbing any brake in which ſhe might have concealed herſelf; after beating the greyhounds, they were alſo frequently taken alive from the dogs, by the huntſmen who cloſely followed them; and after the greyhounds were taken up, were turned out for future ſport. They uſed to ſpeak to their greyhounds while in the field, conſidering it a kind of encouragement to them to know that their maſter was a witneſs of the excellence of their running; but this *ſpeaking* was recommended to be chiefly confined to the *firſt* courſe, leſt, after being weakened by a ſecond or third, they might, by ſuch encouragement, exert themſelves beyond their ſtrength, and hurt their *inſides*, which was thought to be the deſtruction of many good dogs. Thoſe who had not the conveniency of hare-finders, went out commonly in a company on horſeback; when they beat the likely grounds, and on ſtarting a hare, the greyhounds were let looſe after her:—thoſe who were more keen after the ſport uſed to go on foot, and if any one accompanied them on horſeback, it was his buſineſs to follow the dogs during the courſe. It is ſingular, that after the lapſe of ſo many centuries, the mode of *beating* for a hare, in courſing, ſhould be *now* exactly what it then was. The company were drawn up in a ſtraight rank, either horſe or footmen, and proceeded at certain diſtances from each other, in a direct line to a given point, and whirling round, that they might not go over preciſely the ſame track, they beat the ground regularly back. This practice is ſtill continued. A perſon was appointed to take the command of the ſport; if there were many dogs out, he gave orders that ſuch and ſuch dogs ſhould be ſlipped, according as the hare took to the right or the left, and theſe orders were punctually obeyed.

The Gauls ſometimes mixed and uſed *finders* with their greyhounds, and while theſe tried to find the hare, the greyhounds were led by the hand at a ſmall diſtance, taking care, however, to lead them where the hare was moſt likely to come; and here the greyhounds pretty well ſupplied the uſe of "Xenophon's nets." This method of *courſing* was deemed irregular, as the ſtouteſt hares were ſo alarmed with the cries of the finders, that if they did not ſtart a conſiderable way before, they were ſure to be killed. This method is very much practiſed in ſome parts of Great Britain, to the great conſolation of thoſe, who think no courſe worth having, unleſs there is a hare at the end of it. A *young* hare, when found ſitting, was not diſturbed, as it was conſidered unfair to run the greyhounds at her; but with the finders, (who are ſaid to have been very eager through hunger, and ſo deſirous of eating up what they caught, that it was difficult to get them off, even by beating them with ſticks,) the exerciſe of this clemency was impoſſible.

In ancient times, three ſeveral animals were courſed with greyhounds, *viz.* the deer, the fox, and the hare. The two former are not practiſed at preſent; but the courſing of deer was formerly a recreation in high eſteem, and was divided into two ſorts: the *Paddock*, and the *Foreſt* or *Purlieu*. For the paddock-courſing, beſides the greyhounds, which never exceeded two, and for the moſt part conſiſted of one brace, there was the teazer or mongrel greyhound, whoſe buſineſs it was to drive the deer forward before the real greyhounds were ſlipped. As ſoon as the greyhounds that were to run the match were led into the dog-houſe, ſituated at the end of the *Paddock* (which ſee), they were delivered to the keepers, who, by the articles of courſing, were to ſee them fairly ſlipped; for which purpoſe, there was round each dog's neck a "falling collar," which ſlipped through rings. The owners of the dogs drew lots which dog ſhould have the bell, that there might be no advantage. The dog-houſe door was then ſhut, and the keeper turned out the deer: after the deer had gone about 20 yards, the perſon who held the teazer looſed him, to force the deer forward; and when the deer was got to the "Law-poſt," or to the diſtance of about 160 yards, the dogs were led out from the dog-houſe, and ſlipped. If the deer ſwerved before he got to the "Pinching-poſt," ſo that his head was judged to be nearer the dog-houſe than the ditch, or place made for receiving the deer, ſo that they might not further be purſued by the dogs, it was deemed no match, and was to be run again three days after; but if there was no ſuch ſwerve, and the deer ran ſtraight till he went beyond the pinching-poſt, then that dog which was neareſt the deer (ſhould he ſwerve,) gained the conteſt; if no ſwerve happened, then that dog which leaped the ditch firſt was the victor:—if any diſputes aroſe, they were referred to the articles of the courſe, and determined by the judges, who ſat on ſeats near the ditch.

In courſing deer in the *Foreſt* or *Purlieu*, two modes were practiſed: the one courſing from wood to wood, and the other upon the lawns by the keepers' lodges. In the firſt, ſome hounds were thrown into the cover to drive out the deer, whilſt the greyhounds were held ready to be ſlipped where the deer was expected to break: if the deer was not of a proper age and ſize, the dogs were not let looſe; and if, on the other hand, he broke at too great diſtance, or was otherwiſe deemed an over-match for one brace, it was allowable to *waylay* him with another brace of freſh greyhounds. For the courſing upon the *Lawn*, the keeper had notice given him, and he took care to lodge a deer fit for the purpoſe; and by ſinking the wind of him, there was no danger of getting near enough to ſlip the greyhounds, and having a fair courſe.

In courſing the *fox*, no other art was neceſſary but to get the wind, and ſtand cloſe on the outſide of the wood, where he was expected to come out, and to give him law enough, or be inſtantly returned back to the cover. The ſloweſt greyhounds were ſpeedy enough to overtake him; and the whole hazard was, that of the fox ſpoiling the dog, which frequently happened: for the moſt part, the greyhounds uſed for this courſe were hard-bitten dogs, that would ſeize any thing.

The beſt method of courſing the *hare* was formerly to go out and find a hare ſitting, which is eaſily done in the ſummer, by walking acroſs the lands, either ſtubble, fallow, or corn grounds, and caſting the eye up and down; for in ſummer they frequent theſe places for fear of the ticks, which are common in the woods at that ſeaſon; and in autumn, the rains falling from the trees offend them. The reſt of the year there requires more trouble, as the buſhes and thickets muſt be beat to rouſe them, and often they will lie ſo cloſe, that they will not ſtir till the pole almoſt touches them: the ſportſmen are always pleaſed with this, as it promiſes a good courſe.

If a hare ſat near a cloſe or cover, with an open field behind her, the company ſtationed themſelves ſo as to force her to the champaign; for it is remarked, that a hare ſeldom takes the ſame way which her head points when in her form. The *feuterer*, or perſon that lets looſe the greyhounds, was to receive thoſe that were matched to run together into his *Leaſh*, as he came into the field, and to follow next to the hare-finder, or him that was to ſtart the hare, until he came to the form; and no horſe or footmen were to go before, or on either ſide, but directly behind, for the ſpace of about 40 yards. A hare was not to be courſed with more than a brace of greyhounds. The hare-finder was to give the hare three "Soho's," before he put her from her form, to give notice to the dogs that they might attend her ſtarting. The hare was to have twelve-ſcore yards law before the dogs were looſed, unleſs the ſmall diſtance from cover would not admit it, without danger of immediately loſing her. Without this law the hare would be killed too ſoon, and the greateſt part of the ſport thrown away, and the pleaſure of the ſeveral windings and turnings that the creature will make to get away, would be wholly loſt. A good ſportſman had rather ſee a hare ſave herſelf, after a fair courſe, than ſee her murdered by the greyhounds as ſoon as ſhe is up.

The laws of courſing were eſtabliſhed by the duke of Norfolk, in the reign of queen Elizabeth, and were agreed to by the nobility and gentry, who then followed the diverſion; and they have been always held authentic. For particulars we refer to "Daniel's Rural Sports," vol. i. The perſon who came in firſt at the death took up the hare, ſaved her from being torn, cheriſhed the dogs, and cleanſed their mouths from the wool, was adjudged to have the hare for his trouble. Thoſe that were judges of the courſe were to decide before they departed out of the field.

Courſing, Mr. Daniel obſerves, has apparently loſt nothing of its value in the eye of the ſportſman, however it may have ſuffered in the ſplendour which accompanied it when honoured with the royal preſence in former ages. It is an amuſement much in vogue at the preſent period; and Mr. Daniel has given an account of the meetings held for the expreſs purpoſe of enjoying this diverſion. Among the firſt, with regard to time and numbers, was the ſociety eſtabliſhed in 1776, at Swaffham in Norfolk, by the late earl of Orford. The rules of the Wiltſhire courſing, ſo far as relate to the greyhounds in the field, are, that the dog that has the moſt of the courſe is the winner, whether he is the dog that kills the hare or not; and that if a dog ſtops in any part of the courſe, and does not run *home*, it is always decided againſt him. The dogs are now looſed from ſlips of a better conſtruction than thoſe formerly in uſe, ſo that it is impoſſible for either dog to have the leaſt advantage given him at ſtarting. It is obſerved by the writer juſt cited, that for courſing, hares on marſhes or downs are the ſtouteſt. The open country about Swaffham in Norfolk, and the Downs in Wiltſhire, are both noted; but above all, the Flixton Wolds, in Yorkſhire. The Flixton hares are ſo ſtout, that the courſe is extended ſometimes to the length of five or ſix miles: they are generally found on the ſide of a hill to the north, which they invariably aſcend; at the top they have flat down for three or four miles, and then a ſteep deſcent, after which they aſcend a hill almoſt perpendicular; at the top is a large whin-cover, into which theſe beat many capital greyhounds; and perhaps it is the only place in England where a hare was ever ſeen to beat for four miles over turf a brace of the beſt greyhounds that could be produced.

Hares are ſaid to foreſee a change of weather, and to ſeat themſelves accordingly: they are ſeldom found in places much expoſed to the winds, eſpecially when it is ſoutherly or northerly; and they who get money by finding hares, are directed by the wind where to look for their game. Near the hedges or incloſures they are more frequently found than in the middle of the field. Shepherds and hare-finders remark, that hares on the Downs have variety of ſeats, which, as the weather directs, they change from time to time, and return to again; and that the more rain that falls, the nearer to the top of the hills the hare ſeats herſelf. When ſitting, ſhe covers the lower parts of her joints with her belly, her fore-legs are moſt commonly extended forward, and her chin reſts on the extremity of her feet. When a hare is ſeen ſitting, the ſex may be known: if a buck, the ears will be cloſe together; thoſe of the doe will be diſtended on each ſide of the neck and ſhoulders. The approach muſt be circuitous, not directly towards a hare on her form, or elſe ſhe will inſtantly ſtart from it For other particulars relating to this ſubject, ſee Greyhound and Hare.

COURSIER, Fr. is a gun that is placed in the forecaſtle of a galley for the purpoſe of firing over its beak. The weight of its ball is from 33 to 34 lb. The gun, however, may be of any ſize, and the ball, of courſe, of any weight.

COURSON, in *Geography*, a ſmall town of France, in the department of the Lower Charente, and chief place of a canton, in the diſtrict of La Rochelle; 15 miles E. of that port. It counts 803, and the canton itſelf 7254 inhabitants. The latter has eleven communes, and a territorial extent of 257 kiliometres and a half.—Alſo, a village in the department of Yonne, which formerly was a county; 12 miles S.W. of Auxerre.

COURT de Gebelin, N., in *Biography*, was born at Niſmes in 1725: for ſome time he was a preacher at Lauſanne in Switzerland; not contented, however, with his ſituation, he removed to Paris, where, at different periods, he publiſhed, in eight volumes, a work, entitled, "The primitive World analized and compared with the modern World;" which exhibited much ingenuity and reſearch, but which did not prove ſo profitable to the author as he had anticipated. He was accordingly remunerated, on account of his integrity and worth, by the French academy; and he was appointed a ſuperintendent to one of the muſeums at Paris. In the latter part of his life he became the advocate of animal magnetiſm, a ſubject, by which an infatuated public was for ſome time led away: to his zeal in this cauſe, he is ſaid to have fallen a victim in the year 1784. After his deceaſe, the ninth volume of his "Primitive World" was publiſhed. Court was author of the "Natural Hiſtory of Language," or, "A Summary of Univerſal Grammar."

Court, an appendage to a houſe or habitation; conſiſting of a piece of ground incloſed with walls, but open upwards.

The word is formed from the French *cour*, and that from the Latin *cohors:* whence alſo *cortis* and *curtis* are ſometimes uſed for the ſame. In the laws of the Germans, there is one article, *De eo qui in curte regis furtum commiſerit;* and another, *De eo qui in curte ducis hominem occiderit.* Others derive *court* from the Gauliſh *cors*, formed of *cohors*, and *cohors* from χορτος. See Cohort.

The court before a houſe is properly called the *fore-court;* that behind, the *back-court;* that where country affairs, &c. are managed, *i. e.* where cattle, &c. come, the *baſſe-court.*

Court is alſo uſed for the palace, or place where a king or ſovereign prince reſides.

Court, *Curia*, in a *Law Senſe*, is the place where juſtice is judicially adminiſtered. (Co. Litt. 58.) It denotes alſo the aſſembly of judges, jury, &c. in that place.

By the law of England, no court in this kingdom can claim any juriſdiction, unleſs it be ſome way or other derived from the crown; the king being the fountain of juſtice, and the ſupreme magiſtrate of the kingdom, intruſted with the whole executive power of the land.

To him alone, therefore, belongs the right of erecting courts of judicature; for though the conſtitution of the kingdom hath entruſted him with the whole executive power of the laws, it is impoſſible, as well as improper, that he ſhould perſonally carry into execution this great and extenſive truſt. It is, conſequently, neceſſary, that courts ſhould be erected, to aſſiſt him in executing this power; and equally neceſſary, that, if erected, they ſhould be erected by his authority. And hence it is, that all juriſdictions of courts are either mediately or immediately derived from the crown, their proceedings are generally in the king's name, they paſs under his ſeal, and are executed by his officers, whether created by act of parliament, or letters patent, or ſubſiſting by preſcription, (the only methods by which any court of judicature can exiſt,) the king's conſent in the two former is expreſsly, and in the latter impliedly, given. (Co. Litt. 260.) In all theſe courts, the king is ſuppoſed, in contemplation of law, to be always preſent; but as this is in fact impoſſible, he is repreſented by his judges, whoſe power is only an emanation of the royal prerogative. See Judge.

Yet the king cannot give any addition of juriſdiction to an ancient court; but all ſuch courts muſt be held in ſuch manner, and proceed by ſuch rules, as their known uſage has limited and preſcribed. Whence it follows, for inſtance, that the court of king's bench cannot be authorized to determine a mere real action between ſubject and ſubject; nor can the court of common pleas enquire of treaſon or felony. Accordingly, the king hath committed all his power judicial to one court or the other. (4 Inſt. 71.) And by ſtat. 52 Hen. III. c. 1, it is enacted, that all perſons ſhall receive juſtice in the king's courts, and none take any diſtreſs, &c. of his own authority, without award of the king's courts. Moreover, it is ſaid, that the cuſtoms, precedents, and common judicial proceedings of a court are a law to that court; and the determinations of courts make points to be law. (2 Rep. 12. 4 Rep. 53. Hob. 298.) All things determinable in courts, that are courts by the common law, ſhall be determined by the judges of the ſame courts; and the king's writ cannot alter the juriſdiction of a court. (6 Rep. 11.) The court of B. R. regulates all the inferior courts of law in the kingdom, ſo that they do not exceed their juriſdictions, nor alter their forms, &c. And as the court of king's bench has a general ſuperintendency over all inferior courts, it may award an attachment againſt any ſuch court, uſurping a juriſdiction not belonging to it; but it is ſometimes uſual firſt to award a writ of prohibition, and afterwards an attachment, upon its continuing to proceed. (2 Hawk. P. C. c. 22. § 25.) If a court, having no juriſdiction of a cauſe depending in it, does nevertheleſs proceed, the judgment in ſuch court is *coram non judice*, and void; and an action lies againſt the judges who give the judgment, and any officer that executes the proceſs under them. (1 Lil. Abr. 370.)

Of the variety of courts, appointed for the more ſpeedy, univerſal, and impartial adminiſtration of juſtice, and poſſeſſing either a more limited or a more extenſive juriſdiction, (of which Crompton deſcribes 32 in England,) ſome are *ſuperior*, and others *inferior.* To all of them, however, one diſtinction belongs; *viz.* that ſome of them are courts of *record*, and others *not of record.* A court of record is that where the acts and judicial proceedings are enrolled in parchment for a perpetual memorial and teſtimony: which rolls are called the records of the court, and are of ſuch high and ſuper-eminent authority, that their truth is not to be called in queſtion. See Record.

All courts of record are the king's courts, in right of his crown and royal dignity (Finch. L. 231.), and, therefore, no other court hath a right to fine or impriſon; ſo that the very erection of a new juriſdiction, with power of fine or impriſonment, makes it inſtantly a court of record. (Salk. 200. 12 Mod. 388.) Theſe courts have power to hold plea, according to the courſe of the common law, of real, perſonal, and mixed actions, where the debt or damage is above 40*s.*; as the king's bench, common pleas, &c. A court not of record is the court of a private man; whom the law will not intruſt with any diſcretionary power over the fortune or liberty of his fellow ſubjects. Such are the courts-baron incident to every manor, and other inferior juriſdictions, where the proceedings are not enrolled or recorded; but as well their exiſtence as the truth of the matters therein contained ſhall, if diſputed, be tried and determined by a jury. A writ of falſe judgment, and not of error, lies on their judgments. Theſe courts can hold no plea of matters cognizable by the common law, unleſs under the value of 40*s.*, nor of any forcible injury whatſoever, not having any proceſs to arreſt the perſon of the defendant. (2 Inſt. 311.)

Courts, both of civil and criminal juriſdiction, are diſtributed into two claſſes; *viz.* thoſe which have public and general juriſdiction throughout the whole realm, and ſuch as are only of a private and ſpecial juriſdiction, in ſome particular parts of it. To the claſs of *civil* courts of the former kind belong the following four ſorts; 1. The univerſally eſtabliſhed courts of common law and equity, as the court of pie-poudre, court-baron, hundred-court, county-court, court of common-pleas, court of king's bench, court of exchequer, high court of chancery, court of exchequer-chamber, the houſe of peers, or ſupreme court of judicature in the kingdom, and the courts of aſſiſe and niſi prius:—2. The eccleſiaſtical courts, or courts chriſtian, ſuch are the archdeacon's court, the conſiſtory court of every dioceſan biſhop, the court of arches, the court of peculiars, the prerogative court, the court of delegates, and commiſſion of review:—3. The courts military, as the court of chivalry:—4. The maritime courts. To the claſs of courts having a ſpecial juriſdiction belong the foreſt courts, the court of commiſſioners of ſewers, the court of policies of aſſurance, the court of the marſhalſea, and the palace court at Weſtminſter, the courts of the principality of Wales, the court of the duchy chamber of Lancaſter, the courts appertaining to the counties palatine of Cheſter, Lancaſter, and Durham, and the royal franchiſe of Ely, the ſtannary courts in Devonſhire and Cornwall, the ſeveral courts within the city of London, and other cities, boroughs, and corporations, throughout the kingdom, the courts of requeſts, or courts of conſcience, and the chancellor's courts in the two univerſities of England.

Criminal courts of a public and a general juriſdiction are the high court of parliament, which is the ſupreme court in the kingdom, the court of the lord high ſteward of Great Britain, the court of king's bench, the court of chivalry, the high court of admiralty, which five courts may be held in any part of the kingdom, and their juriſdiction extends over crimes that ariſe throughout the whole of it, from one end to the other; of a general nature, and yet of a local juriſdiction, confined to particular diſtricts; the courts of oyer and terminer, and general gaol-delivery, the court of general quarter-ſeſſions of the peace, the ſheriff's tourn, the court-leet, the court of the coroners, and the court of the clerk of the market; to which we may add the courts of greater dignity than many of thoſe already enumerated, but of a more confined and partial juriſdiction, ſuch as the court of the lord ſteward, treaſurer, or comptroller of the king's houſehold, the court of the lord ſteward of the king's houſehold, &c., and courts of the univerſities. We ſhall now proceed to deſcribe each of theſe in alphabetical order.

Court *of Admiralty*, is a court held by the high admiral, or commiſſioners of the admiralty; to which belongs the deciſion of all maritime controverſies, trials of malefactors, and the like.

The proceedings in this court, in all civil matters, are according to the civil law; becauſe the ſea is without the limits of the common law, and under the admiral's juriſdiction. As this court proceeds according to the method of civil law, like the eccleſiaſtical courts, it is uſually held at the ſame place with the ſuperior eccleſiaſtical courts, at Doctors' Commons in London.

In criminal affairs, which ordinarily relate to piracy, robbery, and murder, the proceedings in this court were anciently likewiſe by information and accuſation, according to the civil law; but that being found inconvenient, becauſe no perſon could be convicted without either their own confeſſion, or two witneſſes of the fact, ſo that the greateſt offenders often eſcaped with impunity, it was enacted by ſtatute 28 Henry VIII. c. 15. that offenders amenable to this court ſhould be tried by commiſſioners of oyer and terminer, under the king's great ſeal; namely, the admiral, or his deputy, and three or four more; (among whom two common law judges are uſually appointed;) the indictment being firſt found by a grand jury of twelve men, and afterwards tried by a petty jury; and that the courſe of proceedings ſhould be according to the law of the land. This is now the only method of trying marine felonies in the court of admiralty: the judge of the admiralty ſtill preſiding therein, as the lord mayor is the preſident of the ſeſſion of oyer and terminer in London. This court hath cognizance of all crimes and offences committed either upon the ſea, or on the coaſts, out of the body or extent of any Engliſh county; and, by ſtat. 15 Ric. II. c. 3, of death and mayhem happening in great ſhips being and hovering in the main ſtream of great rivers, below the bridges of the ſame rivers, which are then a ſort of ports or havens; ſuch as are the ports of London and Glouceſter, though they lie at a great diſtance from the ſea. 5 Eliz. c. 5. 1 Ann. c. 9. 4 Geo. I. c. 11.

The court of admiralty is ſaid to have been firſt erected in 1357, by king Edward III. To the civil law, firſt introduced in it by the founder, were afterwards added, by his ſucceſſors, particularly Richard I., the laws of Oleron, and the marine uſes and conſtitutions of ſeveral people; as thoſe of Genoa, Piſa, Marſeilles, Meſſina, &c. The juriſdiction of this court was limited by Richard II. 13 Ric. II. ſt. 1. c. 5. 15 Ric. II. c. 3.

Under this court is alſo a court-merchant, or court of equity; wherein all differences between merchants are decided according to the rules of the civil law.

Between the courts of admiralty and common law, there ſeems to be *diviſum imperium;* for the ſea, ſo far as the low-water mark, is accounted *infra corpus comitatus adjacentis*; and the cauſes thence ariſing are determinable by the common law; yet, when the ſea is full, the admiral has juriſdiction there alſo ſo long as the ſea flows, over matters done between the low-water mark and the ſhore.

The admiralty court is not allowed to be a court of record, becauſe it proceeds by the civil law; and the judge has no power to take ſuch a recognizance as a court of record may. The proceſs and proceedings are in the name of the lord admiral, and by libel; and the plaintiff and defendant enter into a ſtipulation or bond for appearance, and to abide the ſentence. 4 Inſt. 134, 135.

If an erroneous judgment be given in the admiralty, appeal may be had to delegates appointed by commiſſion out of chancery, whoſe ſentence ſhall be final. Stat. 8 Eliz. c. 5.

Appeals from the vice-admiralty courts in America, and our other plantations and ſettlements, may be brought before the courts of admiralty in England, as being a branch of the admiral's juriſdiction; though they may be alſo brought before the king in council. But in caſe of prize-veſſels, taken in time of war, in any part of the world, and condemned in any courts of admiralty, or vice admiralty, as lawful prize, the appeal lies to certain commiſſioners of appeals, conſiſting chiefly of the privy-council, and not to judges delegates. This is by virtue of divers treaties with foreign nations; by which particular courts are eſtabliſhed in all the maritime countries of Europe, for the deciſion of the queſtion, whether lawful prize or not; for this being a queſtion between ſubjects of different ſtates, it belongs entirely to the law of nations, and not to the municipal laws of either country, to determine it: the original court to which this queſtion is referred in England is the court of admiralty; and the court of appeal is in effect the king's privy-council; the members of which are, in conſequence of treaties, commiſſioned under the great ſeal for this purpoſe.

In Scotland the juriſdiction of the admiral in maritime cauſes was formerly concurrent with that of the ſeſſion. The high admiral is declared the king's juſtice general upon the ſeas, or freſh water within flood-mark, and in all harbours and creeks. His civil juriſdiction extends to all maritime cauſes, and thus comprehends queſtions of charter-parties, freights, ſalvages, bottomries, &c. He exerciſes this ſupreme juriſdiction by a delegate, the judge of the high court of admiralty; and he may alſo name inferior deputies, whoſe juriſdiction is limited to particular diſtricts, and whoſe ſentences are ſubject to the review of the high court. In cauſes which are declared to fall under the admiral's cognizance, his juriſdiction is ſole; inſomuch, that the ſeſſion itſelf, though it may review his decrees of ſuſpenſion or reduction, cannot carry a maritime queſtion from him by advocation. The admiral has acquired, by uſage, a juriſdiction in mercantile cauſes, even where they are not chiefly maritime, cumulative with that of the judge-ordinary.

Among the Hollanders, the five *admiralties* were, according to their old conſtitution, ſo many chambers, compoſed of the deputies of the nobles, the provinces, and the towns; to whom belong the equipping out of fleets, the furniſhing proviſions for them, and directing what relates to maritime affairs.

COURT *of Aids*, in France. See AIDS.

COURT *of Archdeacon*, is the moſt inferior court in the whole eccleſiaſtical polity. It is held in the archdeacon's abſence before a judge, appointed by himſelf, and called his official; and its juriſdiction is ſometimes in concurrence with, ſometimes in excluſion of, the biſhop's court of the dioceſe. From hence, however, by ſtatute 24 Hen. VIII. c. 12, an appeal lies to that of the biſhop.

COURT *of Arches*, *Curia de Arcubus*, the chief and moſt ancient conſiſtory court belonging to the archbiſhop of Canterbury, for the debating of ſpiritual cauſes. It is ſo called from the church in London, commonly called St. Mary le Bow (Sancta Maria de Arcubus), where it was formerly held; which church had its name from the ſteeple, which was raiſed by pillars built archwiſe, like bent bows. Cowel.

The judge of this court is ſtyled *dean of the arches*, or official of the *arches court*. He hath extraordinary juriſdiction in all eccleſiaſtical cauſes, except what belong to the prerogative court; alſo all manner of appeals from biſhops, or their chancellors or commiſſaries, deans and chapters, &c. firſt or laſt are directed hither. He hath ordinary juriſdiction throughout the whole province of Canterbury in caſes of appeals; ſo that upon any appeal made, he, without any farther examination of the cauſe, ſends out his citation to the appellee, and his inhibition to the judge, from whom the appeal was made. Of this ſee more, 4 Inſt. 337. But he cannot cite any perſon out of the dioceſe of another, unleſs it be on appeal, &c. 23 Hen. VIII. c. 9. In another ſenſe, the dean of arches has a peculiar juriſdiction of thirteen pariſhes in London, belonging to the archbiſhop, called a deanery (being exempt from the authority of the biſhop of London), of which the pariſh of Bow is the principal. The perſons concerned in this court, are the judge, advocate, regiſters, proctors, &c. and the foundation of a ſuit in theſe courts, is a citation for the defendant to appear; then the libel is exhibited, which contains the action, to which the defendant muſt anſwer: whereupon the ſuit is conteſted, proofs are produced, and the cauſe determined by the judge, upon hearing the advocates on the law and fact; when follow the ſentence and decree thereupon. See AUDIENCE.

This court (as alſo the court of peculiars, the admiralty court, the prerogative court, and the court of delegates, for the moſt part) is now held in the hall belonging to the college of civilians, commonly called Doctors Commons.

From this court, the appeal is to the king in Chancery, (that is, to a court of delegates appointed under the king's great ſeal,) by 25 Hen. VIII. c. 19. as ſupreme head of the Engliſh church, in the place of the biſhop of Rome, who formerly exerciſed this juriſdiction.

COURT *of Aſſiſe*. See ASSISES.

COURT *of Augmentation*, the name of a court erected, 27 Hen. VIII. for determining ſuits and controverſies, relating to monaſteries and abbey lands. The intent of this court was that the king might be juſtly dealt with, touching the profit of ſuch religious houſes, and their lands, as were given him by act of parliament the ſame year. This court was diſſolved under queen Mary, by the parliament held the firſt year of her reign; but the office of *augmentation* remains to this day, in which are many valuable records. Terms de Ley. 68.

COURT *of Barghmote*. See BARGHMOTE.

COURTS *Baron*, are courts which all lords of manors, who were anciently called *barons*, have within their reſpective precincts. Such a court is an inſeparable incident to a manor; and muſt be held by preſcription, for it cannot be created at this day. 1 Inſt. 58. 4 Inſt. 268.

A *court baron* muſt be kept by the ſteward on ſome part of the manor; and is twofold. 1. *By cuſtom:* as, if a man having a manor in a town, grant the inheritance of the copyholds thereto belonging to another; this grantee may keep a court for the cuſtomary tenants, and accept ſurrenders to the uſe of others, and make both admittances and grants. (See COPYHOLD.) 2. *By common law.* This is of freeholders, which is properly called a *court baron*, wherein the freeholders are judges, and the ſteward is rather the regiſtrar than the judge: whereas of the other, the lord or his ſteward is judge.

Theſe two courts, though eſſentially diſtinct, are frequently confounded. The latter, or freeholders' court, was compoſed of the lord's tenants, who were the *peers* of each other, and were bound by their feodal tenure to aſſiſt their lord in the diſpenſation of domeſtic juſtice. This was formerly held every three weeks; and its moſt important buſineſs is to determine, by writ of right, all controverſies relating to the right of lands within the manor. It may alſo hold plea of any perſonal actions, of debt, treſpaſs on the caſe, or the like, where the debt or damages do not amount to 40s. (Finch. 248.) But the proceedings on a writ of right may be removed into the county court by a precept from the ſheriff, called a "tolt." *quia tollit atque eximit cauſam e curia baronum.* And the proceedings in all other actions may be removed into the ſuperior courts by the king's writs of "pone," or "accedas ad curiam," according to the nature of the ſuit. (F. N. B. 4. 70. Finch. L. 444. 445.) After judgment given, a writ alſo of "falſe judgment" lies to the courts at Weſtminſter to rehear and review the cauſe, and not a writ of "error;" for this is not a court of record; and therefore, in ſome of theſe writs of removal, the firſt direction given is to cauſe the plaintiff to be recorded, "recordari facias loquelam."

COURT, *Biſhop's*, or *Conſiſtory Court*, an eccleſiaſtical court held in the cathedral of each dioceſe, for the trial of all eccleſiaſtical cauſes ariſing within their reſpective dioceſes; the judge whereof is the biſhop's chancellor, or his commiſſary, anciently called *eccleſiaſticus*, and *eccleſiæ cauſidicus*, q. d. the church-lawyer; who judges by the civil and canon law; and, if the dioceſe be large, has his commiſſaries in remote parts, who hold what they call *conſiſtory courts*, for matters limited to them by their commiſſion. From the ſentence of this judge, appeal lies, by virtue of the ſtatute 24 Hen. VIII. c. 12. to the archbiſhop of each province reſpectively.

COURT *of Chancery*, the grand court of equity, and conſcience, inſtituted to moderate the rigour of the other courts that are tied to the ſtricteſt letter of the law; and in matters of civil property the moſt important of any of the king's ſuperior and original courts of juſtice.

The judge of this court is the lord high chancellor, whoſe function ſee under CHANCELLOR.

The proceedings of this court are either *ordinary*, like other courts, according to the laws, ſtatutes, and cuſtoms of the nation, by granting out writs remedial and mandatory, writs of grace, &c. or *extraordinary*, according to equity and conſcience, by bills, anſwers, and decrees, to examine frauds, combinations, truſts, ſecret uſes, &c. to ſoften the ſeverity of common law, and reſcue people from oppreſſion; to relieve them againſt cheats, unfortunate accidents, breaches of truſt, &c.

The ordinary legal court is much more ancient than the court of equity. Its juriſdiction is to hold plea upon a *ſcire facias* to repeal and cancel the king's letters patent, when made againſt law, or upon untrue ſuggeſtions; and to hold pleas of petitions, *monſtrans de droit*, traverſes of offices, and the like; when the king hath been adviſed to do any act, or is put in poſſeſſion of any lands or goods, in prejudice of a ſubject's right. (4 Rep. 54.) On proof of which, as the king can never be ſuppoſed intentionally to do any wrong, the law queſtions not but he will immediately redreſs the injury; and refers that conſcientious taſk to the chancellor, the keeper of his conſcience. It alſo appertains to this court, to hold plea of all perſonal actions, where any officer or miniſter of the court is a party. (4 Inſt. 80.) It might likewiſe hold plea (by *ſcire facias*) of partitions of lands in coparcenary, (Co. Litt. 171. F. N. B. 62.), and of dower (Bro. Abr. tit. Dower, 66. Morr. 565.), where any ward of the crown was concerned in intereſt, ſo long as the military tenures ſubſiſted; as it now may alſo do of the tithes of foreſt land, where granted by the king, and claimed by a ſtranger againſt the grantee of the crown; and of executions on ſtatutes, or recognizances in nature thereof by the ſtatute 23 Hen. VIII. c. 6. (2 Roll. Abr. 469.) But if any cauſe come to iſſue in this court, that is, if any fact be diſputed between the parties, the chancellor cannot try it, having no power to ſummon a jury; but muſt deliver the record PROPRIA MANU into the court of king's bench, where it ſhall be tried by the country, and judgment ſhall be given thereon. (Cro. Jac. 12. Latch. 112.) And when judgment is given in chancery, upon demurrer, or the like, a writ of error, in nature of an appeal, lies out of this ordinary court into the court of king's bench. In this ordinary, or legal, court, is alſo kept the *officina juſtitiæ*; out of which, all original writs that paſs under the great ſeal, all commiſſions of charitable uſes, ſewers, bankruptcy, idiocy, lunacy, and the like, do iſſue; and for which it is always open to the ſubject, who may there, at any time, demand and have, *ex debito juſtitiæ*, any writ which his occaſions may call for. Sometimes a *ſuperſedeas*, or writ of privilege, hath been granted here to diſcharge a perſon out of priſon. An habeas corpus, prohibition, &c. may be had from hence in the vacation; and here a ſubpœna may be had to force witneſſes to appear in other courts, when they have no power to call them. (4 Inſt. 79. 1 Danv. Abr. 776.)

The extraordinary court, or court of equity, is now become the court of the greateſt judicial conſequence This diſtinction betweeen law and equity, as adminiſtered in different courts, is not at preſent known, nor ſeems to have been ever known in any other country at any time; and yet the difference of one from the other, when adminiſtered by the ſame tribunal, was perfectly familiar to the Romans; the *jas prætorium*, or diſcretion of the prætor, being diſtinct from the *leges*, or ſtanding laws, but the power of both centered in the ſame magiſtrate, who was equally entruſted to pronounce the rule of law, and to apply it to particular caſes by the principles of equity. With us alſo, the *aula regia*, which was the ſupreme court of judicature, undoubtedly adminiſtered equal juſtice, according to the rules of both or either, as the caſe might chance to require; and when that was broken to pieces, the idea of a court of equity, as diſtinguiſhed from a court of law, did not ſubſiſt in the original plan of partition. For though equity is mentioned by Bracton as a thing contraſted to ſtrict law, yet neither in that writer, nor in Glanvil, or Fleta, nor yet in Britton, is a ſyllable to be found relating to the equitable juriſdiction of the court of chancery. It ſeems probable, therefore, that when the courts of law, proceeding merely upon the ground of the king's original writs, and confining themſelves to theſe, gave a harſh or imperfect judgment, the application for redreſs uſed to be to the king in perſon, aſſiſted by his privy council; and they referred the matter either to the chancellor and a ſelect committee, or, by degrees, to the chancellor only, who mitigated the ſeverity, or ſupplied the defects of the judgments pronounced in the courts of law, upon weighing the circumſtances of the caſe. This was the cuſtom not only among our Saxon anceſtors, before the inſtitution of the *aula regia*, but alſo after its diſſolution, in the reign of king Edw. I. and perhaps during its continuance in that of Henry II. In theſe early times, the chief juridical employment of the chancellor muſt have been in deviſing new writs, directed to the courts of common law, to give remedy in caſes where none was before adminiſtered. Accordingly, proviſion was made to this purpoſe by ſtat. Weſtm. 2. 13 Ed. I. c. 24, which proviſion, duly applied, might have effectually anſwered all the purpoſes of a court of equity; except that of obtaining a diſcovery by the oath of the defendant. But about the end of the reign of king Edw. III., when uſes of land were introduced, the ſeparate juriſdiction of the chancery as a court of equity began to be eſtabliſhed. But as the clergy, ſo early as the reign of king Stephen, had attempted to bring their eccleſiaſtical courts into courts of equity, till they were checked by the conſtitutions of Clarendon, the eccleſiaſtical chancellors, who then held the ſeals, were probably remiſs in abridging their own newly-acquired juriſdiction. In the time of lord Elleſmere (A. D. 1616), aroſe that notable diſpute between the courts of law and equity, ſet on foot by ſir Edward Coke, then chief juſtice of the court of king's bench; whether a court of equity could give relief after or againſt a judgment at the common law. This conteſt was ſo warmly carried on, that indictments were preferred againſt the ſuitors, the ſolicitors, the counſel, and even a maſter in chancery, for having incurred a *præmunire*, by queſtioning, in a court of equity, a judgment in the court of king's bench, obtained by groſs fraud and impoſition. (Bacon's Works, vol. iv. 611, &c.) This matter, being brought before the king, was by him referred to his learned counſel for their advice and opinion; who reported ſo ſtrongly in favour of the courts of equity, that his majeſty gave judgment on their behalf; but, not contented with the irrefragable reaſons and precedents produced by his counſel, (for the chief juſtice was clearly in the wrong) he choſe rather to decide the queſtion, by referring it to the plenitude of his royal prerogative. (1 Chanc. Rep. Append. 26.) Sir Edward Coke ſubmitted to the deciſion, and thereby made atonement for his error; but it was followed by his removal from office. (See Article Coke.) Lord Bacon, who ſucceeded lord Elleſmere, reduced the practice of the court into a more regular ſyſtem; but did not ſit long enough to effect any conſiderable revolution in the ſcience itſelf; and few of his decrees which have reached us are of any great conſequence to poſterity. His ſucceſſors, in the reign of Charles I., made little improvement on his plan; and even after the reſtoration, the ſeal was committed to the earl of Clarendon, who had withdrawn from practice as a lawyer near 20 years; and afterwards to the earl of Shafteſbury, who (though by education a lawyer) had never practiſed at all. Sir Heneage Finch, who ſucceeded in 1673, and became afterwards earl of Nottingham, was a perſon of the greateſt abilities and moſt uncorrupted integrity; a thorough maſter and defender of the laws and conſtitution of his country; and endowed with a pervading genius that enabled him to diſcover and to purſue the true ſpirit of juſtice, notwithſtanding the embarraſsments raiſed by the narrow and technical notions which then prevailed in the courts of law, and the imperfect ideas of redreſs which had poſſeſſed the courts of equity. The reaſon and neceſſities of mankind, ariſing from the great change in property by the extenſion of trade, and the abolition of military tenures, co-operated in eſtabliſhing his plan, and enabled him, in the courſe of nine years, to build a ſyſtem of juriſprudence and juriſdiction upon wide and rational foundations; which have alſo been extended and improved by many great men, who have ſince preſided in chancery. And from that time to this, the power and buſineſs of the court have increaſed to an amazing degree.

The ancient rule for the juriſdiction of the extraordinary court of chancery, was confined to frauds, accidents, and truſts; and though at this day, by its power of granting injunctions, it curbs the juriſdiction of other courts, and thereby has ſwallowed up the greateſt part of the buſineſs of the common law; yet it is ſtill under ſome of theſe notions, that it exerciſes a juriſdiction in relieving againſt forfeitures, penalties, where a compenſation can be made, in preventing multiplicity of ſuits, decreeing a ſpecific execution of agreements; aſſiſting defective conveyances, &c. But in no caſe will it relieve againſt an act of parliament, nor directly againſt a fundamental rule or maxim of the common law, nor retain a ſuit where the party appears to have a plain and adequate remedy at law. Three things, ſays lord Coke, are to be adjudged in a court of equity. 1. All covins, frauds, and deceits, for which there is no remedy by the ordinary courſe of law. 2. Accidents, as when a ſervant, obligor, or mortgagor, is to pay money on a certain day, and they happen to be robbed in going to pay it. 3. Breaches of truſt and confidence. 4 Inſt. 84. All matters of truſt are particularly within the juriſdiction of the court of chancery.

From this court of equity in chancery, as from the other ſuperior courts, an appeal lies to the houſe of peers. But there are theſe differences between appeals from equity, and writs of error from a court of law: 1. That the former may be brought upon any interlocutory matter, the latter upon nothing but only a definitive judgment: 2. That on writs of error, the houſe of lords pronounces the judgment; on appeals, it gives direction to the court below to rectify its own decree. See Appeal.

The officers of this court, beſide the lord chancellor, who is ſupreme judge, are, the maſter of the rolls, who, in the chancellor's abſence, hears cauſes, and gives decrees; and twelve maſters of chancery, one of whom is the maſter of the rolls, who are aſſiſtants, and ſit by turns on the bench.

For the equity part of this court there are ſix clerks, and their deputies, who have under them a number of others, called the ſixty ſworn clerks, in the nature of attorneys of the court; two chief examiners, for examining witneſſes, who have each five or ſix clerks apiece; one principal regiſter, who has four or five deputies; clerk of the crown, who makes writs, commiſſions, &c.; warden of the Fleet; ſerjeant at arms, who bears the mace before the chancellor; and the uſher and crier of the court.

To the common law part belong the twenty-four curſitors, and their clerks, who make out original writs; clerks of the petty bag; clerks of the hanaper; comptroller of the hanaper; clerk of appeals; clerk of the faculties; ſealer; chafe-wax; clerks of the patents, of preſentations, diſmiſſions, licenſes to alienate, enrollments, protections, ſubpœnas, affidavits, &c. See each under its own article. For a further account of the proceedings in the court of chancery, or a court of equity, ſee Equity; and for the mode of conducting a ſuit in chancery, ſee Suit.

Court *of Chivalry*, called alſo *Marſhal's Court*, is one of the military courts, formerly held before the lord high conſtable and earl marſhal of England jointly; but ſince the attainder of Stafford duke of Buckingham, in the 13th of Henry VIII., and the conſequent extinguiſhment of the office of lord high conſtable, it hath uſually, with reſpect to civil matters, been held before the earl marſhal only. This court, by ſtatute 13 Ric. II. c. 2., hath cognizance of contracts and other matters touching deeds of arms and war, as well out of the realm as within it. And from its ſentences an appeal lies immediately to the king in perſon. (4 Inſt. 125.) This court was in great reputation in the times of pure chivalry, and afterwards during our connections with the continent, by the territories which our princes held in France; but it is now grown almoſt entirely out of uſe, on account of the feebleneſs of its juriſdiction, and want of power to enforce its judgments: as it can neither fine nor impriſon, not being a court of record. (7 Mod. 127.)

This court, which is a military court, or court of honour, when held before the earl marſhal only, is alſo a criminal court, when held before the lord high conſtable of England jointly with the earl marſhal. Then it has juriſdiction over pleas of life and member, ariſing in matters of arms and deeds of war, as well out of the realm as within it. But the criminal, as well as civil, part of its authority, is fallen into entire diſuſe, ſince the extinguiſhment of the office of *High* CONSTABLE of England. See alſo CHIVALRY.

COURT *Chriſtian*, *Curia Chriſtianitatis*, is an eccleſiaſtical judicature, oppoſed to the *civil* court, or lay tribunal: and as in ſecular courts, human laws are maintained; ſo in the court Chriſtian, the laws of Chriſt ſhould be the rule. The judges therefore are divines; as archbiſhops, biſhops, archdeacons, &c. 2 Inſt. 488. Courts Chriſtian are ſo called, becauſe they handle matters eſpecially appertaining to Chriſtianity. See COURTS *Eccleſiaſtical*, infra. See alſo CONSISTORY.

COURTS *of Cinque-ports*. See CINQUE-PORTS.

COURT *of Clerk of the Market*. See CLERK *of the Market*.

COURT, *Circuit*, a court in Scotland, which can judge in all criminal cauſes which do not infer death or demembration, upon appeal from any inferior court within their diſtrict; and has a ſupreme civil juriſdiction, by way of appeal, in all cauſes not exceeding 12*l.* ſterling, in which their decrees are not ſubject to review; but no appeal is to lie to the circuit, till the cauſe be finally determined in the inferior court.

COURT *of Common Pleas*, *Communia placita*, or *Bancus communis*, one of the king's courts, held in Weſtminſter-hall. Gwyn obſerves, that till the granting of Magna Charta, there were but two courts called the king's courts, *viz.* the exchequer, and the king's bench; and that upon the grant of that charter, the court of common pleas was erected, and fixed to a place certain, *viz.* Weſtminſter-hall: whence the writs which before ran *coram me vel juſticiariis meis*, ſimply, were now changed, and run *coram juſticiariis meis apud Weſtmon.* See AULA *Regia*.

Sir Edward Coke, however, is of opinion (Pref. to 8th Report, and 1 Inſt. 71 *b.*) that the court of common pleas exiſted as a diſtinct court before the conqueſt; and was not created by Magna Charta, at which time there were "juſticiarii de Banco, &c.:" although before this act, common pleas might have been held "in Banco regis;" and all original writs were returnable there. According to Madox, the origin of the court of common pleas is of a much later date than that aſſigned by lord Coke. He ſo far agrees with lord Coke as to admit, that the Magna Charta of Henry III. rather confirmed than created the "Bank," or "Common Pleas;" and that ſuch a court was in being long before the Magna Charta of the 17th of king John; though it was *then* firſt made ſtationary. But in other reſpects they widely differ: for Mr. Madox thinks, that ſome time after the Conqueſt there was one great and ſupreme judicature, called the "Curia Regis," which he ſuppoſes to have been of Norman, and not Anglo-Saxon, original, and to have exerciſed juriſdiction over common as well as other pleas; that the common pleas and exchequer were gradually ſeparated from the "Curia Regis," and became juriſdictions wholly diſtinct from it; and that the ſeparation of the common pleas began in the reign of Richard I., or early in the reign of king John, and was completed by Henry III. (See Mad. Hiſt. Exch. 63. 539. fol. ed. Blackſt. Com. iii. 27. 4 Inſt. 99. 1 Inſt. 71. *b.*)

The juriſdiction of this court, which is general, and extends throughout England, is founded on original writs, iſſuing out of the chancery, which are the king's mandates for them to proceed on to determine ſuch and ſuch cauſes. But this is to be underſtood when the cauſe is between common perſons; for when an attorney, or any perſon belonging to the court, is plaintiff, he ſues by writ of privilege, and is ſued by bill, which is in nature of a petition; both which originally commence in the common pleas, and have no foundation in the chancery. 4 Inſt. 99.

In all perſonal actions brought by and againſt common perſons, the only way of proceeding in this court is by original. There is, indeed, one other way of proceeding in this court, in *common* caſes, which is ſometimes uſed; and which is called proceeding by "original quare clauſum fregit." See CAPIAS.

All actions belonging to this court come hither, either by original, as arreſts and outlawries; or by privilege or attachment, for or againſt privileged perſons; or out of inferior courts, not of record, by *pone*, *recordare*, *accedas ad curiam*, *writ of faiſe judgment*, &c. Actions popular, and actions penal, of debt, &c. upon any ſtatute, are cognizable by this court; and, beſides having juriſdiction for puniſhment of its officers and miniſters, this court, without any writ, may, upon a ſuggeſtion only, grant prohibitions, to keep as well temporal as eccleſiaſtical courts within their bounds and juriſdiction. (4 Inſt 99. and Vaughan's Reports, p. 157.)

As pleas or ſuits are regularly divided into two ſorts; *viz.* *pleas of the crown*, which comprehend all crimes and miſdemeſnors, wherein the king (on behalf of the public) is the plaintiff; and *common pleas*, which include all civil actions, depending between ſubject and ſubject; the former of theſe were the proper object of the court of king's bench; the latter of the court of common pleas, which is a court of record, and is ſtyled by ſir Edward Coke the lock and key of the common law:—for herein only can real actions, that is, actions which concern the right of freehold in the realty, be originally brought: and all other, or perſonal pleas between man and man, are likewiſe here determined; though in moſt of *them* the king's bench has alſo a concurrent authority.

The juriſdiction of each court is at this day ſo well eſtabliſhed, that as the court of king's bench cannot determine a mere real action, ſo neither can the court of common pleas inquire of felony or treaſon. (2 Hawk. P. C. p. 2.)

In term time, this court may award a habeas corpus by the common law, for any perſon committed for any cauſe under treaſon or felony; and thereupon diſcharge him, if it ſhall clearly appear, by the return, that the commitment was againſt law, as being made by one who had no juriſdiction of the cauſe, or for a matter, for which, by law, no man ought to be puniſhed. Vide Vaughan, 154, *ſeq.* 2 Jones, 14.

All civil cauſes, real, perſonal, and mixed, are tried in this court, according to the ſtrict law of the realm. Forteſcue repreſents it as the only court for real cauſes. In perſonal and mixed actions it hath a concurrent juriſdiction with the king's bench. This court doth not poſſeſs any original juriſdiction; nor has it, like the court of king's bench, any mode of proceeding in common caſes peculiar to itſelf.

The chief juſtice hereof is called *lord chief juſtice of the common pleas*, who is accompanied with three of his aſſociates, called puiſné juſtices, created by letters patent, and as it were judges inſtalled or placed on the common bench by the lord chancellor, and the lord chief juſtice of the court; to whom the ſeal of the court is committed. Theſe judges ſit every day in the four terms to hear and determine all matters of law ariſing in civil cauſes, whether real, perſonal, or mixed and compounded of both. Theſe the court takes cognizance of, as well originally, as upon removal from the inferior courts. But a writ of error, in the nature of an appeal, lies from this court into the court of king's bench.

The other officers belonging to this court are, the cuſtos brevium; three prothonotaries, or prænotaries, and their ſecondaries; a chirographer; nine filazers; four exigenters; clerk of the warrants; clerk of the juries, or jurata writs; clerk of the treaſury; marſhal and aſſociate to the chief juſtice; clerk of the king's ſilver; clerk of the eſſoins; clerk of the outlawries; clerk of the errors, &c. whoſe ſeveral functions ſee in their places, Custos *brevium*, Chirographer, Exigenter, Clerk, &c. To theſe officers may be added a proclamator, a keeper of the court, cryer, and tipſtaffs; beſides the warden of the Fleet, there are alſo attornies of this court, whoſe number is unlimited; and none may plead at the bar of the court in term-time, or ſign any ſpecial pleadings, but ſerjeants at law.

Court *of Commiſſion of Review*, is formed by a commiſſion ſometimes granted, in extraordinary caſes, to reviſe the ſentence of the court of delegates; when it is apprehended they have been led into any material error. This commiſſion the king may grant, although the ſtatutes 24 and 25 Henry VIII. declare the ſentence of the delegates definitive; becauſe the pope, as ſupreme head of the canon law, uſed to grant ſuch commiſſion of review; and ſuch authority as the pope heretofore exerted is now annexed to the crown, by ſtatutes 26 Hen. VIII. c. 1. and 1 Eliz. c. 1. But this is not matter of right which the ſubject may demand "ex debito juſtitiæ," but only a matter of favour, and which is therefore often denied. 4 Inſt. 341.

Court *of High Commiſſion*, an eccleſiaſtical court erected and united to the regal power (4 Inſt. 324.), by virtue of the ſtatute 1 Eliz. c. 1. inſtead of a larger juriſdiction which had before been exerciſed under the authority of the pope. It was intended to vindicate the dignity and peace of the church, by reforming, ordering, and correcting the eccleſiaſtical ſtate and perſons, and all manner of errors, hereſies, ſchiſms, abuſes, offences, contempts, and enormities. Under theſe general words, means were deviſed in that and the ſucceeding reigns, to veſt in the high commiſſioners extraordinary and almoſt deſpotic powers of fining and impriſoning, which they exerted much beyond the degree of the offence itſelf, and frequently over offences by no means of ſpiritual cognizance. For theſe reaſons the court was juſtly aboliſhed by ſtatute 16 Car. I. c. 11: and the weak and illegal attempt to revive it, during the reign of king James II. ſerved only to haſten that infatuated prince's ruin. See *Hundred* Court.

Court *of Conſcience, Curia conſcientiæ.* In the 9th of Henry VIII. the *court of conſcience*, or *court of requeſts*, in London, was erected: there was then made an act of common council, that the lord mayor and aldermen ſhould aſſign monthly two aldermen and four diſcreet commoners, to be commiſſioners to ſit in this court twice a week, to hear and determine all matters brought before them between party and party, between citizens and freemen of London, in all caſes where the debt or damage was under forty ſhillings. And this act of common council is confirmed by the ſtat. 1 Jac. I., which empowers the commiſſioners of this court to make ſuch orders between the parties touching ſuch debts, as they ſhall find ſtand to equity and good conſcience. Alſo the ſtat. 3 Jac. I. c. 15. ſince explained and amended by 14 Geo. II. c. 10. farther eſtabliſhes this court; the courſe and practice whereof is by ſummons, to which, if the party appear, the commiſſioners proceed ſummarily; examining the witneſſes of both parties, or the parties themſelves, on oath; and as they ſee cauſe, give judgment. If the party ſummoned appear not, the commiſſioners have power to apprehend and commit him: alſo the commiſſioners have power to commit a perſon refuſing to obey their orders, &c. Vid. ſtat. 3 Jac. I.

By ſtat. 14 Geo. II. c. 10. the proceedings of the court of conſcience are regulated; and in caſe any perſon affront or inſult any of the commiſſioners, on their certifying it to the lord-mayor, he ſhall puniſh the offender by fine, not exceeding 20*s*., or may impriſon him ten days. The time and expence of obtaining ſummary redreſs in this court are very inconſiderable, which renders it a great benefit to trade; and hence many trading towns and other diſtricts have obtained acts of parliament for eſtabliſhing in them courts of conſcience upon nearly the ſame plan as that of London.

Court, *Conſiſtory.* See *Biſhop's* Court and Consistory.

Court *of the Coroner*, is a court of record, to enquire when any one dies in priſon, or comes to a ſudden and violent death, by what manner he came to his end. See Coroner.

Court, *County*, is a court of juſtice, but not a court of record, held in each county by the ſheriff thereof, or his deputy, every month. See Sheriff.

This county court had anciently the cognizance of matters of great moment; but it was much abridged by Magna Charta, and more by 1 Edward IV. But it has ſtill the determination of debts and treſpaſſes under forty ſhillings. In effect, till the courts at Weſtminſter were erected, the county courts were the chief courts of the kingdom.

Among the laws of king Edgar is this, *viz.* Let there be two county courts in a year, and let there be preſent a biſhop and an alderman or earl; one whereof ſhall judge according to the common law, the other according to the eccleſiaſtical law.—The conjunction of theſe two powers to aſſiſt each other, is as ancient as the Engliſh government itſelf. They were firſt ſeparated by William the Conqueror, who brought all the eccleſiaſtical buſineſs into a conſiſtory, erected for that purpoſe; and the law buſineſs into the king's bench.

The dignity of this court was much impaired, when the biſhop was prohibited, and the earl neglected to attend it. And in modern times, as proceedings are removeable from hence into the king's ſuperior courts, by writ of *pone* or *recordari*, in the ſame manner as from hundred courts and courts baron; and as the ſame writ of falſe judgment may be had, in nature of a writ of error, this has occaſioned the ſame diſuſe of bringing actions into it.

The county-court may hold plea of many real actions, and of all perſonal actions to any amount, by virtue of a ſpecial writ called a "juſticies," which is a writ empowering the ſheriff for the ſake of diſpatch to do the ſame juſtice in his county-court as might otherwiſe be had at Weſtminſter. The freeholders of the county are the real judges in this court, and the ſheriff is the miniſterial officer. The great conflux of freeholders attending at the county-court is the reaſon why all acts of parliament at the end of every ſeſſion were wont to be there publiſhed by the ſheriff; why all outlawries of abſconding offenders are there proclaimed; and why all popular elections made by the freeholders, as formerly of ſheriffs and conſervators of the peace, and ſtill of coroners, verderors, and knights of the ſhire, muſt ever be made *in pleno comitatu*, or in full county-court. By the ſtatute 2 Edw. VI. c. 25. no county-court ſhall be adjourned longer than for one month, conſiſting of 28 days, which appears to have been the ancient uſage. See *Hundred* Court.

Courts *of the Counties Palatine* of Cheſter, Lancaſter, and Durham, and of the *Royal Franchiſe* of Ely, are a ſpecies of private courts, with a limited and local juriſdiction, and having at the ſame time an excluſive cognizance of pleas, in matters both of law and equity. In theſe, as well as in the principality of Wales, the king's ordinary writs, iſſuing under the great ſeal out of chancery, are of no force; and ſince the privileges of theſe counties and franchiſes have been abridged, writs and proceſs iſſuing in the king's name, muſt be witneſſed in the name of the owner of the franchiſe. The judges of aſſiſe, who ſit here, ſit by virtue of a ſpecial commiſſion from the owners of the ſeveral franchiſes, and under their ſeal, and not by the uſual commiſſion under the great ſeal of England. See COUNTY *Palatine*.

COURT *of Delegates*, is a court where delegates or commiſſioners are appointed by the king's commiſſion, under the great ſeal, and iſſuing out of chancery, upon an appeal to him.

It is granted in three caſes: firſt, when a ſentence is given in an eccleſiaſtical cauſe, by the archbiſhop, or his official; ſecondly, when a ſentence is given in an eccleſiaſtical cauſe, in places exempt; thirdly, when ſentence is given in the admiralty court, in ſuits civil or marine, by order of the civil law. 4 Inſt. 339. Stat. 25 Hen. VIII. c. 19.

This is the higheſt court for civil affairs concerning the church; for the juriſdiction whereof it was provided, 25 Hen. VIII. that it ſhall be lawful for the ſubject, in caſe of defect of juſtice in the eccleſiaſtical courts, to appeal to the ſovereign in his court of chancery; whence a commiſſion is directed under the great ſeal to particular perſons therein mentioned, for redreſs of judgment. This commiſſion is frequently filled with lords ſpiritual and temporal, and always with judges of the courts at Weſtminſter, and doctors of the civil law. When the practice of appealing to them was ſet aſide, and the juriſdiction uſurped by the pope was reſtored to the crown, to which it originally belonged, (ſee APPEAL,) the ſtatute 25 Henry VIII. was enacted as declaratory of the ancient law of the realm. (4 Inſt. 341.) But in caſe the king himſelf be party in any ſuits, in which appeal is made, the appeal does not lie to him in chancery, which would be abſurd; but by ſtat. 24 Hen. VIII. c. 12. to all the biſhops of the realm, aſſembled in the upper houſe of convocation.

From the higheſt eccleſiaſtical court there lies no appeal but to the *court of delegates*; and beyond this to no other, except to the houſe of lords. But the king, of his free will, may grant a *commiſſion of review*, under the great ſeal. The citations run all in the king's name. See COMMISSION, and COURT *of Commiſſion of Review*.

COURT *of the Duchy Chamber of Lancaſter*, a court of ſpecial juriſdiction, held before the chancellor of the duchy, or his deputy, concerning all matters of equity relating to lands holden of the king in right of the duchy of Lancaſter, which is a thing very diſtinct from the county palatine (which hath alſo its ſeparate chancery for ſealing of writs, and the like), and compriſes ſuch territory which lies at a vaſt diſtance from it; as particularly a very large diſtrict ſurrounded by the city of Weſtminſter. The proceedings in this court are the ſame as in the equity ſide in the courts of exchequer and chancery (4 Inſt. 206.); ſo that it ſeems not to be a court of record:—and indeed it has been holden that theſe courts have a concurrent juriſdiction with the duchy court, and may take cognizance of the ſame cauſes. (1 Chan. Rep. 55. Toth. 145. Hard. 171.) The original of this court was in Henry the Fourth's time, who obtaining the crown by depoſition of Richard II. and having the duchy of Lancaſter by deſcent, in right of his mother, became ſeiſed thereof as king, not as duke. So that all the liberties, franchiſes, and juriſdictions of the ſaid county paſſed from the king, by his great ſeal, and not by livery, or attornment, as the earldom of March, and other poſſeſſions, which deſcended to him by other anceſtors than the king's, did.

Henry IV. by authority of parliament, ſevered the poſſeſſions, liberties, &c. of the ſaid duchy from the crown: but Edward IV. reſtored them to their former nature. See COUNTY *Palatine*.

The officers belonging to this court, which is held in Weſtminſter-hall, are, a chancellor, attorney-general, receiver-general, clerk of the court, and meſſenger; beſide the aſſiſtants, as an attorney in the exchequer, another in chancery, and four counſellors. See CHANCELLOR and ATTORNEY *of the Duchy*.

COURTS *Eccleſiaſtical*, *Curiæ eccleſiaſticæ*, are thoſe courts which are held by the king's authority, as ſupreme head of the church, for matters which chiefly regard religion. 4 Inſt. 321. See CHURCH and CLERGY.

In the time of our Saxon anceſtors there was no diſtinction between the lay and eccleſiaſtical juriſdiction; the county-court was as much a ſpiritual as a temporal tribunal: the rights of the church were aſcertained and aſſerted at the ſame time, and by the ſame judges, as the rights of the laity. For this purpoſe, the biſhop of the dioceſe, and the alderman, or in his abſence the ſheriff of the county, uſed to ſit together in the county-court, and had there the cognizance of all cauſes as well eccleſiaſtical as civil:—a ſuperior deference being paid to the biſhop's opinion in ſpiritual matters, and to that of the lay judges in temporal. (Ll. Eadgar, c. 5.) But the church of Rome indulged views of ambition that were inconſiſtent with this rational and moderate plan; and in the papal ſyſtem of policy, the eccleſiaſtical juriſdiction was to be ſole and ſupereminent, lodged firſt in the pope, by divine indefeaſible right and inveſtiture from Chriſt himſelf, and derived from the pope to all inferior tribunals. It was not, however, till after the Norman conqueſt, that this doctrine was received in England, when William I., under the influence of the monaſteries and foreign clergy, was induced to ſeparate the eccleſiaſtical court from the civil. The conſequence of this ſeparation was, that the Saxon laws were ſoon overborne by the Norman juſticiaries, when the county-court fell into diſregard by the biſhop's withdrawing his preſence, in obedience to the charter of the conqueror, which prohibited any ſpiritual cauſe from being tried in the ſecular courts, and commanded the ſuitors to appear before the biſhop only, whoſe deciſions were directed to be conformable to the canon law. King Henry I., among other reſtorations of the laws of king Edward the Confeſſor, revived the union of the civil and eccleſiaſtical courts; thus, according to ſir Edward Coke, reſtoring the ancient laws of England. The popiſh clergy, however, inſtigated by the arrogant archbiſhop Anſelm, diſapproved the meaſure, and in their ſynod at Weſtminſter, 3 Hen. I. ordained that no biſhop ſhould attend the diſcuſſion of temporal cauſes; and thus the newly-effected union was ſoon diſſolved. Upon the death of Henry I., the uſurper Stephen, brought in and ſupported by the clergy, propoſed an oath, that eccleſiaſtical perſons and eccleſiaſtical cauſes ſhould be ſubject only to the biſhop's juriſdiction. About this time the conteſt and emulation between the laws of England and thoſe of Rome commenced; the temporal courts adhering to the former, and the ſpiritual adopting the latter, as their rule of proceeding; and thus the breach between them was widened, and a coalition afterwards became impracticable, which might probably have been otherwiſe effected at the reformation of the church.

The laws and conſtitutions by which the church of England is governed, are divers immemorial cuſtoms; our own provincial conſtitutions and the canons made in convocations, particularly thoſe of 1603, ſtatutes or acts of parliament concerning religion or cauſes of eccleſiaſtical cognizance, eſpecially the rubrics in our common prayer book, founded upon the ſtatutes of uniformity; and the articles of religion drawn up in 1562, "articuli cleri," 9 E. 2. and eſtabliſhed by 33 Eliz. c. 12.; and as it is ſaid, the canon law, where all others fail.

The ſuits in ſpiritual or eccleſiaſtical courts, are for the reformation of manners, for puniſhing of hereſy, defamation, laying violent hands on a clerk, and the like; and ſome of their ſuits are to recover tythes, legacies, contracts of marriage, &c. and in cauſes of this nature, the courts may give coſts, but not damages. Things that properly belong to theſe juriſdictions, are matrimonial and teſtamentary; and defamatory words for which no action lies at law, as for calling a perſon adulterer, fornicator, uſurer, or the like. 11 Rep. 54. Dyer. 240. The proceedings in the eccleſiaſtical courts are according to the civil and canon law; by citation, libel, anſwer upon oath, proof by witneſſes, and preſumptions, &c. and after ſentence for contempt, by excommunication: and if the ſentence is diſliked, by appeal. The juriſdiction of theſe courts is voluntary or contentious; and the puniſhments inflicted by them, are cenſures and puniſhments *pro ſalute animæ*, by way of penance, &c. They are not courts of record. See Audience.

Theſe courts having contributed to the exerciſe of grievous oppreſſion on perſons charged with trivial offences within their ſpiritual juriſdiction, the ſtatute 27 Geo. III. c. 44. limits the time of commencing ſuits for defamatory words to ſix months; and for incontinence and beating in the church-yard to eight months.

Court *of Enquiry*, in *Military Matters*, a meeting or aſſemblage of officers, who are empowered and authorized to enquire into the conduct of the commander of an expedition, a corps, or a party: or to examine and inveſtigate whether there be ſufficient ground for a court martial on ſuch part or parts of a perſon or perſons conduct as is or are ſubmitted to their conſideration. Courts of enquiry cannot themſelves award puniſhment, but muſt report the reſult of their inveſtigations to the officer, by whoſe orders they were aſſembled. Courts of enquiry are alſo appointed to examine into the quality and diſtribution of military or warlike ſtores.

Court *of Exchequer*, an ancient court of record, in which all cauſes touching the revenue and rights of the crown are heard and determined; and where the revenues of the crown are received. It is called the exchequer, *ſcaccharium*, as ſome ſay, from the chequer-wrought carpet, reſembling a cheſs-board, which covered the table in that court; and on which, when certain accounts of the king are made up, the ſame are marked and ſcored with counters. Others ſay, that it derived its name from the pavement of the court, which was chequered; and others refer the origin of its appellation to the chequers, or cheſs-boards, uſed in their computations by the accountants in their office. This court, though inferior in rank not only to the court of king's bench, but alſo to the common pleas, is nevertheleſs very ancient; and the inſtitution of it is aſcribed to William the Conqueror, who formed the plan of it from the exchequer in Normandy, with many important alterations. Some perſons have ſuggeſted that there was an exchequer under the Anglo-Saxon kings; but the moſt approved writers aſcribe the introduction of it to William I. who eſtabliſhed it, as part of the *aula regia*. It was, however, regulated and reduced to its preſent order by Edward I.; and is intended principally to order the revenues of the crown, and to recover the king's debts and duties. (4 Inſt. 103. 116.) It conſiſts of two diviſions; the receipt of the exchequer which manages the royal revenue, and the court or judicial part of it, which is again ſubdivided into a court of equity, and a court of common law.

On account of the authority and dignity of the court of exchequer, it was anciently held in the king's palace; and its acts were not to be examined or controuled in any other of the king's ordinary courts of juſtice. The exchequer was the great repoſitory of records belonging to the other courts at Weſtminſter, &c. which were brought to be laid up in the treaſury there. Writs of the chancery were ſometimes iſſued from the exchequer, and writs of ſummons to aſſemble parliament, &c. The exchequer has been commonly held at Weſtminſter, the uſual place of the king's reſidence; but it hath been ſometimes holden in other places, at the king's pleaſure. In the exchequer there are ſeven courts; *viz.* the court of pleas; the court of accounts; the court of receipts; the court of the exchequer chamber, (being the aſſembly of all the judges of England for difficult matters in law;) the court of exchequer-chamber for errors in the court of exchequer; for errors in the king's bench: and the court of equity in the exchequer-chamber. (4 Inſt. 119.) However, for the diſpatch of all common buſineſs, the exchequer, as we have already obſerved, is divided into two parts; one converſant, more eſpecially in the judicial hearing and deciding of cauſes pertaining to the prince's coffers, anciently called "ſcaccharium computorum," and the other, the receipt of the exchequer, which is employed in the receiving and diſburſing of money. By ſtatute, all ſheriffs, bailiffs, &c. are to account in the exchequer before the treaſurer and barons, and annual rolls are to be made of the profits of counties, &c. Alſo inquiſitions ſhall be appointed in every county, of debts due to the king. (51. Hen. III. ſt. 5. 10 Edw. I. ſtat, Rutl.) And all fines of counties for the whole year are to be ſent into the exchequer. (Stat. de vicecom. 14 Ed. II. c. 1.) Perſons impeached in the exchequer may plead in their own diſcharge; and there ſhall be writs for diſcharging perſons, &c. (5 Ric. II. c. 10. 14.) The officers of the receipt may receive and take for their fees 1*d.* in the pound for ſums iſſued out, &c. (5 & 6 W. & M. c. 16.) Officers of the exchequer are without delay to receive money brought thither; and the money on the receipt is to be kept in cheſts under three different locks and keys, kept by three ſeveral officers, &c. (8 & 9 W. III. c. 28.)

The *court of equity*, is held in the exchequer-chamber before the lord-treaſurer, the chancellor of the exchequer, the lord chief baron, and three *puiſné* barons. Theſe Mr. Selden (Tit. Hon. 2. 5. 16.) conjectures to have been anciently made out of ſuch as were barons of the kingdom, or parliamentary barons, and thence to have derived their name, which conjecture is much ſtrengthened by Bracton's explanations of magna charta (c. 14.) which directs that the earls and barons be amerced by their peers, that is, ſays he, by the barons of the exchequer. In this court there alſo ſits a *curſitor baron*; which ſee.

The primary and original buſineſs of this court is to call the king's debtors to account by bill filed by the attorney-general, and to recover any lands, tenements, or hereditaments, any goods, chattels, or other profits or benefits, belonging to the crown, ſo that by their original conſtitution the juriſdiction of the courts of common-pleas, king's bench, and exchequer, was entirely ſeparate and diſtinct: the common pleas being intended to decide all controverſies between ſubject and ſubject; the king's bench to correct all crimes and miſdemeſnors that amount to a breach of the peace, the king being the plaintiff, as ſuch offences are in open derogation of the *jura regalia* of his crown; and the exchequer to adjuſt and recover his revenue, wherein the king alſo is plaintiff, as the withholding and non-payment thereof is an injury to his *jura fiſcalia*. But, as by a fiction almoſt all ſorts of civil actions are now allowed to be brought in the king's bench, in like manner by another fiction all kinds of perſonal ſuits may be proſecuted in the court of exchequer. For as all the miniſters and officers of this court have, like thoſe of other ſuperior courts, the privilege of ſuing and being ſued, only in their own court; ſo alſo the king's debtors and farmers, and all accomptants of the exchequer, are privileged to ſue and implead all manner of perſons in the ſame court of equity, into which they themſelves are called. They have likewiſe privilege to ſue and implead one another, or any ſtranger, in the ſame kind of common law actions (where the perſonalty only is concerned) as are proſecuted in the court of common pleas. This gives original to the *common law* part of their juriſdiction, which was eſtabliſhed merely for the benefit of the king's accomptants, and is exerciſed by the barons only of the exchequer, and not the treaſurer or chancellor. The writ upon which all proceedings here are grounded is called a *quo minus*; in which the plaintiff ſuggeſts that he is the king's farmer or debtor, and that the defendant hath done him the injury or damage complained of; *quo minus ſufficiens exiſtit*, in which he is the leſs able to pay the king his debt or rent. And theſe ſuits are expreſsly directed, by what is called the ſtatute of Rutland, (10 Edw. I. c. 11.) to be confined to ſuch matters only, as ſpecially concern the king or his miniſters of the exchequer. And by the *articuli ſuper cartas* (28 Edw. c. 4.) it is enacted, that no common pleas be thenceforth holden in the exchequer, contrary to the form of the great charter. But now by the ſuggeſtion of privilege, any perſon may be admitted to ſue in the exchequer as well as the king's accomptant. The ſurmiſe of being debtor to the king is, therefore, become matter of form and mere words of courſe, and the court is open to all the nation equally. The ſame holds with regard to the *equity* ſide of the court; for there any perſon may file a bill againſt another upon a bare ſuggeſtion that he is the king's accomptant; but whether he is ſo, or not, is never controverted. In this court, on the equity ſide, the clergy have long been accuſtomed to exhibit their bills for the non-payment of tithes, in which caſe the ſurmiſe of being the king's debtor is no fiction, they being bound to pay him their firſt-fruits and annual tenths. But the chancery has of late years obtained a large ſhare in this buſineſs. In the court of equity the proceedings are by Engliſh bill and anſwer, agreeably to the practice of the high court of chancery. In this court the attorney-general brings bills for any matters concerning the king; and any perſon, grieved in any cauſe proſecuted againſt him on behalf of the king, may bring his bill againſt the attorney-general to be relieved in equity, in which caſe the plaintiff muſt attend the king's attorney with a copy of the bill, and procure him to anſwer the ſame; and the attorney-general may call any that are intereſted in the cauſe, or any officer or others, to inſtruct him in framing his anſwer, ſo that the king be not prejudiced by it; and his anſwer is to be put in without oath. (4 Inſt. 119, 112, 118.)

An appeal from the equity ſide of this court lies immediately to the houſe of peers; but from the common law ſide, in purſuance of the ſtatute 31 Edw. III. c. 12. a writ of error muſt firſt be brought into the court of exchequer-chamber. And from the determination there had, there lies, in the *dernier reſort*, a writ of error to the houſe of lords. The chancellor, or under-treaſurer, hath the cuſtody of the ſeal of this court. See Chancellor *of the Exchequer*. For the office of the *attorney-general*, ſee that article. See alſo Remembrancer, Chamberlain, Clerk and Comptroller *of the Pipe*, Clerk *of the Eſtreats*, *Foreign* Opposers, Auditor, Teller, Clerk *of the Pells*, Clerk *of the Nihils*, Clerk *of the Pleas*, &c. &c.

By 23 Geo. III. c. 82, the officers of the two chamberlains, the tally cutter, uſher of the exchequer, and the ſecond clerks to each teller, ſhall, after the death, ſurrender, forfeiture, or removal of the perſons intereſted in them, be aboliſhed. Upon the death, &c. of the two chamberlains, inſtead of the tally now uſed to denote the receipt of money, there ſhall be ſubſtituted an indented cheque receipt. And upon the death, &c. of the uſher, the chief officer in each office ſhall ſupply his place. After the death, &c. of the preſent auditor, clerk of the pells, either of the four tellers, or two chamberlains, the payment of all ſalaries, fees, and emoluments *to the ſaid officers*, ſhall ceaſe, and in lieu thereof, certain annual ſalaries are made payable, *viz.* to the auditor 4000*l.*, his chief clerk 1000*l.*, clerk of the pells 3000*l.*, his firſt clerk 1000*l.*; the four tellers each 2700*l.*, and each of their firſt clerks 1000*l.* Theſe are to appoint ſuch other clerks and officers as they think fit, to be approved by the treaſury. All fees as heretofore (ſee ſtat. 26 Geo. III. c. 99.) to be received by the firſt clerk to the clerk of the pells; (200*l.* of whoſe ſalary is on that account;) two-thirds thereof to be applied to the ſinking fund, and one-third to pay the above ſalaries. The houſes of the auditor, four tellers, and uſher, ſhall, after the death, &c. of the preſent poſſeſſors, be veſted in his majeſty, and not annexed to the offices. And no office in the receipt of the exchequer may be granted either in poſſeſſion or reverſion, in any other manner, than ſubject to this act.

The court of exchequer in Scotland has the ſame power, authority, privilege, and juriſdiction over the revenue of Scotland, as the court of exchequer in England has over the revenues there; and all things and matters competent to the court of exchequer in England, ſo far as they relate to the king's revenue, are likewiſe competent to the exchequer of Scotland, with theſe limitations, *viz.* that no debt due to the crown ſhall affect the debtor's real eſtate in any other manner than ſuch eſtate may be affected by the laws of Scotland; and that the validity of the crown's titles to any honours or lands ſhall continue to be tried by the court of ſeſſion. The judges are likewiſe inveſted with the power of paſſing ſignatures, gifts, and tutories, and to reviſe and compound them in the ſame manner as was done by the lord high treaſurer, commiſſioners of the treaſury, and court of exchequer in Scotland, before the union. But though all theſe muſt paſs in exchequer, it is the court of ſeſſion only that can judge of their preference, after they are completed. This court conſiſts of the lord high treaſurer of Great Britain, and a chief baron, with ſome other barons of the exchequer; and all ſerjeants at law, barriſters at law, of five years ſtanding, in any of the four inns of court of England, and advocates of five years ſtanding, in the college of juſtice in Scotland, are qualified for being barons of this court; whoſe commiſſions are "quam diu ſe bene geſſerint."

Court *of Exchequer Chamber*, a court of appeal for correcting the errors of other juriſdictions; firſt erected by ſtatute 31 Edw. III. c. 12. to determine cauſes upon writs of error for the common law ſide of the court of exchequer. To that end it conſiſts of the lord chancellor and lord treaſurer, taking unto them the juſtices of the king's bench and common pleas. In imitation of this, a ſecond court of exchequer chamber was erected by ſtatute 27 Eliz. c. 8. conſiſting of the juſtices of the common pleas and the barons of the exchequer, before whom writs of error may be brought, to reverſe judgments in certain ſuits originally begun in the court of king's bench. In this court there are no more than two return-days in every term; one called the general "affirmance-day," appointed by the judges to be held a few days after the commencement of every term, for the general affirmance or reverſal of judgments; the other the "adjournment-day," uſually held a day or two before the end of every term. On the firſt of theſe days, judgments are affirmed or reverſed, or writs of error non-proſſed; the intent of the latter is to finiſh ſuch matters as were left undone at the former;—on which laſt day (as well as on the firſt) judgments may be affirmed or reverſed, or writs of error non-proſſed, on paying a fee extraordinary to the clerk of the errors, and ſetting down the cauſe for affirmance two days before the adjournment-day. (Impey, K. B. 678.)

Into the court of exchequer chamber (which then conſiſts of all the judges of the three ſuperior courts, and now and then the lord chancellor alſo), are ſometimes adjourned from the other courts ſuch cauſes as the judges, upon argument, find to be of great weight and difficulty, before any judgment is given upon them in the court below. (4 Inſt. 119. 2 Bulſtr. 146.)

Court *of Faculties* in England, belongs to the archbiſhop of Canterbury, and his chief officer is called "magiſter ad facultates." His power, by the ſtat. 25 Hen. VIII. c. 21. is to grant diſpenſations, as to marry perſons without the banns being firſt aſked, (and every dioceſan may make the like grants,) to ordain a deacon under age, for a ſon to ſucceed the father in his benefice, one perſon to have two or more benefices incompatible, &c. And in this court are regiſtered the certificates of biſhops and noblemen granted to their chaplains, to qualify them for pluralities and nonreſidence. (4 Inſt. 337.)

The office where ſuch diſpenſations are taken out, is alſo called the *Faculty office*.

Courts *of Foreſt*, are courts of private and ſpecial juriſdiction, inſtituted for the government of the king's foreſts in different parts of the kingdom; and for the puniſhment of all injuries done to the king's deer or veniſon, to the vert or greenſweld, and to the covert, in which ſuch deer are lodged. Theſe are the courts of *Attachments*, of *Regard*, of *Sweinmote*, and of *Juſtice-ſeat*; which ſee reſpectively.

Court, *Hundred*, is a larger *Court-baron*, held for all the inhabitants of a particular hundred, inſtead of a manor. The free ſuitors are here the judges, and the ſteward the regiſtrar, as in the caſe of a court-baron. This is likewiſe no court of record; reſembling the former in all points, except that in point of territory it is of a greater juriſdiction. (Finch. L. 248. 4 Inſt. 267.) Sir Edward Coke ſays, (2 Inſt. 71.) that this was derived out of the county-court, for the eaſe of the people, that they might have juſtice done them at their own doors, without any charge or loſs of time; but its inſtitution was probably coëval with that of hundreds themſelves, which ſeem to have been introduced, though not invented, by Alfred, being derived from the polity of the ancient Germans. (See Hundred.) Cæſar (De Bell. Gall. l. vi. c. 2.) ſpeaks poſitively of the judicial power exerciſed in their hundred courts and courts-baron. And Tacitus (De Morib. Germ. c. 13.) informs us not only of the authority of the lords, but of that of the *centeni*, the hundredors or jury; who were taken out of the common freeholders, and had themſelves a ſhare in the determination. This hundred-court was denominated "hæreda" in the Gothic inſtitution. But this court, as all cauſes are equally liable to removal from hence, as from the common court-baron, and by the ſame writs, and may alſo be reviewed by writ of falſe judgment, is therefore fallen into equal diſuſe with regard to the trial of actions.

Judge Blackſtone obſerves, that many inconveniences have ariſen from the diſuſe of the ancient county and hundred-courts; in which cauſes of ſmall value were always formerly decided, with very little trouble and expence to the parties. This mode he thinks much preferable to that of multiplying courts of conſcience, in derogation of the common law, and by veſting in ſtanding commiſſioners large diſcretionary powers, which tend to create a petty tyranny; and which, by a diſuſe of the trial by jury, may tend to eſtrange the minds of the people from that valuable prerogative of Engliſhmen. He therefore wiſhes, that the proceedings in the county and hundred-courts could again be revived, and duly regulated. The experiment, he ſays, has been actually tried, and has ſucceeded in the populous county of Middleſex, and this might ſerve as an example to others. For by ſtatute 23 Geo. II. c. 33. it is enacted, 1. That a ſpecial county-court ſhall be held at leaſt once a month in every hundred of the county of Middleſex, by the county-clerk. 2. That twelve freeholders of that hundred, qualified to ſerve on juries, and ſtruck by the ſheriff, ſhall be ſummoned to appear at ſuch court by rotation; ſo as none ſhall be ſummoned oftener than once a year. 3. That in all cauſes, not exceeding the value of 40*s*., the county-clerk and twelve ſuitors ſhall proceed in a ſummary way, examining the parties and witneſſes on oath, without the formal proceſs anciently uſed; and ſhall make ſuch order therein as they ſhall judge agreeable to conſcience. 4. That no plaints ſhall be removed out of this court, by any proceſs whatſoever; but the determination herein ſhall be final. 5. That if any action be brought in any of the ſuperior courts againſt a perſon reſident in Middleſex, for a debt or contract, upon the trial of which the jury ſhall find leſs than 40*s*. damages, the plaintiff ſhall recover no coſts, but ſhall pay the defendant double coſts; unleſs upon ſome ſpecial circumſtances, to be certified by the judge who tried it. 6. A table of very moderate fees is preſcribed and ſet down in the act; which are not to be exceeded upon any account whatſoever. This, ſays the learned judge, is a plan entirely agreeable to the conſtitution and genius of the nation; calculated to prevent a multitude of vexatious actions in the ſuperior courts, and at the ſame time to give honeſt creditors an opportunity of recovering ſmall ſums; which they are now frequently deterred from by the expence of a ſuit at law:—a plan which, one would think, wants only to be generally known, in order to its univerſal reception.

Court *of Huſtings*, a court of record, held before the lord mayor and aldermen of London, the ſheriffs, and recorder, in Guildhall. 4 Inſt. 247.

Of the great antiquity of this court we find this mention in the laws of king Edward the Confeſſor. "Debet etiam in London. quæ eſt caput regni & legum, ſemper curia domini regis ſingulis ſeptimanis, die Lunæ *huſtingis* ſedere & teneri: fundata erat olim & ædificata ad inſtar & ad modum & in memoriam veteris magnæ Trogæ, & uſque in hodiernum diem, leges, & jura & dignitates, & libertates regiaſque conſuetudines ſuas una ſemper inviolabilitate conſervat." Taylor, Hiſt. of Gavel-kind.

The court of huſtings is the principal and higheſt of all the courts of the city. This court determines all pleas, real, perſonal, and mixt: and here all lands, tenements, and hereditaments, rents, and ſervices within the city of London, and ſuburbs of the ſame, are pleadable in two huſtings; the one called huſtings of plea of lands, and the other called huſtings of common pleas. Error or attaint lies there of a judgment or falſe verdict in the ſheriff's courts.

In the huſtings of plea of lands are brought writs of right patent, directed to the ſheriffs of London, on which writs the tenant ſhall have three ſummonſes at the three huſtings next following; and after the three ſummonſes, there ſhall be three eſſoins at three other huſtings next enſuing; and at the next huſtings after the third eſſoin, if the tenant makes default, proceſs ſhall be had againſt him by *grand cape*, or *petit cape*, &c. If the tenant appears, the demandant is to declare in the nature of what writ he will, without making proteſtation to ſue in nature of any writ: then the tenant ſhall have the view, &c.; and if the parties plead to judgment, the judgment ſhall be given by the recorder; but no damages, by the cuſtom of the city, are recoverable in any ſuch writ of right patent. In the huſtings of common pleas are pleadable writs *ex gravi querela*, writs of *gavelet*, of *dower*, *waſte*, &c.; alſo, writs of *exigent* are taken out in the huſtings; and at the fifth huſtings the outlawries are awarded, and judgment pronounced by the Recorder.

If an erroneous judgment is given in the huſtings, the party grieved may ſue a commiſſion out of chancery, directed to certain perſons to examine the record, and thereupon do right. (1 Rol. Abr. 745.) From the judgment of juſtices appointed by the king's commiſſion, a writ of error lies immediately to the houſe of lords. In the court of huſtings the burgeſſes to ſerve for the city in parliament muſt be elected by the livery of the reſpective companies.

COURT, *Juſticiary*. See JUSTICIARY.

COURT *of Juſtice*. See *Court of* SESSION.

COURT *of King's Bench*, *Bancus Regius*, is the ſupreme court of common law in the kingdom; ſo called, becauſe the king uſed formerly to ſit there in perſon, the ſtyle of the court ſtill being *coram ipſo rege*. (4 Inſt. 73.) During the reign of a queen, it is called "queen's bench," and during the uſurpation of Cromwell, it was denominated "upper bench." This court conſiſts of a chief juſtice, and three *puiſné* juſtices, (formerly four or five) who are by their office the ſovereign conſervators of the peace, and ſupreme coroners of the land. Although the king himſelf uſed to ſit in this court, and is ſtill ſuppoſed to do ſo; yet he did not, neither by law is he empowered to, determine any cauſe or motion, but by the mouth of his judges, to whom he hath committed his whole judicial authority. In the *aula regia*, indeed, the king uſed to decide cauſes in perſon. After its diſſolution, king Edward I. frequently ſat in the court of king's bench, and in later times, James I. is ſaid to have ſat there in perſon, but he was informed by his judges that he could not deliver an opinion. This court, which is the remnant of the *aula regia*, muſt, from its nature, follow the king's perſon wherever he goes; and, therefore, all proceſs iſſuing out of this court in the king's name is returnable "ubicunque fuerimus in Anglia." For ſome centuries paſt it hath uſually ſat at Weſtminſter, being an ancient palace of the crown; but it might remove any where elſe, and its moveable quality, as well as its dignity and power, is fully expreſſed by Bracton (l. 3. c. 10.) and is ſpecially provided for by the "articuli ſuper cartas," (28 Edw. I. c. 5.)

This court hath always retained a ſupreme original juriſdiction in all criminal matters, the proceſs iſſuing from, and being returnable into it; but in treſpaſs it might be made returnable into either the king's bench or common pleas, becauſe the plea was criminal as well as civil.

The juriſdiction of this court is very high and tranſcendent. It keeps all inferior juriſdictions within the bounds of their authority, and may either remove their proceedings to be determined here, or prohibit their progreſs below. It ſuperintends all civil corporations in the kingdom. It commands magiſtrates and others to do what their duty requires, in every caſe where there is no other ſpecific remedy. It protects the liberty of the ſubject, by ſpeedy and ſummary interpoſition. It takes cognizance both of criminal and civil cauſes; the former in what is called the *crown-ſide*, or *crown-office*; the latter in the *plea-ſide* of the court.

On the *crown*-ſide, or *crown-office*, it takes cognizance of all criminal cauſes, from high treaſon, down to the moſt trivial miſdemeſnor or breach of the peace. Into this court alſo indictments from all inferior courts may be removed by way of *certiorari*, and tried either at bar, or at *niſi prius*, by a jury of the county out of which the indictment is brought. The judges of this court are the ſupreme coroners of the kingdom; and the court itſelf is the principal court of criminal juriſdiction known to the laws of England On this account, by the coming of the court of king's bench into any county, all former commiſſions of *oyer* and *terminer*, and general gaol-delivery, are at once abſorbed and determined *ipſo facto*. (4 Inſt. 173. 2 Hawk. P. C. c. 3.) With regard, however, to the ſeſſion of gaol-delivery for Middleſex, the ſtatute 25 Geo. III. c. 18. enacts, that when any ſeſſion of *oyer* and *terminer*, and gaol-delivery of the gaol of Newgate, for the county of Middleſex, ſhall have begun to be holden before the eſſoign day of any term, the ſame ſeſſions ſhall continue to be holden, and the buſineſs finally concluded, notwithſtanding the happening of ſuch eſſoign day of any term, or the ſitting of his majeſty's court of king's bench at Weſtminſter, or elſewhere, in the county of Middleſex; and that all trials, &c. had at ſuch ſeſſion ſo continued to be holden, ſhall be good and effectual, to all intents and purpoſes. Into this court of king's bench reverted all that was good and ſalutary of the COURT *of Star-Chamber*; which ſee.

This court is often termed the *cuſtos morum* of all the realm; and wherever it meets with an offence contrary to the firſt principles of juſtice, and of dangerous conſequence, if not reſtrained, it may adapt a proper puniſhment to it. For the better reſtraining ſuch offences, it has a diſcretionary power of inflicting exemplary puniſhment on offenders, either by fine, impriſonment, or other infamous puniſhment, as the nature of the crime, conſidered in all its circumſtances, ſhall require. It may make uſe of any priſon which ſhall ſeem moſt proper; and it is ſaid, that no other court can remove or bail perſons condemned to impriſonment by this court. (2 Hawk. P. C c. 3. § 5.)

An act of parliament, appointing, that all crimes of a certain denomination, ſhall be tried before certain judges, does not exclude the juriſdiction of this court, without expreſs negative words; and therefore it has been reſolved, that the ſtatute 33 Hen. VIII. c. 12, which enacts, that all treaſons, &c. within the king's houſe, ſhall be determined before the lord ſteward of the king's houſe, does not reſtrain the court of king's bench from proceeding againſt ſuch offences. (2 Inſt. 549.) But where a ſtatute creates a new offence, which was not taken notice of by the common law, and erects a new juriſdiction for the puniſhment of it, and preſcribes a certain method of proceeding, it ſeems queſtionable how far this court has an implied juriſdiction in ſuch a caſe. (1 Sid. 296. 2 Hawk. P. C. c. 3. § 6.

The judges of this court are the ſovereign juſtices of oyer and terminer, gaol-delivery, conſervators of the peace, &c. and alſo the ſovereign coroners; and therefore, where the ſheriffs and coroners may receive appeals by bill, *a fortiori,* the judges may. Alſo this court may admit perſons to bail in all caſes according to their diſcretion. (4 Inſt. 73. 9 Co. 118. *b.* 4 Inſt. 74. Vaugh. 157.)

In the county where the king's bench ſits, there is every term a grand inqueſt for preſenting all criminal matters ariſing within that county, and then the court proceeds upon indictments ſo taken; or if, in vacation, there be any indictment of felony before the juſtices of peace of *oyer* and *terminer,* or gaol-delivery, there ſitting, it may be removed by *certiorari* into B. R. and there they proceed *de die in diem.* (2 Hale's Hiſt. P. C. 3.) It may award execution againſt perſons attainted in parliament, or any other court; when the record of their attainder, or a tranſcript is removed, and their perſons brought thither by *habeas corpus.* (Cro. Car. 176. Cro. Jac. 495.)

Pardons of perſons condemned by former juſtices of gaol-delivery ought to be allowed in B. R.; the record and priſoner being removed thither by *certiorari* and *habeas corpus.* (2 Hawk. P. C. c. 6. § 19.)

On the *plea* ſide, or civil branch, of this court, it hath an original juriſdiction and cognizance of all actions of treſpaſs, or other injury alleged to be committed *vi et armis*; of actions for forgery of deeds, maintenance, conſpiracy, deceit, and actions on the caſe which allege any falſity or fraud; all of which ſavour of a criminal nature, although the action is brought for a civil remedy; and make the defendant liable in ſtrictneſs to pay a fine to the king, as well as damages to the injured party. (Finch. L. 198. 2 Inſt. 23.) The ſame doctrine is alſo now extended to all actions of the caſe whatſoever. (F. N. B. 86, 92. 1 Lilly, pract. reg. 503.) but no action of debt or detinue, or other mere civil action, can by the *common law* be proſecuted by any ſubject in this court, by *original* writ out of chancery. (4 Inſt. 76.); though an action of debt, given by *ſtatute,* may be brought in the king's bench as well as in the common pleas. (Carth. 234.) And yet this court might always have held plea of any civil action (other than actions real) provided the defendant was an officer of the court, or in the cuſtody of the marſhal, or priſon-keeper, of this court; for a breach of the peace, or any other offence. (4 Inſt. 71.) And in proceſs of time, it began by a fiction to hold plea of all perſonal actions whatſoever, and has continued to do ſo for ages (Ibid. 72.); it being ſurmiſed that the defendant is arreſted for a ſuppoſed treſpaſs, which he never has in reality committed; and, being then in the cuſtody of the marſhal of this court, the plaintiff is at liberty to proceed againſt him for any other perſonal injury; which ſurmiſe, of being in the marſhal's cuſtody, the defendant is not at liberty to diſpute.

Theſe fictions of law, though at firſt they may ſtartle the ſtudent, he will find, upon farther conſideration, to be highly beneficial and uſeful; eſpecially as this maxim is ever invariably obſerved, that no fiction ſhall extend to work an injury; its proper operation being to prevent a miſchief, or remedy an inconvenience, that might reſult from the general rule of law. (3 Rep. 30. 2 Roll. Rep. 502.) So true it is, that *in fictione juris ſemper ſubſiſtit æquitas.* (11 Rep. 51. Co. Litt. 150.) In the preſent caſe, it gives the ſuitor his choice of more than one tribunal, before which he may inſtitute his action; and prevents the circuity and delay of juſtice, by allowing that ſuit to be originally, and in the firſt inſtance, commenced in this court, which, after a determination in another, might ultimately be brought before it on a writ of error.

Although common pleas cannot be immediately holden in *Banco Regis,* becauſe ſuch pleas muſt be held in a certain place, without following the king's court, whence the court of king's bench cannot determine a mere real action; yet, when there is a defect in the court, in which, by law, they are holden originally, they may be holden in B. R.; as if a record come out of the common pleas by writ of error; ſo where the plea in a writ of right is removed out of the county by a *pone* in B. R. on a writ of *meſne replevin,* &c. (2 Inſt. 23. 4 Inſt. 72, 113. Saund. 256. Shaw. P. C. 57.) Thus, any action, *vi et armis,* where the king is to have fine, as ejectment, treſpaſs, forcible entry, &c. being of a mixed nature, may be commenced in B. R. (2 Inſt. 23.) Alſo any officer or miniſter of the court entitled to the privilege thereof may be there ſued by bill in debt, covenant, or other perſonal action; for the act takes not away the privilege of the court. (2 Inſt. 23. 4 Inſt. 71. 2 Bulſtr. 123.)

This court is likewiſe a court of appeal, into which may be removed, by writ of error, all determinations of the court of common pleas, and of all inferior courts of record in England; and to which a writ of error lies alſo from the court of king's bench in Ireland. Yet even this ſo high and honourable court is not the *dernier reſort* of the ſubject; for, if he be not ſatisfied with any determination here, he may remove it by writ of error into the houſe of lords, or the court of exchequer-chamber, as the caſe may happen, according to the nature of the ſuit, and the manner in which it has been proſecuted. This court has not only the power to reverſe erroneous judgments, for ſuch errors as appear the defect of the underſtanding; but alſo to puniſh all inferior magiſtrates, and all officers of juſtice, for wilful and corrupt abuſes of their authority againſt the obvious principles of natural juſtice. (2 Hawk. P. C. c. 3. § 10. Vaugh. 157. 1 Salk. 201.)

This court grants writs of *habeas corpus* to relieve perſons wrongfully impriſoned, and may bail any perſon whatſoever. Writs of *mandamus* are granted by this court, to reſtore officers in corporations, colleges, &c. unjuſtly turned out; and freemen wrongfully disfranchiſed:—alſo, writs and informations in the nature of a *quo warranto* againſt perſons, or corporations, uſurping franchiſes and liberties againſt the king; and on miſuſer of privileges to ſeize the liberties, &c. In this court alſo the king's letters patent may be repealed by *ſcire facias,* &c. *Prohibitions* are alſo iſſued from this court to keep inferior courts within their proper juriſdiction.

The officers of this court, on the *crown* ſide, are the king's coroner and attorney, commonly called the clerk of the crown, or maſter of the crown-office, who taxes coſts, nominates all ſpecial juries on the crown-ſide, takes recognizances, inquiſitions upon the death of any priſoner dying in the king's bench priſon, &c.:—the ſecondary, who draws up the paper-books, and makes up an eſtreat of all fines, &c. forfeited to the crown:—clerk of the rules:—the examiner; and calendar-keeper:—and clerks in court.

The officers on the *plea*-ſide are, the chief clerks; ſecondary, or maſter; their deputy, marſhal, clerk of the rules, clerk of the papers, clerk of the day-rules, clerk of the dockets, clerk of the declarations, clerk of the bail, *Poſteas,* and eſtreats, ſigners of writs, ſigner of the bills of Middleſex, *Cuſtodes Brevium,* clerk of the upper treaſury, clerk of the outer treaſury, filazer, exigenter, clerk of the outlawries, clerk of the errors, deputy-marſhal, marſhal and aſſociate to the chief juſtice, train-bearer, clerk of the *Niſi prius* in London and Middleſex, clerks of the *Niſi prius* to the different counties appointed by the *Cuſtos Brevium*, crier at *Niſi prius* in London and Middleſex, receiver-general of the ſeal-office, criers, uſhers, and tipſtaffs. See SECONDARY, CUSTOS *Brevium*, CLERK *of the Papers*, *of the Declarations*, *of the Errors*, *of the Bails*, *of the Rules*, &c. SIGNER and SEALER, FILAZER, MARSHAL, CRYER, &c.

In this court there are two modes of proceeding; *viz.* by *original writ*, or by *bill*. The former is generally uſed when the debt is large, becauſe the defendant, if he means to delay execution of the judgment, muſt bring his writ of error returnable in parliament, which greatly enhances the expence; but the latter is more expeditious.

COURT *leet*, or *View of Frank-pledge*, is a court of record, ſaid to be the moſt ancient in the land for criminal matters, and to have been co-eval with the eſtabliſhment of the Saxons here. See FRANK-PLEDGE and LEET. This court is held once in the year or oftener, (commonly twice, *i. e.* within a month after Eaſter and a month after Michaelmas) within a particular hundred, lordſhip, or manor, before the ſteward of the leet; being the king's court granted by charter to the lords of thoſe hundreds or manors; and it has the ſame juriſdiction within ſome particular precinct, as the ſheriff's tourn hath in the county. Its original intent was to view the frank-pledges, that is, the freemen within the liberty: who, according to the inſtitution of the great Alfred, were all mutually pledges for the good behaviour of each other. Beſides this, the preſervation of the peace, and the chaſtiſement of divers minute offences againſt the public good, are the objects both of the court-leet and the ſheriff's tourn:—which have exactly the ſame juriſdiction, one being only a larger ſpecies of the other; extending over more territory, but not over more cauſes. All freeholders within the precinct are obliged to attend them, and all perſons commorant therein; which commorancy conſiſts in uſually lying there;—a regulation, which owes its original to the laws of king Canute. But perſons under 12 and above 60 years old, peers, clergymen, women, and the king's tenants in ancient demeſne, are excuſed from attendance there: all others being bound to appear upon the jury, if required, and to make their due preſentments. It was alſo anciently the cuſtom to ſummon all the king's ſubjects, as they reſpectively grew to years of diſcretion and ſtrength, to come to the court-leet, and there take the oath of allegiance to the king. (2 Inſt. 120, 121.) Here alſo, by immemorial uſage and of common right, that moſt ancient conſtitutional officer the conſtable (4 Inſt. 265.) and ſometimes by preſcription the mayor of a borough (ſee ſtat. 2 Geo. I. c. 4.) are elected and ſworn. The other general buſineſs of the leet and tourn was to preſent by jury all crimes whatſoever that happened within their juriſdiction; and not only to prevent, but to puniſh, all trivial miſdemeſnors, as all trivial debts were recoverable in the court-baron, and county-court:—juſtice, in theſe minuter matters of both kinds, being brought home to the doors of every man by our ancient conſtitution. The ſuitors, elected, ſworn, and charged to inquire into crimes and miſdemeſnors, proper for preſentment, were not to be fewer than 12, nor more than 23; in ſome manors, they continued in office for a whole year; and in others they were ſworn and diſcharged in the courſe of a day. If the offence be treaſon or felony, they muſt return the preſentment (called in theſe caſes an indictment) to the king's juſtices of *oyer* and *terminer*, and gaol-delivery. (See ſtats. W. II. c. 13. 1 Edw. III. ſt. 2. c. 17.) The objects of the juriſdiction of the courts-leet and tourn were unavoidably more numerous; being ſuch as in ſome degree, either leſs or more, affect the public weal, or good governance of the diſtrict in which they ariſe; from common nuiſances and other material offences againſt the king's peace and public trade down to eaves-dropping, waifs, and irregularities in public commerce. Upon every preſentment of the jury retained by the court, an amerciament follows of courſe, which is afterwards aſſeſſed, in open court agreeably to magna charta (c. 14.) by the *pares curiæ*, that is, the peers or equals of the delinquent; and *affeered* or reduced to a preciſe ſum, by two or more ſuitors ſworn to be impartial. (8 Rep. 39. ſtat. W. I. c. 6. 2 Inſt. 27.) The amerciaments thus aſcertained are then eſtreated, or extracted, from the roll or book in which the proceedings are recorded and levied by the bailiff, by diſtreſs and ſale of the party's goods (8 Rep. 41.); by virtue of a warrant from the ſteward to that effect, or may be recovered by other means, as by proceſs of *levari facias* (Hardr. 471.) or action of debt. (Bull. N. P. 167.) But both the courts, leet and tourn, have been for a long time in a declining way;—a circumſtance, owing, in part, to the diſcharge granted by the ſtatute of Marlbridge, 52 Hen. III. c. 10. to all prelates, peers, and clergymen from their attendance upon theſe courts, which occaſioned their ſinking into diſrepute. Hence it is that their buſineſs hath for the moſt part gradually devolved upon the quarter-ſeſſions; which it is particularly directed to do in ſome caſes by ſtatute 1 Edw. IV. c. 2.

COURT *of the Legate*, was a court obtained by cardinal Wolſey of pope Leo X. in the ninth year of Henry VIII. wherein he, as legate of the pope, had power to prove wills, and diſpenſe with offences againſt the ſpiritual laws, &c. It was but of ſhort continuance.

COURT *of Marſhalſea*, a court of record, often confounded with the *palace court* at Weſtminſter, though diſtinct, was originally holden before the ſteward of the king's houſe, and was inſtituted to adminiſter juſtice between the king's domeſtic ſervants, that they might not be drawn to other courts, and thus deprive the king of their ſervice. (1 Bulſtr. 211.) It was formerly held in, though not a part of, the *Aula regia* (Flet. l. 2. c. 2.); and when this was ſubdivided, remained a diſtinct juriſdiction:—holding plea of all treſpaſſes committed within the verge of the court, where only one of the parties is in the king's domeſtic ſervice (in which caſe the inqueſt ſhall be taken by a jury of the country) and of all debts, contracts, and covenants, where both of the contracting parties belong to the royal houſehold; and then the inqueſt ſhall be compoſed of men of the houſehold only. (Art. ſuper Cart. 28 Edw. I. c. 3. ſtat. 5 Edw. III. c. 2. 10 Edw. III. ſt. 2. c. 2.) By the ſtatute of 13 Ric. II. ſt. 1. c. 3, (in affirmance of the common law, 2 Inſt. 548.) the verge of the court in this reſpect extends for 12 miles round the king's place of reſidence. And as this tribunal was never ſubject to the juriſdiction of the chief juſticiary, no writ of error lay from it (though a court of record) to the king's-bench, but only to parliament (1 Bulſtr. 211. 10 Rep. 79.) till the ſtatutes of 5 Edw. III. c. 2. and 10 Edw. III. ſt. 2. c. 3. which allowed ſuch writ of error before the king in his place. But this court being ambulatory, and obliged to follow the king in all his progreſſes, ſo that by the removal of the houſehold, actions were frequently diſcontinued (F. N. B. 241. 2 Inſt. 548.), and doubts having ariſen as to the extent of its juriſdiction (1 Bulſtr. 208.), king Charles I. in the ſixth year of his reign, by his letters patent, erected a new court of record, called the *Curia palatii*, or *palace court*, to be held before the ſteward of the houſehold and knight-marſhal, and the ſteward of the court, or his deputy; with juriſdiction to hold plea of all manner of perſonal actions whatſoever, which ſhall ariſe between any parties within 12 miles of his majeſty's palace at Whitehall. (1 Sid. 180. Salk. 439.) This court is now held once a week, together with the ancient court of marſhalſea, in the Borough of Southwark. The proceedings here are either by *capias* or attachment: which is to be ſerved on the defendant by one of the knight-marſhal's men, who takes bond with ſureties for his appearance at the next court; upon which appearance he muſt give bail to anſwer the determination of the court; and the next court after the bail is taken, the plaintiff is to declare, and ſet forth the cauſe of his action, and afterwards proceed to iſſue and trial by a jury, according to the cuſtom of the common law courts. But if the cauſe is of any conſiderable moment, it is uſually removed on its firſt commencement, together with the cuſtody of the defendant, either into the king's bench or common pleas by an *habeas corpus cum cauſa*; or otherwiſe cauſes are here brought to trial in four or five court-days. The inferior buſineſs of this court hath of late years been much reduced, by the new courts of conſcience in or near London; in conſideration of which the four counſel belonging to this court had ſalaries granted them for their lives by the ſtatute 23 Geo. II. c. 27. A writ of error lies from the marſhalſea court to the court of king's bench. The fees of this court are limited by the ſtatute 2 Hen. IV. c. 13. This marſhalſea is that of the houſehold; not the king's marſhalſea, which belongs to the king's bench. See COURT *of the Lord Steward*, &c.

COURT *martial*, a court inſtituted for the trying and puniſhing of offences in officers, ſoldiers, ſailors, and all perſons, in ſhort, that are ſubject to *martial* LAW: its powers and authorities are both conveyed and regulated by the acts of parliament paſſed for the enforcement and preſervation of diſcipline in the army and navy. By the *mutiny act.* 1 W. & M. paſſed in 1689. and, with the interruption of about three years, from April 1698 to February 1701, annually renewed, for the regulation of the army, it is enacted, "that his majeſty may, from time to time, grant a commiſſion under his royal ſign-manual, to any officer not under the degree of a field-officer, for holding a general court-martial within this realm; and alſo grant his warrant to the lord-lieutenant of Ireland, or other chief governor or governors there for the time being, or the governor or governors of Minorca, Gibraltar, and any of his majeſty's dominions beyond the ſeas reſpectively, or the perſon or perſons, their commander in chief, from time to time, to appoint courts-martial in the kingdom of Ireland, and other places and dominions reſpectively; in which courts-martial all offences mentioned in the articles of war, and all other offences herein-after ſpecified, ſhall be tried and proceeded againſt in ſuch manner as the act for that purpoſe directs." By the ſame act, the king is empowered to make new or additional articles of war, creating new offences, and to annex ſuch puniſhments to them as he may think fit, not extending to life or limb. This is a power of great magnitude and extent; but as it has only an annual exiſtence, there is but little danger of its being abuſed for the oppreſſion of military ſubjects. Courts-martial have powers given to them to inflict, by their ſentences, corporal puniſhment not extending to life or limb, on any ſoldier, for immoralities, miſbehaviour, or neglect of duty. A general court-martial muſt not conſiſt of a ſmaller number of officers than thirteen, whereof none are to be under the degree of a commiſſioned officer. And the preſident of ſuch a court-martial muſt neither be the commander in chief, nor the governor of the garriſon, where the offender ſhall be tried, nor under the degree of a field-officer, except when a field-officer cannot be had; in which caſe, the officer next in ſeniority, not being under the degree of a captain, ſhall preſide at ſuch court-martial. And ſuch court-martial is empowered and authorized to adminiſter an oath to every witneſs on the examination or trial of any offences that ſhall be brought before them.

In all trials of offenders by general courts-martial, to be held in virtue and under authority of this act, every officer on ſuch trials, before any proceedings be had thereupon, is required and obliged to take the following oaths upon the holy Evangeliſts, in the preſence of the court and judge advocate, or his deputy, who is authorized to adminiſter the ſame, in theſe words:

"You ſhall well and truly try and determine, according to the evidence in the matter now before you, between our ſovereign lord the king's majeſty and the priſoner to be tried. So help you God."

The oath is the following:

"I A. B. do ſwear, that I will duly adminiſter juſtice, according to the rules and articles for the better government of his majeſty's forces, and according to an act of parliament now in force for the puniſhment of mutiny and deſertion, and other crimes therein mentioned, without partiality, favour, or affection; and if any doubt ſhall ariſe, which is not explained by the ſaid articles or act of parliament, according to my conſcience, the beſt of my underſtanding, and the cuſtom of war in the like caſes. And I further ſwear, that I will not divulge the ſentence of the court, until it ſhall be approved by his majeſty, the general, or commander in chief; neither will I, upon any account at any time whatſoever, diſcloſe or diſcover the vote or opinion of any particular member of the court-martial, unleſs required to give evidence thereof as a witneſs by a court of juſtice, in a due courſe of law. So help me God."

Immediately after this oath has been adminiſtered to the reſpective members of the court-martial, the preſident is authorized and required to adminiſter to the judge advocate, or to the perſon officiating as ſuch, an oath in the following words:

"I, A. B., do ſwear, that I will not, upon any account at any time whatſoever, diſcloſe or diſcover the vote or opinion of any particular member of the court-martial, unleſs required to give evidence thereof as a witneſs by a court of juſtice, in a due courſe of law. So help me God."

And here it is obſervable, that neither the judge advocate, nor the perſon officiating as ſuch, is reſtrained as the members are from diſcloſing the ſentence of the court, until it ſhall be approved by his majeſty, the general, or commander in chief. This appears to be a great and material omiſſion on the part of the legiſlature, and has often operated injuriouſly to individuals.

No ſentence of death can be given againſt any offender, by any general court-martial, unleſs nine officers preſent ſhall concur therein; and if there be more officers preſent than thirteen, then the judgment ſhall paſs by the concurrence of two thirds of the number of them. And no proceeding or trial can be had upon any offence, but between the hours of eight o'clock in the morning and three in the afternoon, except in caſes that require an immediate example. It is however provided, that the party tried by any general court-martial in the kingdom of Great Britain or Ireland, or in Jerſey, Guernſey, Alderney, or Sark, or the iſlands thereunto belonging, ſhall be entitled to a copy of the ſentence and proceedings of ſuch court-martial, upon demand thereof made either by himſelf, or by any other perſon or perſons on his behalf, he or they paying reaſonably for the ſame, at any time not ſooner than three months after ſuch ſentence. And it is alſo provided, that in caſe of trials by any general court-martial at Gibraltar or Minorca, the party ſhall be entitled to a copy of the ſentence and proceedings thereof, at any time not ſooner than ſix months after the giving of the ſentence; and that in caſe of trials by any general court-martial in his majeſty's other dominions beyond the ſeas, he ſhall be entitled to a copy of the ſame, at any time not ſooner than twelve months after the ſentence ſhall be given by the court, whether the ſentence be approved or not.

It is alſo provided and enacted, that every judge advocate, or perſon officiating as ſuch, at any general court-martial, ſhall tranſmit, as expeditiouſly as opportunity and the diſtance of place will permit, the original proceedings and ſentence of ſuch court-martial to the judge advocate general in London; which original proceedings and ſentence ſhall be carefully kept and preſerved in the office of ſuch judge advocate general, to the end that the perſons entitled thereto may be enabled, upon application to the ſaid office, to obtain copies thereof, according to the true intent and meaning of the act.

And it is likewiſe provided, declared, and enacted, that no officer or ſoldier, being acquitted or convicted of any offence, ſhall be liable to be tried a ſecond time, by the ſame or any other court-martial, for the ſame offence, unleſs in caſe of an appeal from a regimental to a general court-martial; and that no ſentence given by any court-martial, and ſigned by the preſident thereof, ſhall be liable to be reviſed more than once. It is alſo declared and enacted, that no officer or ſoldier ſhall be tried for any offence committed by him more than three years prior to the iſſuing of the warrant, unleſs he hath purpoſely abſented himſelf to avoid ſuch trial.

The judgments of courts-martial, beſides being ſubject to the diſapprobation of the king, or his commanders in chief, are, like thoſe of other courts, liable to be taken cognizance of, and the members puniſhed for illegal proceedings; for the court of king's bench, being the ſupreme court of common law, hath not only power to reverſe erroneous judgments given by inferior courts, but alſo to puniſh all inferior magiſtrates, and all officers of juſtice, for all wilful and corrupt abuſes of authority againſt the known, obvious, and common principles of juſtice. (2 Hawk. P. C. c. 3. § 10.—c. 27. § 22.) The mutiny-act directs, that every action againſt any member or miniſter of a court-martial, in reſpect to any ſentence, ſhall be brought in ſome of the courts of record at Weſtminſter. And many inſtances of ſuch proſecutions have occurred in Weſtminſter-hall. An officer, however, in a court-martial, is not liable to be puniſhed for mere miſtakes, which an honeſt well-meaning man may fall into. And if the plaintiff, or proſecutor, becomes nonſuited, or the defendant has a verdict, he ſhall recover treble coſts. There is alſo another tribunal before which the proceedings of courts-martial are liable to *cenſure* at leaſt, namely, the houſe of commons.

COURT *Martial, regimental*, cannot pronounce a ſentence for inflicting any puniſhment which extends to the loſs of life or limb. The colonel or commanding officer of the regiment approves the ſentence of a regimental court-martial.

COURT *Martial, garriſon*, or a *garriſon* court-martial, reſembles a regimental one in this reſpect, that the members compoſing it are not ſworn, and that it is compoſed of officers of different regiments, inſtead of officers of one and the ſame corps. The ſentence is approved of by the governor, or other commanding officer of the garriſon.

COURTS, *Mayor's*. To the lord mayor and city of London, belong ſeveral courts of judicature. The higheſt and moſt ancient is that called the *huſtings*, deſtined to ſecure the laws, rights, franchiſes, and cuſtoms of the city. The ſecond is a *court of requeſt*, or *of conſcience*; of which, before. The third is the *court of the lord mayor and aldermen*, where alſo the ſheriffs ſit: to which may be added two *courts of ſheriffs*; and the *court of the city orphans*, whereof the lord mayor and aldermen have the cuſtody. Alſo, the *court of common council*, which is a court or aſſembly, wherein are made all by-laws which bind the citizens of London. It conſiſts, like the parliament, of two houſes: an *upper*, conſiſting of the lord mayor and aldermen; and a *lower*, of a number of common council men, choſe by the ſeveral wards, as repreſentatives of the body of the citizens. In the *court of common council*, are made laws for the advancement of trade; and committees yearly appointed, &c. But acts made by them are to have the aſſent of lord mayor and aldermen, by ſtat. 21 Geo. I. c. 11. Alſo, the *chamberlain's court*, where every thing relating to the rents and revenues of the city, as alſo the affairs of ſervants, &c. are tranſacted. Laſtly, to the lord mayor belong the *courts of coroner*, and *of eſcheator*; another *court* for the *conſervation of the river of Thames*; another of *gaol-delivery*, held uſually eight times a year at the Old Bailey, for the trial of criminals, whereof the lord mayor is himſelf the chief judge. There are other *courts* called *wardmotes*, or meetings of the wards; and *courts of halymote*, or aſſemblies of the ſeveral guilds and fraternities.

COURTS *of oyer and terminer*, and general *gaol delivery*, are courts held before the king's commiſſioners, among whom are uſually two judges of the courts at Weſtminſter, twice in every year, in every county of the kingdom, except the four northern ones, where they are held only once, and London and Middleſex, where they are held eight times. See ASSISES, OYER *and* TERMINER, and GAOL-*delivery*.

COURT, *Palace*. See *Marſhalſea* COURT.

COURT *of Parliament*. See PARLIAMENT.

COURT *of Peculiars*, is a ſpiritual court, which is a branch of, and annexed to, the *court of arches*; held in ſuch pariſhes as are exempt from the juriſdiction of the biſhops, and are peculiarly belonging to the archbiſhop of Canterbury. All eccleſiaſtical cauſes, ariſing within theſe peculiar or exempt juriſdictions, are originally cognizable by this court. 4 Inſt. 338. Stat. 22 & 23 Car. II.

There are royal peculiars, and archbiſhop's peculiars; the king's chapel is a royal peculiar, exempted from all ſpiritual juriſdiction, and reſerved to the immediate government of the king himſelf: and there are alſo ſome peculiar eccleſiaſtical juriſdictions belonging to the king, which formerly appertained to monaſteries and religious houſes.

There are ſome peculiars which belong to deans and chapters, or a prebendary exempted from the archdeacon only: they are derived from the biſhop, of ancient compoſition, and may be viſited by the biſhop in his primary or triennial viſitation: in the mean time, an official of the dean and chapter, or prebendary, is the judge; and from hence the appeal lies to the biſhop of the dioceſe. Wood. 504. Appeal lieth from other *peculiar courts* to the king in chancery. Srat. 25 Hen. VIII. c. 19.

The dean and chapter of St. Paul's have a peculiar juriſdiction; and the dean and chapter of Saliſbury have a large peculiar within that dioceſe; ſo have the dean and chapter of Litchfield, &c. 2 Nelſ. Abr. 1240, 1241. Where a man dies inteſtate, leaving goods in ſeveral peculiars, it has been held that the archbiſhop is to grant adminiſtration. Sid. 90. 5 Mod. 239. Appeal lies to the king in chancery.

COURT *of the Houſe of Peers*, is the ſupreme court of juriſdiction in the kingdom; but has at preſent no original juriſdiction over cauſes, except only upon appeals and writs of error, to rectify any injuſtice or miſtakes of the law, committed by the courts below; to which authority it ſucceeded of courſe upon the diſſolution of the *Aula regia*. For as the barons of parliament were conſtituent members of that court, and the reſt of its juriſdiction was dealt out to other tribunals, over which the great officers who accompanied theſe barons were reſpectively delegated to preſide: it followed that the right of receiving appeals, and ſuperintending all other juriſdictions, ſtill remained in the reſidue of that noble aſſembly, from which every other great court was derived. They are therefore in all cauſes the laſt reſort, from whoſe judgment no farther appeal is permitted: but every ſubordinate tribunal muſt conform to their determinations:—the law repoſing an entire confidence in the honour and conſcience of the noble perſons who compoſe this important aſſembly, that (if poſſible) they would make themſelves maſters of thoſe queſtions upon which they undertake to decide, and in all dubious caſes refer themſelves to the opinions of the judges, who are ſummoned by writ to adviſe them; ſince upon their deciſion all property muſt finally depend. See PEER.

COURT, *Pie-poudre*, *Curia pedis pulverizati*, an ancient court mentioned in many of our ſtatutes, to be held in fairs, for the rendering of juſtice to buyers and ſellers, and the redreſs of grievances ariſing in them.

It had its name, as ſome ſay, becauſe it was moſt commonly held in ſummer, and the ſuitors were chiefly country clowns, with duſty feet, called by the French *pieds poudreux;* or, according to others, as ſir Edward Coke, from the expedition intended in the hearing of cauſes proper to it, before the duſt fall off the plaintiff and defendant's feet; or rather, (as Barrington, in his "Obſervations on the Statutes,") ſuggeſts, from the old French *pied puldreaux*, *a pedlar;* ſignifying the court of ſuch petty chapmen as reſort to fairs or markets.

The Saxons called it *ceapung-gemot*, i. e. *court of merchandize;* or a court for the deciſion of diſputes relating to buying and ſelling. It is a court of record, incident to every fair and market. The ſteward, who has the toll of the market, is the judge: and the trial is by merchants and traders in the fair; ſo that the injury muſt be done, complained of, heard, and determined, within the compaſs of one and the ſame day, unleſs the fair continues longer. The court hath cognizance of all matters of contract that can poſſibly ariſe within the precinct of that fair or market; and the plaintiff muſt make oath that the cauſe of an action aroſe there. (Stat. 17 Edw. IV. c. 2.) A writ of error lies, in the nature of an appeal, to the courts at Weſtminſter, (Cro. Eliz. 773.) which are now alſo bound by the ſtatute 19 Geo. III. c. 70. to iſſue writs of execution, in aid of its proceſs, after judgment; when the perſon or effects of the defendant are not within the limits of this inferior juriſdiction:—which may poſſibly occaſion the revival of the practice and proceedings in theſe courts, which are now in a manner forgotten.

COURT *of Policies of Aſſurance*, a court formerly ſubſiſting, which was erected in purſuance of the ſtatute of 43 Eliz. c. 12:—but the courſe of arbitration according to this ſtatute having been diſcontinued, and the aſſured having been led to bring ſeparate actions at law againſt each aſſurer, the lord chancellor has been enabled yearly to grant a ſtanding commiſſion to the judge of the admiralty, the recorder of London, two doctors of the civil law, two common lawyers, and eight merchants; any three of whom, one being a civilian or a barriſter, are thereby, and by the ſtatute 13 & 14 Car. II. c. 23. empowered to determine in a ſummary way all cauſes concerning policies of aſſurance in London, with an appeal (by way of bill) to the court of chancery. But the juriſdiction being ſomewhat defective, as extending only to London, and to no other aſſurances but thoſe on merchandize, and to ſuits brought by the aſſured only, and not by the inſurers, no ſuch commiſſion has of late years iſſued;—but inſurance cauſes are now uſually determined by the verdict of a jury of merchants, and the opinion of the judges in caſe of any legal doubts: whereby the deciſion is more ſpeedy, ſatisfactory, and final: though it is to be wiſhed, ſays judge Blackſtone, that ſome of the parliamentary powers inveſted in theſe commiſſioners, eſpecially for the examination of witneſſes, either beyond the ſeas, or ſpeedily going out of the kingdom, (ſtat. 13 & 14 Car. II. c. 22. § 3.) could at preſent be adopted by the courts of Weſtminſter-hall, without requiring the conſent of parties.

COURT, *Prerogative*, a court eſtabliſhed for the trial of all teſtamentary cauſes, when the deceaſed hath left *bona notabilia* within two different dioceſes, in which caſe the probate of wills belongs to the archbiſhop of the province, by way of ſpecial prerogative. And all cauſes relating to the wills, adminiſtrations, or legacies of ſuch perſons are, originally, cognizable herein, before a judge appointed by the archbiſhop, called the judge of the prerogative court.

All citations and decrees of this court run in the name of the archbiſhop.

This court, for the province of Canterbury, is kept in the common hall in Doctors Commons, in the afternoon, next day after the arches.

The judge is attended by the regiſter, who ſets down the decrees and acts of court; and keeps records, &c. all original wills and teſtaments of parties dying, having *bona notabilia*.

The place is uſually called the *Prerogative office:* it is now kept in Dean's court; where, for a moderate fee, a copy may be had of any ſuch will. See WILL.

Appeal lies from this court to the king in chancery, who appoints delegates, &c. 25 Hen. VIII. c. 19. though if the delegates revoke a will, &c. they cannot grant letters of adminiſtration; for their power is to hear and determine the appeal. (2 Bulſt. 2. Roll. Abr. 233.) The archbiſhop hath probate of every biſhop's teſtament, &c. though he hath not *bona notabilia* out of the dioceſe: ſo where a perſon dies beyond ſea. (4 Inſt. 335.)

The archbiſhop of York hath alſo the like court, called his *exchequer*.

COURT *of Requeſts*, was a court of equity, of the ſame nature with the court of chancery, but inferior to it; being principally inſtituted for the help of ſuch petitioners, as, in conſcionable caſes, dealt by ſupplication to his majeſty.

Of this court the lord privy ſeal was chief judge; aſſiſted by the maſters of requeſts. It had its beginning about 9 Hen. VII. according to ſir Julius Cæſar's tract on this ſubject; though Mr. Gwyn ſays, it took its riſe from a commiſſion firſt granted by king Henry VIII. It was adjudged, upon ſolemn argument, Mich. 40 and 41 Eliz. in the court of common pleas, that this *court of requeſts* was no court that had the power of judicature, &c. And as it had aſſumed ſo great power to itſelf, that it grew burdenſome and grievous, it was taken away, with ſome others, by the ſtatute 16 and 17 Car. I. cap. 10. (4 Inſt. 97.)

COURT *of Seſſions*. See SESSION.

COURT *of general Quarter-Seſſions of the Peace* (4 Inſt. 170. 2 Hal. P. C. 42. 2 Hawk. P. C. 32.) is a court that muſt be held in every county, once in every quarter of a year; which, by ſtatute 2 Hen. V. c. 4, is appointed to be in the firſt week after Michaelmas day; the firſt week after the Epiphany; the firſt week after the cloſe of Eaſter; and in the week after the tranſlation of St. Thomas, the Martyr, or the 7th of July. It is held before two or more juſtices of the peace, one of whom muſt be of the *quorum*. The juriſdiction of this court, by ſtatute 34 Edw. III. c. 1, extends to the trying and determining of all felonies and treſpaſſes whatſoever; though they ſeldom, if ever, try any greater offence than ſmall felonies within the benefit of clergy; their commiſſion providing, that, if any caſe of difficulty ariſes, they ſhall not proceed to judgment, but in the preſence of one of the juſtices of the courts of king's bench or common pleas, and one of the judges of aſſiſe: and, therefore, murders, and other capital felonies, are uſually remitted for a more ſolemn trial to the aſſiſes. They cannot alſo try any new-created offence, without expreſs power given them by the ſtatute which creates it. But there are many offences, and particular matters, which, by particular ſtatutes, belong properly to this juriſdiction, and ought to be proſecuted in this court; as the ſmaller miſdemeſnors, againſt the public, or commonwealth, not amounting to felony; and eſpecially offences relating to the game, highways, ale-houſes, baſtard children, the ſettlement and proviſion for the poor, vagrants, ſervants' wages, apprentices, and popiſh recuſants. Some of theſe are proceeded upon by indictment; and others in a ſummary way by motion and order thereupon; which order may, for the moſt part, unleſs guarded againſt by particular ſtatutes, be removed into the court of king's bench, by writ of *certiorari facias*, and be there either quaſhed or confirmed. The records, or rolls of the ſeſſions, are committed to the cuſtody of a ſpecial officer, denominated the Custos *Rotulorum;* which ſee. In moſt corporation towns there are quarter-ſeſſions kept before juſtices of their own, within their reſpective limits; which have exactly the ſame authority as the general quarter-ſeſſions of the county, except in very few inſtances; one of the moſt conſiderable of which is the matter of appeals from orders of removals of the poor, which, though they be from the orders of corporation-juſtices, muſt be to the ſeſſions of the county, by ſtatute 8 & 9 W. III. c. 30. In both corporations and counties at large, there is ſometimes kept a ſpecial or petty ſeſſion, by a few juſtices, for diſpatching ſmaller buſineſs in the neighbourhood between the times of the general ſeſſions; as for licenſing ale-houſes, paſſing the accounts of the pariſh officers, and the like.

Court *of Commiſſioners of Sewers*, a temporary tribunal erected by virtue of a commiſſion under the great ſeal, formerly granted *pro re nata* at the pleaſure of the crown, but now at the diſcretion and nomination of the lord chancellor, lord treaſurer, and chief juſtices, purſuant to the ſtatute 23 Hen. VIII. c. 5. Their juriſdiction is to overlook the repairs of ſea-banks and ſea-walls; and the cleanſing of rivers, public ſtreams, ditches, and other conduits, by which any waters are carried off; and it is confined to ſuch county or particular diſtrict as the commiſſion ſhall expreſsly name. The commiſſioners are a court of record, and may fine and impriſon for contempts (1 Sid. 145.); and in the execution of their duty may proceed by jury, or upon their own view, and may take order for the removal of any annoyances, or the ſafeguard and conſervation of the ſewers within their commiſſion. They may alſo aſſeſs ſuch rates, or ſcots, upon the owners of lands within their diſtrict, as they ſhall judge neceſſary; and if any perſon refuſes to pay them, the commiſſioner may levy the ſame by diſtreſs of his goods and chattels; or they may, by ſtatute 23 Hen. VIII. c. 5, ſell his freehold lands, (and by 7 Ann. c. 10, his copyhold alſo,) in order to pay ſuch ſcots or aſſeſſments. But their conduct is under the control of the court of king's bench, which will prevent or puniſh any illegal or tyrannical proceedings. Cro. Jac. 336.

Courts, *Stannary*, are courts of record in Devonſhire and Cornwall for the adminiſtration of juſtice among the tinners. They are held before the lord-warden and his ſubſtitutes, by virtue of a privilege granted to the workers in the tin-mines, to ſue and be ſued only in their own courts, that they may not be drawn from their buſineſs, which is highly profitable to the public, by attending their law-ſuits in other courts. (4 Inſt. 232.) The privileges of the tinners are confirmed by a charter, 33 Edw. I., and fully expounded by a private ſtatute, 50 Edw. III., ſince explained by a public act, 16 Car. I. c. 15. Whilſt the tinners are employed in and about the ſtannaries, they ſhall be only impleaded in the ſtannary court in all matters, excepting pleas of land, life, and member. No writ of error lies from hence to any court in Weſtminſter-hall; as was agreed by all the judges in 4 Jac. I. (4 Inſt. 231.) But an appeal lies from the ſteward of the court to the under-warden; and from him to the lord-warden; and thence to the privy-council of the prince of Wales, as duke of Cornwall, when he hath had livery or inveſtiture of the ſame. From thence the appeal lies to the king himſelf, in the laſt reſort.

Court *of Star-chamber*, *Camera Stellata*, or *Chambre des Eſtoilles*, ſo called, becauſe the roof was originally painted with ſtars; or more probably becauſe the contracts and obligations of the Jews, before their baniſhment under Edw. I. which were called ſtars, from a corruption of the Hebrew word *ſhetar, a covenant*, were kept in cheſts in the king's exchequer. This is of an ancient ſtanding; but its authority was very much heightened by Henry VII. and Henry VIII., who appointed, by two ſeveral ſtatutes, (3 Hen. VII. c. 1, and 21 Hen. VIII. c. 20.) that the chancellor, aſſiſted by others there named, ſhould have power to hear complaints againſt retainers, embracers, miſdemeſnors of officers, and other like offences, which, through the power and authority of thoſe who committed them, did lift up the head above other faults; and for which inferior judges were not ſo meet to give correction, and the common law had not ſufficiently provided. The powers uſurped by this court were ſo illegal and ſo oppreſſive, that it was finally aboliſhed by ſtatute 16 Car. I. c. 10, to the general joy of the whole nation.

Court *of the Lord Steward*, *Treaſurer*, or *Comptroller of the King's Houſehold*, (4 Inſt. 133.) was inſtituted by ſtatute 3 Hen. VII. c. 14, to inquire of felony by any of the king's ſworn ſervants, in the cheque-roll of the houſehold, under the degree of a lord, in confederating, compaſſing, conſpiring, and imagining the death or deſtruction of the king, or any lord or other of his majeſty's privy-council, or the lord ſteward, treaſurer, or comptroller of the king's houſe. The inquiry and trial were required to be by a jury, according to the courſe of the common law, conſiſting of 12 ſad men (that is, ſober and diſcreet perſons) of the king's houſehold.

Court *of the Lord Steward of the King's Houſehold*, or (in his abſence) of the treaſurer, comptroller, and ſteward of the marſhalſea, (4 Inſt. 133.) was erected by ſtatute 33 Hen. VIII. c. 12, with a juriſdiction to inquire of, hear, and determine all treaſons, miſpriſions of treaſon, murders, manſlaughters, bloodſhed, and other malicious ſtrikings; whereby blood ſhall be ſhed in or within the limits (that is, within 200 feet from the gate) of any of the palaces and houſes of the king, or any other houſe where the royal perſon ſhall abide. The proceedings are by jury, both a grand and a petit one, as at common law, taken out of the officers and ſworn ſervants of the king's houſehold. The form and ſolemnity of the proceſs, particularly with regard to the execution of the ſentence for cutting off the hand, which is a part of the puniſhment for ſhedding blood in the king's court, are very minutely ſtated in the ſaid ſtatute 33 Hen. VIII., and the ſeveral officers of the ſervants of the houſehold in and about ſuch execution are deſcribed, from the ſerjeant of the wood-yard, who furniſhes the chopping-block to the ſerjeant farrier, who brings hot irons to ſear the ſtump.

Court *of the Lord High Steward of Great Britain*, (4 Inſt. 58. 2 Hawk. P. C. 5. 421.) is a court inſtituted for the trial of peers, indicted for treaſon or felony, or for miſpriſion of either. (1 Bulſtr. 198.) The office of this great magiſtrate is very ancient; and was formerly hereditary, or, at leaſt, held for life, or *dum bene ſe geſſerit:* but now it is uſually, and hath been for many centuries paſt, *pro hac vice* only; and it hath been the conſtant practice (and therefore ſeems now to have become neceſſary) to grant it to a lord of parliament, elſe he is incapable of trying ſuch delinquent peer. (Yearb. 13 Hen. VIII. 11. Staundf. P.C. 152. 3 Inſt. 28. 4 Inſt. 59. 2 Hawk. P. C. 5. Barr. 234.) When ſuch an indictment is therefore found by a grand jury of freeholders in the king's bench, or at the aſſiſes before the juſtices of oyer and terminer, it is to be removed by a writ of *certiorari* into the court of the lord high ſteward, which only has power to determine it. A peer may plead a pardon before the court of king's bench, and the judges have power to allow it; in order to prevent the trouble of appointing an high ſteward, merely for the purpoſe of receiving ſuch plea. But he may not plead, in that inferior court, any other plea; as *guilty*, or *not guilty*, of the indictment; but only in this court; becauſe, in conſequence of ſuch plea, it is poſſible that judgment of death might be awarded againſt him. The king, therefore, in caſe a peer be indicted for high treaſon, felony, or miſpriſion, creates a lord high ſteward *pro hac vice* by commiſſion under the great ſeal; which recites the indictment ſo found, and gives his grace power to receive and try it *ſecundum legem et conſuetudinem Angliæ.* Then, when the indictment is regularly removed by writ of *certiorari*, commanding the inferior court to certify it up to him, the lord high ſteward directs a precept to a ſerjeant at arms, to ſummon the lords to attend and try the indicted peer. This precept was formerly iſſued to ſummon only eighteen or twenty, ſelected from the body of the peers; then the number came to be indefinite; and the cuſtom was for the lord high ſteward to ſummon as many as he thought proper, (but of late years not leſs than twenty-three, Kelynge 56.) and that theſe lords only ſhould ſit upon the trial; which threw a monſtrous weight of power into the hands of the crown, and this its great office, of ſelecting only ſuch peers as the then predominant party ſhould moſt approve of. And accordingly, when the earl of Clarendon fell into diſgrace with Charles II., there was a deſign formed to prorogue the parliament, in order to try him by a ſelect number of peers; it being doubted whether the whole houſe could be induced to fall in with the views of the court. But now, by ſtatute 7 W. III. c. 3, upon all trials of peers for treaſon or miſpriſion, all the peers who have a right to ſit and vote in parliament ſhall be ſummoned, at leaſt 20 days before ſuch trial, to appear and vote therein; and every lord appearing ſhall vote in the trial of ſuch peer, firſt taking the oaths of allegiance and ſupremacy, and ſubſcribing the declaration againſt popery.

During the ſeſſion of parliament, the trial of an indicted peer is not properly in the court of the lord high ſteward, but before the court laſt mentioned, of our lord the *king in parliament.* (Foſt. 141.) A lord high ſteward, indeed, is always appointed in that caſe, to regulate and add weight to the proceedings; but he is rather in the nature of a ſpeaker *pro tempore*, or chairman of the court, than the judge of it; for the collective body of the peers are therein the judges both of law and fact, and the high ſteward has a vote with the reſt, in right of his peerage. But in the court of the lord high ſteward, which is held in the receſs of parliament, he is the ſole judge of matters of law, as the lords triers in matters of fact; and as they may not interfere with him in regulating the proceedings of the court, ſo he has no right to intermix with them in giving any vote upon the trial: conſequently, it hath been holden by the judges (Foſt. 139.) that in caſe the day appointed in the judgment for execution ſhould lapſe before execution done, a new time of execution may be appointed by either the high court of parliament, during its ſitting, though no high ſteward be exiſting; or, in the receſs of parliament, by the court of king's bench, the record being removed into that court. For the right of biſhops to ſit in the court of the lord high ſteward on trial of indictments of treaſon, &c. See Bishop.

Court, *Supreme.* See Court *of Peers*, and Peer.

Court *of Sheriff's Tourn*, or rotation, is a court of record, held twice every year, within a month after Eaſter and Michaelmas, before the ſheriff, in different parts of the county; being, indeed, only the turn of the ſheriff to keep a court-leet for each reſpective hundred. This, therefore, is the great Court-*leet* of the county, as the County-*court* is the Court-*baron*.

Court *of the Verge.* See Court *of the Marſhalſea*, &c.

Court, *Univerſity.* The courts of the univerſities of Oxford and Cambridge are of a particular nature: they were granted by charters, and confirmed by authority of parliament; and they are called the chancellor's courts.

The two univerſities enjoy the ſole juriſdiction, in excluſion of the king's courts, over all civil actions and ſuits whatſoever, when a ſcholar or privileged perſon is one of the parties, excepting in caſes where the right of freehold is concerned. And theſe, by the univerſity charter, they are at liberty to try and determine, either according to the common law of the land, or according to their own local cuſtoms, at their diſcretion; which has generally led them to carry on their proceſs in a courſe much conformed to the civil law. The juriſdiction of their criminal courts is equally extenſive with that which concerns the redreſs of their civil injuries. They have authority to determine all criminal offences or miſdemeſnors, under the degree of treaſon, felony, or mayhem: but whilſt the prohibition of meddling with freehold ſtill continues, the trial of treaſon, felony, and mayhem, is committed to the univerſity juriſdiction in another court, namely, the court of the *lord high ſteward* of the univerſity. For by the charter of 7 Jun. 2 Henry IV. (confirmed by the ſtatute 13 Eliz. c. 29.) cognizance is granted to the univerſity of Oxford of all indictments of treaſons, inſurrections, felony, and mayhem, which ſhall be found in any of the king's courts againſt a ſcholar or privileged perſon; and they are to be tried before the high ſteward of the univerſity, or his deputy, who is to be nominated by the chancellor of the univerſity for the time being. But, when his office is called forth into action, ſuch high ſteward muſt be approved by the lord high chancellor of England; and a ſpecial commiſſion under the great ſeal is given to him, and others, to try the indictment then depending, according to the law of the land and the privileges of the ſaid univerſity. When, therefore, an indictment is found at the aſſiſes, or elſewhere, againſt any ſcholar of the univerſity, or other privileged perſon, the vice-chancellor may claim the cognizance of it; and (when claimed in due time and manner) it ought to be allowed him by the judges of aſſiſe; and then it comes to be tried in the high ſteward's court: but the indictment muſt firſt be found by a grand jury, and then the cognizance claimed. When the cognizance is allowed, if the offence be only a miſdemeſnor, it is tried in the chancellor's court by the ordinary judge. But if it be treaſon, felony, or mayhem, it is then, and then only, to be determined before the high ſteward, under the king's ſpecial commiſſion to try the ſame. The proceſs of the trial is this. The high ſteward iſſues one precept to the ſheriff of the county, who thereupon returns a panel of eighteen freeholders; and another precept to the bedells of the univerſity, who thereupon return a panel of eighteen matriculated laymen; and by a jury formed *de medietate*, half of freeholders and half of matriculated perſons, is the indictment to be tried; and that in the Guildhall of the city of Oxford. And if execution be neceſſary to be awarded, in conſequence of finding the party guilty, the ſheriff of the county muſt execute the univerſity proceſs; to which he is annually bound by an oath. Many inſtances occur, one in the reign of queen Elizabeth, two in that of James I., and two in that of Charles I., where indictments for murder have been challenged by the vice-chancellor at the aſſiſes, and afterwards tried before the high ſteward by jury. The commiſſions under the great ſeal, the ſheriff's and bedell's panels, and all the other proceedings on the trials of the ſeveral indictments, are ſtill extant in the archives of the univerſity.

Theſe privileges to the univerſities were granted, that the ſtudents might not be diſtracted from their ſtudies by legal proceſs from diſtant courts, and other forenſic avocations. Theſe privileges are of very high antiquity, both in foreign univerſities as well as our own. The oldeſt charter which judge Blackſtone has ſeen, containing this grant to the univerſity of Oxford, was 28 Hen. III., A. D. 1244; and the ſame privileges were confirmed and enlarged by almoſt every ſucceeding prince, down to king Henry VIII., in the 17th year of whoſe reign the moſt extenſive charter of all was granted. A ſimilar one to this was afterwards granted to Cambridge, in the third year of queen Elizabeth. In the reign of queen Elizabeth an act of parliament was obtained, (13 Eliz. c. 29.) confirming all the charters of the two univerſities, and thoſe of 14 Henry VIII. and 3 Eliz. by name. This act of Elizabeth is called by ſir Edward Coke a "bleſſed act;" and ſir Matthew Hale very fully expreſſes the ſenſe of the common law and the operation of the act of parliament. (4 Inſt. 227. Hale's Hiſt. c. 4. 33.)

This privilege, ſo far as relates to civil cauſes, is exerciſed at Oxford in the chancellor's court, the judge of which is the vice-chancellor, his deputy, or aſſeſſor. From his ſentence an appeal lies to delegates, appointed by the congregation; from thence to other delegates of the houſe of convocation; and if they all three concur in the ſame ſentence, it is final, at leaſt by the ſtatutes of the univerſity, according to the rule of the civil law. But if there be any diſcordance in any of the three ſentences, an appeal lies in the laſt reſort to judges delegates appointed by the crown, under the great ſeal in chancery.

Courts *of Wales*, are eſtabliſhed over the principality chiefly by 12 Edw. I. and 34 and 35 Hen. VIII. c. 26. Beſides courts baron, hundred and county courts, like thoſe in England, a ſeſſion is held twice every year in each county, by judges appointed by the king, (ſtat 18 Eliz. c. 8.) to be called the great ſeſſions of the ſeveral counties in Wales; in which all pleas of real and perſonal actions ſhall be held in the ſame manner, and with the ſame extent, as in the court of common pleas at Weſtminſter; and writs of error ſhall lie from judgment in this (being a court of record) to the court of king's bench. And the proceedings are according to the laws of England.

For the regulation of the practice of theſe courts in Wales, ſee ſtat. 5 Eliz. c. 25. 8 Eliz. c. 20. 8 Geo. I. c. 25. § 6. 6 Geo. II. c. 14. 13 Geo. III. c. 51. But the ordinary original writs or proceſs of the king's courts at Weſtminſter do not run into the principality of Wales (2 Roll. Rep. 141.); though proceſs of execution does (2 Bulſtr. 156. 2 Saund. 193. Raym. 206.); as do alſo all prerogative writs, as writs of *certiorari*, *quo minus*, *mandamus*, and the like (Cro. Jac. 484.) And even in cauſes between ſubject and ſubject, to prevent injuſtice, through family factions or prejudices, it is held lawful (in cauſes of freehold at leaſt, and it is uſual in all others) to bring an action in the Engliſh courts, and try the ſame in the next Engliſh county adjoining to that part of Wales where the cauſe ariſes (Vaugh. 413. Hardr. 66.), and wherein the venue is laid. But, on the other hand, to prevent trifling and vexatious ſuits, it is enacted by ſtatute 13 Geo. III. c. 51. that in *perſonal* actions, *tried* in any Engliſh county, where the cauſe of action aroſe, and the defendant reſides in Wales, if the plaintiff ſhall not recover a verdict for ten pounds, he ſhall be non-ſuited and pay the defendant's coſts, unleſs it be certified by the judge that the freehold or title came principally in queſtion, or that the cauſe was proper to be tried in ſuch Engliſh county. And if any *tranſitory* action, the cauſe whereof aroſe and the defendant is reſident in Wales, ſhall be *brought* in any Engliſh county, and the plaintiff ſhall not recover a verdict for ten pounds, the plaintiff ſhall be non-ſuited, and ſhall pay the defendant's coſts, deducting from it the ſum recovered by the verdict.

Court *of Wards*, a court firſt erected by king Hen. VIII. (ſtat. 32 Hen. VIII. c. 46.) and after augmented by him with the office of *liveries*: but now abſolutely taken away and aboliſhed, by a ſtatute made 12 Car. II. cap. 24. together with the oppreſſive tenures upon which it was founded. See Inquest *of Office*.

Court, *Bouche of*. See Bouche.
Court, *Deſpight of the*. See Departure.
Court, *Forejudged the*. See Forejudged.
Court, *Inns of*. See Inn.
Court, *Perquiſites of*. See Perquisite.
Court, *Suit of*. See Suit.
Court, *Ambulatory*. See Ambulatory.
Court, *Baſe*. See Base.
Court, *Honour*. See Honour.
Court, *Lawleſs*. See Lawless.
Court, *Wood-plea*. See Wood.

Court *of Aldermen*, in *Geography*, a cluſter of ſmall iſlands or rocks, near the eaſt coaſt of New Zealand, in the Southern Pacific Ocean, about half a league in extent every way, and five leagues from the main land. S. lat. 36° 57′.

Court-*Days*, are days when the courts of judicature are open and pleas held.

Court-*Lands*, called *curtiles terræ*, ſuch as the lord of the manor keeps in his own hands, for the uſe of his family, and for hoſpitality. See Manor.

Court-*Roll*, a roll which contains an account of the number, &c. of lands depending on the lord of the manor; with the names of the tenants, &c.

Tenants holding by copy of this roll, are denominated *copy-holders;* which ſee.

COURTAIN. See Curtin.

COURTANVEAUX, in *Geography*, a town of France, in the department of the Loir and Cher; 12 miles W. of Vendôme.

COURTELARY, a ſmall town of France in the department of the upper Rhine with 514 inhabitants. The canton of which it is the chief place has an extent of 120 kiliometres, thirteen communes, and a population of 7202 individuals.

COURTENAY, in Latin *Curtiniacum*, a ſmall town of France in the department of Loiret, chief place of a canton in the diſtrict of Montargis, on the river Clairi, 100 miles S. of Paris, with 2485 inhabitants. The population of the canton amounts to 7487; its extent is of 242 kiliometres and a half, and it has fifteen communes.

COURTERON, a town of France, in the department of the Aube; 2 leagues S. of Bar-ſur-Seine.

COURTESY, or Curtesy *of England*, *tenant by*, in *Law*. See Tenant.

Courtesy, *arms of*. See Arms.

COURTINE, a ſmall town of France in the department of the Creuſe, chief place of a canton in the diſtrict of Aubuſſon. It contains 558 inhabitants. The canton comprizes eleven communes, and counts 5712 individuals on a territory of 327 kiliometres and a half.

COURTISAN, or Courtezan, a term of infamy, applied to women who expoſe their perſons, and make a trade of proſtitution.

Lais, the famous Theban courtiſan, ſtands on record for requiring no leſs than ten thouſand crowns for a ſingle night. Of all places in the world, Venice is that where courtiſans abound the moſt; it is more than three centuries, ſince the ſenate, which had expelled them, was obliged to recall them; to provide for the ſecurity of women of honour, and to keep the nobles employed, leſt they ſhould make innovations in the ſtate.

COURTLARS, in *Geography*, a town of Switzerland, in the territory of Bienne; 7 miles N.W. of Bienne.

COURTMACSHERRY Bay, on the ſouth eaſt coaſt of the county of Cork, Ireland, lying between the Old-head of Kinſale, and the Seven heads. The outer bay is ſufficiently deep, but there is little or no ſhelter in it. In the inner harbour veſſels may lie very ſafe, but there is a bar, which makes it acceſſible only to ſmall veſſels. N. lat. 51° 36′. W. long. 8° 40′ from Greenwich.

COURTNEY, William, in *Biography*, fourth ſon of Hugh earl of Devonſhire, by Margaret, grand-daughter of king Edward I. was born about the year 1341. He was educated at Oxford, where he applied himſelf with much diligence to his ſtudies, and reſolved upon the clerical life. His great family intereſt opened for him the road to the higheſt preferment in the church. At twenty-eight years of age he was promoted to the biſhopric of Hereford, whence in about five years he was tranſlated to the ſee of London. In 1376 he diſtinguiſhed himſelf by an undaunted oppoſition to the king's demand of a ſubſidy, unleſs he would promiſe a redreſs of the injuries ſuſtained by himſelf and William Wickham, biſhop of Wincheſter. Shortly after this, the pope having excommunicated the Florentines, directed his bull to be ſent to all parts, in which orders were given for the ſeizure of their property. That bull, the biſhop, without conſent of the king, publiſhed at Paul's Croſs, and at the ſame time, moſt unwarrantably gave a licence to the populace to plunder the houſes of ſuch Florentines as reſided in the city of London. For this high offence againſt the peace of the realm, and the dignity of the ſovereign, he was cenſured and obliged to ſubmit. In 1377, he cited, on the authority of the pope's mandate, the celebrated Wickliffe to appear before his tribunal at St. Pauls, where he behaved with indecent arrogance, and would have inflicted on that great man cruel ſeverities, had he not been ſupported by perſons of the firſt rank and power in the country. In 1381 this biſhop was raiſed to the higheſt office in the ſtate, *viz.* that of lord chancellor of England, and in the ſame year he was tranſlated to the archbiſhopric of Canterbury; he now had opportunity fully to diſplay the temper and ſpirit which had before been but too well known. He excommunicated one man for a ſlight offence, and refuſed him abſolution unleſs he ſubmitted to be beaten with a cudgel, naked in the market places of Weſt Malling, Maidſtone and Canterbury. He excited a bitter perſecution againſt the adherents to the doctrines of Wickliffe. Notwithſtanding the violence and rancour of his temper, he was conſtituted the firſt of eleven commiſſioners, to whom was entruſted the direction of government for a year to make what reformation they thought fit. Into the hands of very few could power have been entruſted with leſs ſafety; he met, however, with ſome ſalutary checks to the ſtrides which he was making to an arbitrary exhibition of his authority. He died at Maidſtone in 1396; regretted by few of thoſe whoſe good-will he was bound to cheriſh. As an inſtance of firmneſs and ſelf-poſſeſſion which archbiſhop Courtney was always ſuppoſed to enjoy, the following anecdote has been mentioned by his biographers. The archbiſhop and others being aſſembled with a view of condemning the tenets of Wickliffe; they had ſcarcely taken their ſeats when a violent earthquake ſhook the houſe. They all determined to proceed no farther, concluding that the buſineſs was diſpleaſing to the Almighty; the archbiſhop remained unmoved; he rallied them for their fears, and ſaid if the earthquake portended any thing, it muſt be the downfall of hereſy; that as noxious vapours are lodged in the earth, and are expelled by violent concuſſions, ſo by their ſtrenuous endeavours, the kingdom ſhould be purified from the taint of hereſy, which had infected it in every part. Biog. Britan.

COURTOMER, in *Geography*, a ſmall town of France, in the department of Orne, in the diſtrict of Alençon, 6 miles E. of Séez. It is the chief place of a canton and has 806 inhabitants. The canton itſelf has a population of 7811 individuals, twenty communes, and a territorial extent of 170 kiliometres.

COURTONNE, La Velle, a town of France, in the department of the Calvados, and diſtrict of Liſieux, 2¼ leagues S.E. of Liſieux.

COURTRAY, in Latin *Corturiacum*, an ancient town of France in the department of the Lys, which was formerly a part of Auſtrian Flanders. It is the chief place of a diſtrict of the ſame name, which, upon a territorial extent of 832 kiliometres and a half, and in 67 communes, contains a population of 164,375 individuals. Its canton has 23 communes with 52,952 inhabitants, and a territorial extent of 280 kiliometres. Courtray itſelf has a population of 13,674 individuals, not, (as the chevalier de Tinſeau ſtates) 11,674, which is evidently an error of the preſs. It is ſituated on the river Lys, 12 miles N.E. of Lille, 15 N.W. of Tournay, and 183 N. of Paris, E. long. 3°. 10′. N. lat. 51° 50′. The old Flemiſh name was Cortryck.

The celebrated linen manufactures of Courtray had their riſe about the year 1268. They ſtill form the principal trade of the place, which has a ſub-prefect, an inferior court of juſtice, and a regiſter.

The ſoil of the diſtrict of Courtray is uncommonly fertile. It produces the fineſt and ſtrongeſt flax in Europe. The inhabitants excel in the cultivating, dreſſing and ſpinning of this valuable vegetable. There are alſo ſome ſugar and ſoap houſes, ſtarch manufactories, breweries, and a manufacture of earthenware, which is ſaid to approach the perfection of the Engliſh earthenware.

COURVILLE, a ſmall town of France in the department of Eure and Loire, on the river Eure, 9 miles W. of Chartres. It is the chief place of a canton in the diſtrict of Chartres, and has 1381 inhabitants. The canton itſelf has a population of 9462 individuals, ſixteen communes, and an extent of 262 kiliometres and a half.

COURAPITA, in *Botany*, Lam. Enc. Juſſ. 326. Aubl. Guian. 708. tab. 282. (Pekea; Pis. Bras. 141? Couroupitoutoumu; Bar. Fr. Equinox. 92.) A large tree often more than two feet in diameter, with a thick, cracked, rugged bark. *Branches* from the ſummit of the trunk. *Leaves* a foot long, four inches broad, alternate, oval-oblong, acute, entire, ſmooth, even-ſurfaced, petioled. *Flowers* in lateral ſimple erect racemes, large, roſe-coloured, ſweet-ſcented, with a caducous bracte at the baſe of each pedicel, and two others under the calyx. All the parts of fructification are exactly ſimilar to thoſe of Lecythis Linn. (ſee that article), except the capſule, which is round, woody, brown and rugged; crowned with the remains of the calyx, and with a kind of operculum which does not ſeparate; encloſing under a fibrous pulp another globular, thin, brittle, ſix-celled capſule, with membranous partitions which diſappear as the fruit ripens; and containing numerous ſeeds bedded in pulp. A native of Guiana. The Creoles and the Negroes call the fruit cannon balls, which they much reſemble, and are in ſize equal to a thirty-ſix pounder. The pulp between the capſules may be extracted through a hole made for the purpoſe, and then the inner capſule will move freely within the other. The pulp of the latter has an acid, not unpleaſant, taſte.

COUS, in *Ancient Geography*, a city of Egypt, ſituated to the eaſt of the Nile, formerly the city of Apollo. In conſequence of the conveyance of Indian commodities from the Red Sea to the Nile, by the ſhorteſt route, *viz.* from Coſſeir, probably the Philoteras Portus of Ptolemy, to Cous, a journey of four days, Cous, from a ſmall village, became the city in Upper Egypt next in magnitude to Foſtat or Old Cairo. This town, which, like Coptos, was indebted for its importance to the trade with India, poſſeſſed great opulence during the dominion of the Arabs. Since the Turks have become maſters of Egypt, and this beautiful country has been laid waſte by a pacha and 24 beys, Cous has undergone the fate of her rival. The trade from the Red Sea by Coſſeir is removed to Giené or Kené, farther down the river than Cous; and the latter place is reduced to a collection of cottages, inhabited by a few Copts and Arabs. In modern times, all the commodities of India, imported into Egypt, are either brought by ſea from Gidda to Suez, and thence carried on camels to Cairo; or are conveyed by land-carriage, by the caravan returning from the pilgrimage to Mecca.

COUSANGE, in *Geography*, a ſmall town of France, in the department of the Jura, chief place of a canton, in the diſtrict of Lons Le Saulnier, with 1152 inhabitants. The canton itſelf has 24 communes, a territorial extent of 130 kiliometres, and a population of 11,850 individuals. There are in this canton quarries of beautiful grey marble ſpotted red.

COUSEL, a ſmall town of France, in the department of Sarre. It is the chief place of a canton, in the diſtrict of Birkenfeld, and has 1269 inhabitants. The canton itſelf compriſes 43 communes and 8519 inhabitants.

COUSERANS, or Conserans, a ſmall territory of France, in what was formerly called the province of Gaſcony, the lord of which was a viſcount. It now forms part of the department of Arriége.

COUSIN, a term of relation and kinſhip; applied to thoſe who are iſſued from two brothers or two ſiſters.

The word is ordinarily derived from *conſanguineus;* though Menage brings it from *congenius*, or *congeneus*, q. d. *ex eodem genere*.

In the firſt generation they are called couſin *germans*, i. e. next couſins; in the ſecond, *ſecond* couſins; in the third and fourth, couſins *in the third and fourth degrees*.

In the primitive times, it was allowed couſin germans to marry, to prevent their making alliances in heathen families: but Theodoſius the Great prohibited it, under pain of death; on pretence that they were, in ſome ſort, brothers and ſiſters, with regard to each other.

Paternal couſins, are thoſe ſprung from relations on the father's ſide. *Maternal*, thoſe on the mother's.

Cousins, *Quater*. See Quater.

Cousin is alſo a title of honour, which kings beſtow on peers, or nobles, foreign princes of the blood, cardinals, and the principal perſons of their ſtate.

Cousin, Jean, in *Biography*, a French painter of the 16th century. He was a native of Soucy, near Sens; but the year of his birth is not known. We learn, however, that he married the daughter of the lieutenant-governor of Sens in 1589. He reſided principally at Paris, and painted with increaſing reputation in the ſucceſſive reigns of Henry II., Francis II., Charles IX., and Henry III., who ſeverally accorded him marks of their favour. We are not told if he had a maſter; but it is probable that he improved himſelf from the ſtudies he made on the works of Primaticcio at Fontainbleau.

Couſin is conſidered as the earlieſt hiſtorical painter of any note which France has produced. It is to be regretted, that many of his fineſt compoſitions were painted upon glaſs: there exiſt, however, ſome of his productions on canvas, which evince an elevated conception and conſiderable powers of execution. His heads are expreſſive, and the tout-enſemble of his pictures ſtriking and agreeable; though not wholly devoid of a dryneſs of manner. The Laſt Judgment, in a church at Vincennes, is his moſt celebrated performance. The paintings on the windows in the church of St. Gervais at Paris, repreſenting the Martyrdom of St. Lawrence, the Story of the Samaritan Woman, and another ſacred ſubject, are likewiſe the works of this artiſt. Nor was his genius confined to the pallet: the monument of admiral Chabot, in the church of the Celeſtines at Paris, ſhews him to have been no contemptible ſculptor. The year of his death is unknown; but we learn that he lived to an advanced age. Felibien, Extrait des differens Ouvrages, &c.

COUSINET, Catharine Elizabeth, an engraver, born at Paris in 1726. This lady received inſtructions from Cars and Feſſard, and was afterwards married to Louis

Lempereur, which connection ſtrengthened her natural bias for the graver. Madame Couſinet has engraved many plates in a very neat ſtyle; and, amongſt others, "La Pyramide de Sextius," from Pannini; "Les trois Colonnes de Campo Vaccino," do.; "Depart de la Chaloupe, & L'heureux Paſſage," a pair from Vernet. Huber, Heinecken. Strutt.

COUSSAPOA, in *Botany*, Lam. Enc. Aubl. Guian. 955. Fructification not perfectly known.

Sp. 1. C. *latifolia*. Aub. tab. 362. "Leaves oval; peduncles branched." A tree ſeventy feet high, and three in diameter, branched near the top. *Leaves* about five inches long and three broad, alternate, oval, entire, firm, with prominent nerves, even-ſurfaced, green above, reddiſh underneath, petioled; ſtipules long, ſolitary, caducous. *Flowers* collected in ſpherical heads, on common peduncles, which form a kind of corymb. *Fruit* yellowiſh, conſiſting of numerous ſmall ſeeds, attached to a ſpherical pulpy receptacle. 2. C. *anguſtifolia*. Aubl. tab. 363. "Leaves ovate-oblong; peduncles ſimple." *Leaves* three inches long, and near two broad, with fewer nerves than in the other ſpecies. *Fruit* larger, ſolitary, or growing in pairs, each on a diſtinct ſimple peduncle. Both the ſpecies are natives of Guiana.

COUSSAREA, Lam. Enc. Juſſieu. 203. Aubl. Guian. 98. tab. 38. Claſs and order, *tetrandria monogynia*. Nat. Ord. *Rubiaceæ*, Juſſ.

Gen. Ch. *Cal.* Perianth five-toothed. *Cor.* monopetalous; tube ſhort; border with four lanceolate diviſions. *Stam.* Filaments four, attached to the upper part of the tube between the diviſions of the border; anthers oblong. *Piſt.* Germ inferior, roundiſh, crowned by a diſk; ſtyle in the centre of the diſk; ſtigma four or five-cleft. *Peric.* Berry egg-ſhaped, umbilicated, violet-coloured, one-celled. *Seed* ſolitary, roundiſh, coriaceous.

Sp. C. *violacea*. A ſhrub ſeven or eight feet high, with a ſtem about three inches in diameter; branches and branchlets oppoſite. *Leaves* decuſſated, large, oval, acuminate, entire, ſmooth, ſhining, on ſhort petioles; ſtipules oval-acute, oppoſite, intermediate. *Flowers* white, in ſmall terminal, almoſt ſeſſile cluſters. The pulp of the berries is yellow, and adheres to a ſhell which contains the ſeed. A native of Guiana.

COUSSAY, in *Geography*, a town of France, in the department of the Vienne, and diſtrict of Loudun; 3½ leagues S. of Loudun.

COUSSERGUES, a town of France, in the department of Aveiron; 20 miles S.E. of Rhodez or Rodes.

COUSSEY, a ſmall town of France, in the department of the Voſges, in the diſtrict of Neufchâteau, 3 miles from that city. It has only 644 inhabitants; and the canton, of which it is the chief place, contains 26 communes, and a population of 7539 individuals, upon a territorial extent of 202 kiliometres and a half.

COUSSIN, H., in *Biography*, an engraver. We know nothing more of this artiſt than that, about the year 1760, he engraved ſome plates at Aix in Provence, and at Lyons, from Puget, Rembrandt, and ſome other maſters. Strutt, Heinecken.

COUSSINET, Cushion, in *Architecture*, the ſtone that crowns a piedroit, or pier; or that lies immediately over the capital of the impoſt. Its under-ſide is level, and its upper curved; receiving the firſt riſe or ſpring of the arch, or vault.

The word is uſed alſo to ſignify an ornament, in the Ionic capital, between the abacus and echinus, or quarter-round; and which ſerves to form the volutes. It is thus denominated from its repreſenting a pillow, or cuſhion, preſſed by the weight over it, and bound with the ſtrap, or girdle, called, by Vitruvius, *baltheus*.

Coussinet, *Fr. a bag*. Formerly a French ſoldier wore a ſort of bag on his left ſide, beneath the croſs belt, where the butt of the muſquet comes when carried. There were hooks for hanging it to. This term ſignifies alſo a wedge made uſe of for ſupporting a mortar on its bed.

COUSSON, in *Geography*, a river of France, which runs into the Loire, near Blois.

COUSTILLE, an offenſive arm, which ſome ſoldiers made uſe of in the 15th century, and towards the time of Charles VII., longer than an ordinary ſword, and cutting from the guard to the point, very thin, and of three faces or edges. A long poignard.

COUSTILLER, a perſon ſo called, from being armed with a couſtille, or long poignard. The couſtiller was the valet, who accompanied a cavalier or homme d'armes, independent of the page.

COUSTOU, Nicolas, in *Biography*, a ſculptor, born at Lyons in 1658. He received the rudiments of the art from his uncle, Antoine Coyzevox, who ſent him to Rome, and placed him under the tuition of the cavalier Bernini. Under this maſter he made ſuch rapid progreſs in the art, that on his return to France he was eſteemed one of the beſt ſculptors in that kingdom. Couſtou eſtabliſhed himſelf at Paris, where his increaſing reputation ſoon procured him the countenance of Louis XIV., who granted him a penſion, and conferred upon him many other marks of the royal favour. In 1702 he was made profeſſor of the royal academy at Paris; and, after executing many works with undiminiſhed ſucceſs, he died in that city at the age of 71.

Moſt of the ſtatues which decorate the church of the invalids at Paris are from the chiſſel of Couſtou. There are alſo three ſtatues by this artiſt, from which Cochin has made engravings. They are, 1. "Le Chaſſeur qui ſe repoſe;" 2. "Une Nymphe de Chaſſe;" and, 3. "La Chaſſe a l'Oiſeau." Abeced. Pittor. Heinecken.

Coustou, Guillaume, born at Lyons in 1677, was brother to the preceding artiſt, and having, like him, been ſome time inſtructed by Antoine Coyzevox, at a proper age, was ſent to Rome, where he made ſuch progreſs in ſculpture that he promiſed to equal his brother Nicolas. Returning to France, he went to Paris, where he chiſſelled many fine ſtatues for Louis XIV. and many of the French nobility. After the death of Louis, he continued to enjoy the favour of the duke of Orleans, regent of France. He became member, and afterwards director, of the royal academy of ſciences at Paris; which office he continued to enjoy until his death, which happened in the year 1746. Abecedar. Pittor. Heinecken.

COUSU, in *Heraldry*, has the ſame ſignification as *Rempli*, *viz.* for a piece of another colour or metal placed on an ordinary, as if it were ſewed on; which the word, in the French language, naturally implies; becauſe the additional piece is not properly on the field, but in the nature of a thing ſewed on. This is generally colour on colour, or metal on metal, contrary to the general rule of heraldry.

COUTABOU, in *Geography*, a town of Aſia, in the country of Thibet; 25 miles E. of Manas-Hotun.

COUTARDE, in *Botany*, Aubl. See Hydrolea *ſpinoſa*.

COUTANCES, in Latin *Conſtantia*, in *Geography*, an ancient town of France, in the department of La Manche, ſituated between the ſmall rivers Soulle and Bulſare, partly on a hill and partly in a plain, about 200 miles W. of Paris, 48 N.E. of St. Malo, 36 W. of Caen, and 27 N. of Avranches; in W. long. 1° 32′, and N. lat. 49° 2′ 50″: not far from the ſea. It has a ſub-prefect, a biſhop, three courts of juſtice, and a regiſter office. From the remains of an aqueduct, ſuppoſed to be Roman, Coutances is conjectured to be a place of great antiquity. It was formerly the capital of the Cotentin in Lower Normandy. Its population amounts to 8507, and that of its canton, which contains 8 communes and a territorial extent of 57 kiliometres and a half, to 14,847 individuals.

Coutances is the chief place of a diſtrict, which, upon a territorial extent of 1570 kiliometres, counts 139 communes and 130,530 inhabitants. This diſtrict produces abundance of corn, pulſe, and garden fruits: its paſtures are excellent. It is famous for capital Normandy horſes and good milking cows. There are alſo much cotton and worſted yarn, linen, and ticking, and parchment, manufactured in this diſtrict; the principal trade is with corn, butter, poultry, horſes, cattle, worſted, lace, and parchment.

COUTAREA, in *Botany*, Aubl. See PORTLANDIA *hexandra*.

COU-TCHENG, in *Geography*, a town of Aſia, in the country of Corea; 37 miles S.W. of Tſin-tcheou.

COU-TCHING, a town of China, of the third rank, in the province of Pe-tche-li; 6 leagues S.S.W. of King.—Alſo, a town of Aſia, in the country of Corea; 22 miles S.S.E of Ko-ang-tcheou.

COU-TCHING-KEON, a ſmall Chineſe iſland. N. lat. 35° 55′. E long. 122° 14′.

COUTEAUX, DES, a lake of Upper Canada, running about S.W. by W. 12 miles, and from a quarter to two miles wide, from which is a portage of 65 paces. A deep bay runs E. three miles from the weſt end, where it is diſcharged by a rapid river; and after running two miles W., it again becomes ſtill water. In this river are two carrying places, the one 15, and the other 190 paces. From this to the portage des Carpes is one mile N.W., leaving a narrow lake on the E. that is parallel with the lake des Couteaux, half its length, where is a carrying place, which is uſed when the water in the laſt-mentioned river is too low. The portage des Carpes is 390 paces, from whence the water ſpreads irregularly between rocks, five miles N.W. and S.E. to the portage of Lac Bois Blanc, which is 180 paces. Then follows the lake of that name, improperly ſo called, ſays Mr. Mackenzie, as the natives name it the "Lake Paſcow Minac Sagaigan," or Dry Berries.

COUTHUTLAUGH, from the Saxon *couth, knowing*, and *utlaugh, outlaw;* a perſon who receives a man outlawed, and cheriſhes or conceals him: for which offence he was, in ancient time, ſubject to the ſame puniſhment with the outlaw himſelf. Bract. l. 3. tr. 12. c. 3.

COU-TIAN, in *Geography*, a town of China, of the third rank, in the province of Fo-kien; 32 miles S.S.E. of Kien-ning.

COUTOUBEA, in *Botany*, Aubl. See EXACUM *ſpicatum ramoſum*.

Obſ. We ſhall here obſerve, once for all, that many of Aublet's genera not having yet received claſſic names, we have reluctantly preſerved his barbarous nomenclature. This, indeed, has already been done by La Marck and Juſſieu; but the latter profeſſedly regards it only as a temporary diſtinction. "Quædam," ſays he, "forte ulteriori recognitione delenda & addenda confinibus; unde, rudia licet, nondum mutantur horum nomina."

COUTOUETOU-HOTUN, in *Geography*, a town of Chineſe Tartary; 215 miles E. of Pekin. N. lat. 40° 28′. E. long. 113° 23′.

COUTRA, a lough or lake of Ireland, in the county of Galway, near the borders of Clare, which is ſaid to poſſeſs all the beauties that hills, woods, and iſlands can impart to water. It is about 3 miles S.E. from Gort. Beaufort.

COUTRAS, a ſmall town of France, on the river Drome, in the department of Gironde, 12 miles N.E. of Libourne, and about 400 S.W. of Paris; in N. lat. 46° 4′. It is the chief place of a canton, and has 3060 inhabitants. The canton itſelf has an extent of 197 kiliometres and a half, 13 communes, and a population of 9637 individuals. Coutras is remarkable for a victory which Henry IV. of France gained here, in 1587, over the army of the League.

COUTURE D'ARGENSON, a town of France, in the department of the Two Sevres, and diſtrict of Melle; 8 leagues S.E. of Niort.

COUTURE, *La*, a town of France, in the department of the Straits of Calais, and diſtrict of Bethune; 1½ league N.E. of Bethune.

COUVAY, JOHN, in *Biography*, a deſigner and engraver, born at Arles about the year 1622. This artiſt may be ranked as a good ſecond-rate engraver. He managed his graver with facility and boldneſs, in a ſtyle much reſembling that of Villemena. He has engraved both hiſtorical pieces and portraits, as well from his own compoſitions as from thoſe of Raffaele, Guido, Annibale Caracci, and other painters, and frequently marked his plates with a cypher, compoſed of the initials of his name. Amongſt his beſt prints we may enumerate the following: 1. "Louis XIV. a cheval, précédé de la Renommée," from J Bourdon; 2. "La Vierge Marie, qui preſente des Œillets a l'Enfant Jeſus, aſſis ſur ſes Genoux," from Raffaele; 3. "St Jean-Baptiſte dans le Deſert," from the ſame; 4. "St. Benoit tenté par le Demon de la Chair, le fait fuir en lui montrant le Crucifix," from Guercino. The time of Couvay's death is not known. Huber, Strutt, Heinecken.

COUVERCLE, in *Geography*, an eminence in the glaciers of Chamouny in Switzerland, which conſiſts of a moſt extraordinary rock of granite, having the appearance of a large, irregular, multilateral building placed on a mountain; the aſcent to which along the ice is very laborious, but perfectly ſecure. Near the baſe of this elevated rock three ſtupendous vallies of ice preſent themſelves to view; *viz.* the glaciers of Talefre to the left, in front that of l'Echaut, and the Tacu to the right; all uniting in one great valley of ice, called the "Glacier des Bois," which ſtretch under the feet of the obſervers, and appear ſurrounded and ornamented by the rugged needles. From the top of this eminence the view comprehends the ſame ſublime ſcenes obſerved at its baſe; but conſiderably heightened and enlarged:—the ſtupendous extent of ice appearing like a rugged expanſe of frozen ſea, bounded by the moſt gigantic rocks, and terminated by Mont Blanc, the Atlas of the globe. In this ſituation, the eyes of the ſpectator, himſelf entirely encloſed between ice and ſnow, repoſe on a triangular rock, clothed with graſs and Alpine plants, and ſtarting up like a fertile iſland in the midſt of a deſolate ocean. This is known by the name of the "Garden," and exhibits a curious contraſt to the ſurrounding drearineſs.

COUVERT, in *Heraldry*, denotes ſomething like a piece of hanging falling over the top of a chief, or other ordinary, ſo as not to hide but only to be a ſhadow to it.

COUVERT, *Fr.*, a *Shelter*, or *Cover*, in *Military Language*, a term expreſſive of ſafety, protection, or ſecurity. To advance under cover of the guns, is to advance againſt an enemy, who dares not approach you on account of the fire from your guns, whether they be on board of veſſels, or on works, or batteries. It alſo ſignifies whatever ſhelters any movement, or renders it imperceptible; as under cover of the night, under cover of a wood, dyke, town, eminence, &c. A work defended by another work is covered. The corridor, or great road of the rounds, is covered by the glacis, which ſerves as a parapet to it. A camp is ſaid to be covered by a river, by a moraſs, by a wood, by a hill, &c. A gate of a place is in like manner ſaid to be covered by a ravelin.

COUVERT, or COVERT, in *Rural Economy*, a word frequently applied to a place that is ſheltered, not open or expoſed, as from bruſhwood, &c.

COUVERTURE *d'un Camp*, *d'un Logement*. See COUVERT.

COUVEY, or COVEY, in *Rural Economy*, a term often provincially applied to a cover of furze or other low ſhrubby plants, kept for the preſervation of game. It alſo ſignifies a flock of partridges.

COUVIGNAN, in *Geography*, a town of France, in the department of the Aube, and diſtrict of Bar-Sur-Aube; 1 league W.S.W. from Bar-Sur-Aube.

COUVIN, a ſmall town of France, chief place of a canton, in the department of the Ardennes, diſtrict of Rocroy. Its population amounts to 2496, and that of the canton to 9004 individuals. The canton has 15 communes, and a territorial extent of 220 kiliometres.

COUVIN, a town of Germany, in the circle of Weſtphalia, and biſhopric of Liege; 15 miles S.S.W. of Liege.

COUVRE-FACE, Fr. Cover-face. This term is uſed by ſome engineers, and among others by Cohorn, to denote or expreſs the counter-guard. Others, and particularly Montalembert, mean by *couvre-face general*, or general cover-face, a complete ſecond line of inveſtment.

COUVRE-*Feu*. See CURFEU.

COUXEA, in *Geography*, a town of Africa, on the coaſt of Upper Guinea; in the country of Sierra Leona. N. lat. 7° 30′. W. long. 9° 24′.

COW, or COW-MULL, a river of Hindooſtan, formed by the junction of the Dilen, which riſes to the N. or N.W. of Ghizni, and of the Semil, which falls into the Dilen, near Gurdaiz. The confluent river, after this junction, takes the name of Cow, and, purſuing its courſe towards Nagar, or Nughz, receives near that place another river, which flows from the quarter of Candahar. Major Rennell concludes, on the beſt authority, that the waters of Ghizni and Gurdaiz form the great river of Bunguſh, which paſſes by Nughz, and Bunnoo, and diſcharges itſelf into the Indus at Deenkote; and alſo that this river is the one named Cow, or Cow-mull, by the oriental hiſtorians and geographers. This river Rennel proves to have been the ancient *Cophenes*; which ſee.

COW, in *Rural Economy*, an animal of the neat cattle kind, which is well known as ſupplying milk, one of the principal articles of food for man. Of this uſeful creature there are ſeveral different breeds and varieties, which differ materially in their habits and economy, ſo as to ſuit the different views and purpoſes of the farmer. Some of the breeds are remarkable for their docility and tameneſs, while others poſſeſs a conſiderable degree of wildneſs and ferocity. It is obvious, that in providing cow-ſtock, much attention is requiſite, in order to ſuit the animals to the different intentions which they are to ſupply, as well as the paſture on which they are to be fed. Where milk is the primary object, they ſhould be carefully ſelected from ſuch cows as have been found to afford, not only good milk in a large proportion to their ſize, but continued it for a conſiderable length of time. In the view of cheeſe, quantity of milk muſt be chiefly attended to; but in the caſe of butter, the quality of the milk will be more neceſſary to be regarded than the quantity. Where the intention is breeding, form and breed will require the particular conſideration of the farmer.

In all caſes, it will alſo be proper that the male ſhould be of a proper age, in order to his poſſeſſing due vigour, and be in good keep.

There is likewiſe much care and attention demanded in the rearing of the young ſtock in all theſe views. See CALF.

The principal diſtinguiſhing marks of a good cow are ſaid to be theſe: wide horns, a thin head and neck, dewlap large, full breaſt, broad back; large deep belly; the udder capacious, but not too fleſhy; the milk veins prominent, and the bag tending far behind; teats long and large; buttocks broad and fleſhy; tail long and pliable, leſs proportionable to the ſize of the carcaſe; and the joints ſhort. To theſe outward marks may be added a gentle diſpoſition, a temper free from any vicious tricks, and perfectly manageable on every occaſion. On the other hand, a cow with a thick head and ſhort neck, prominent back bone, ſlender cheſt, belly tucked up, ſmall udder, or a fleſhy bag, ſhort teats, and thin buttocks, is to be avoided, as totally unfit for the purpoſes either of the dairyman, the ſuckler, or the grazier.

There are different kinds of theſe animals preferred in different ſituations and ſorts of land. The moſt valuable cows are perhaps, however, thoſe which are bred in Lancaſhire, Yorkſhire, Staffordſhire, and upon the ſtrong land in other parts of the kingdom, which, being of the largeſt ſize, yield great ſtore of milk, when turned on paſtures where the graſs is in ſufficient abundance, or fed with a conſtant ſupply of ſuch food as, from its ſucculency, conduces much towards the nutriment of the creature, and enables her to give large quantities of milk, ſuch as turnips, grains, garden vegetables, &c. But as theſe large cows require a more ample proviſion than would fall to their ſhare on the generality of farms it would ſeem that they ſhould not be had by thoſe farmers, whoſe land is not of the moſt fertile kind; for, on ordinary keep, a ſmall cow will yield a fairer profit than one of the Yorkſhire or Staffordſhire breed, which, having been bred on the beſt kind of land, would be ſtarved, where a Scotch and a Welſh cow would find an ample ſupply of food. The Lancaſhire, or long-horned ſorts of cows have been greatly improved by the exertions of the breeders in the midland diſtricts. And thoſe of the Yorkſhire, or ſhort-horned kind, by ſir William St. Quintin, and others.

The Herefordſhire cows are large in ſize, handſome in form, and ſleak in the coat, but are only ſuited to the richer ſorts of land where the herbage is ſweet and abundant. They uſually afford a pretty fair proportion of milk, being rather ſuited to the making of butter and cheeſe. When they come to be fed, they generally fatten well and weigh heavy.

The North Wiltſhire cow is alſo of a large kind, being adapted to the ſame ſorts of land, on which they afford an abundant ſupply of good fine flavoured milk, which is productive in both cheeſe and butter. They have likewiſe the property of fattening well when they have done milking.

The North and South Wales cows do well on the poorer ſorts of lands, the former, though ſmall, give a large quantity of milk, and are very profitable. The latter alſo, on middling ſorts of paſtures, afford a good ſupply, and on good ones their produce is abundant.

The Kiloe ſort on ſimilar poor deſcriptions of land are likewiſe an excellent kind for milk; and have the valuable property of fattening well after the milking ſeaſon is over.

The Suffolk duns, which are ſmall and without horns, are by many highly eſteemed for the uſe of the dairy, being highly productive in milk, though, perhaps, rather deficient in the ſupply of butter, when compared with the Lancaſhire ſort.

The Alderney cows are a ſort which are much extolled for affording fine rich milk, though leſs in quantity, than ſome other kinds, the butter being excellent in flavour. And they do tolerably well on almoſt all ſorts of land. When fattened, they produce very good beef. See *Alderney* CATTLE.

The Devonſhire breed is likewiſe a handſome ſort, ſomewhat larger than the Alderney, thriving well under middling keep, ſtanding the winter ſeaſon well. They are ſaid by ſome to be a profitable ſort for the dairy. See DAIRYING.

There is ſcarcely any farm which does not admit of keeping one or more of theſe animals of ſome ſort or other; but regard ſhould always be paid to the condition of the ſoil. Indeed, ſo neceſſary are cows in the economy of a farm, and their produce ſo very advantageous, that they can hardly be diſpenſed with by the farmer.

The cow goes nine months with young, and but rarely produces more than one calf at a time. Where the herd is extenſive, an account ſhould always be kept of the time when each cow takes the bull, that ſhe may be dried off at a reaſonable diſtance of time before the expected term of geſtation be completed. The moſt proper time for the cow to be dried off is about two months before her calving, when ſhe ought to be ſuffered to lie quiet, and not be brought up with the other cows at the milking or ſuckling-times; for, if a cow be continued in milk nearer to the time of calving than the period above allotted, it will not only greatly injure her future progeny, by rendering it weakly and ſtunted, but will alſo have an ill effect on the health of the cow herſelf. Under good keep, ſhe may, however, be milked ſome weeks longer.

It has, indeed, been ſtated by the author of Practical Agriculture, as probable, that "much in this buſineſs muſt depend on the manner in which they are kept; as where they are well fed, they may be continued in milk till within a week or two of their calving, without ſuffering any injury whatever from it; but in the contrary circumſtances, it may be better to let them run dry for a month, ſix weeks, or more, according to their condition, in order to their more fully recruiting their ſtrength. It appears, however, not improbable, but that the longer the milking is continued, the more free the cows will be from indurations and other affections of the udder; which is a circumſtance deſerving of attention. Where only one or two cows are kept for the ſupply of a family, it is likewiſe uſeful to know, that by good feeding they may be continued in milk, without any bad conſequences, till nearly the time of calving. We have tried this method ſeveral times, without perceiving the leaſt poſſible injury to ariſe from it. And in the Agricultural Survey of the Weſt Riding of Yorkſhire, it is ſtated, that no advantage was found, on trial, to reſult from allowing the cows to go dry two months before calving. They have there been kept in milk till within ten days of the time of dropping the calf."

When a cow is four months gone with calf, the fact may eaſily be aſcertained by preſſing upon her off-flank, where the calf will be felt to kick againſt the hand. Theſe animals generally ſhow their deſire for the male, or taking the bull, by riding upon the other cows, and by the turgid appearance of their bearings. They ſhould be well attended to at theſe periods. And they may be known to be near the time of calving by ſpringing at the udder, or at the bearing. By the term ſpringing at the udder, is meant the collection of liquid in the bag, which, a few weeks before the time of geſtation is accompliſhed, aſſumes, in ſome degree, the appearance of milk, and may be drawn from the teats. To ſpring at the bearing, is when this part is more than ordinarily large and diſtended. Heifers are ſaid, by ſome farmers, to ſpring ſooneſt at the bearing, and old cows at the udder. Cows are ſometimes found to ſlink their calves; and whenever this accident happens, care ſhould be taken to keep the beaſt apart from the reſt of the herd for a night or two, leſt the other breeding cows ſhould, by a kind of involuntary impulſe, unfortunately do the ſame. This may be owing to accidents of different kinds; but ſome cows are peculiarly liable to abortions; and where this happens, they ſhould never be continued long in the herd, as being unlikely to yield any conſiderable degree of profit to the owners of them under ſuch circumſtances.

During the winter ſeaſon, if the weather be very cold, wet, and uncomfortable, the cows which are ſhortly expected to calve, ought, Mr. Banniſter ſays, to be lodged at night in a large convenient out-houſe, or ſome other place, for a week or two previouſly to calving; as it may be the means of ſaving the life of the calf, and perhaps of its dam likewiſe: for, when the calf drops in the yard or field under ſuch circumſtances, the hazard of its periſhing through the inclemency of the weather is very great, and it may conſiderably endanger the life of the cow. But if from inattention, or other cauſes, the creature ſhould catch cold by calving abroad in ſharp winter-nights, which may be perceived by a refuſal of her food, and by her trembling joints, ſhe ought immediately to be driven into a warm ſhed, together with her calf, and fed with ſugar ſops and ale, and with the beſt and ſweeteſt hay; and ſhould not be ſuffered to drink any cold water. By this treatment ſhe will moſtly, he thinks, recover in a few days; but ſhould the diſorder hang about her, balls compoſed of aromatic cordial ſubſtances may be given, or comfortable cordial drenches.

The milch-cow is generally in her prime at five years old, and will commonly continue in a good milking ſtate till ten years of age, or upwards; but this depends greatly on the conſtitution of the animal; ſome cows, like other animals, exhibiting marks of old age much earlier than others. They can, however, ſeldom be kept with advantage to nearly ſuch an age.

It has been obſerved by the author of the Synopſis of Huſbandry, that there are four different purpoſes to which the produce of this animal is particularly applied: the churn, cheeſe, ſuckling, and the immediate profit of the milk. This laſt, near large towns, is frequently carried on to a very conſiderable extent; ſo as to form buſineſs which is uſually denominated cow-keeping. See Cow-*Keeping*. Where butter is the principal object, ſuch cows ſhould always be choſen as are known to afford the beſt and largeſt quantities of milk and cream, of whatever breed they may be. But the quantity of butter to be made from a given number of cows muſt always depend on a variety of contingent circumſtances, ſuch as the ſize and goodneſs of the beaſts; the kind and quantity of the food; and the diſtance of time from calving. As to the firſt; it need ſcarcely be mentioned that a large cow will give greater ſtore of milk than one of a ſmaller ſize; though cows of equal ſize differ greatly as to the quantity of cream produced from the milk of each: it is, therefore, on thoſe cows whoſe milk is not only in large abundance, but which, from a peculiar inherent richneſs, yields a thick cream, that the butter dairy-man is to place his chief dependence; and where a cow is deficient in either of theſe reſpects ſhe ſhould be parted with, and her place ſupplied by one more proper for this uſe. As to the ſecond particular, namely, the kind and quality of the food; thoſe who would wiſh to profit by a dairy ought to provide for their cows hay of the firſt quality, or a ſuperior goodneſs to the common ſort to be given them in the depth of winter, and this in an unlimited degree that they may always feed till they are perfectly ſatisfied. And when the weather will permit, the cows ſhould be indulged with an outlet to marſhes or low meadow-grounds, where they may feed on ſuch green vegetables as are preſent; which is far preferable to the practice of confining them the whole day on dry meat, and will enable them to yield greater plenty of milk, and will give a fine yellow tinge or colour to the butter even in the winter ſeaſon. As to thoſe who confine their milch cattle to the yard in the winter time, when the weather will admit of their being turned abroad, or who fodder them chiefly on ſtraw, they cannot expect to reap much advantage from theſe animals, whether kept for the pail, or for ſuckling: for, if the creature be refuſed a due allowance of wholeſome and nutritious diet, how can they be expected to yield any great abundance of milk? As to the third particular: thoſe cows will certainly give the largeſt quantity of milk, and of a ſuperior quality, which have calved the lateſt. Hence the neceſſity of providing a breed of cows, which, from their conformation, bid fair to fill the pail at every meal; and of limiting the number of the herd to the ſize of the farm, that they may always be ſupplied with ſucculent paſture; and from hence likewiſe it is ſuppoſed may be adduced the propriety of attending to the peculiar property of each cow, that ſuch as are not kindly for the pail, either by giving over their milk too early, or by continuing too long dry, may be turned off for fattening: while thoſe which yield the richeſt cream, are quiet and of a good temper, and which continue to give their milk to the lateſt period; which are not apt to ſlink their calves, and which are generally healthy, may be kept on the farm with the greateſt emolument, till they become incapacitated by age to yield any further profit. From theſe cows it is, too, that ſuch female calves ſhould be made choice of as are intended to be weaned, for the purpoſe of continuing the ſtock. This is a very eligible mode of practice, and deſerves the attention both of the ſuckling-farmer and the dairy-man, as it will always be found that the cows which are bred on the land will be more kindly, under ſimilar circumſtances, than thoſe which are bought in from other paſtures; and having ſprung from a proper and reputable ſtock, will rarely fail to anſwer the utmoſt expectations of the breeder, and in the end repay all the care and expence he may have been at in the rearing and providing of them.

Thoſe farmers, it is added, who would make the utmoſt advantage from cows, either as ſucklers, dairy-men, or milk-ſellers, ſhould always provide a bull to run in the herd to obviate the perpetual trouble of driving them perhaps a mile or more to the bull, and in order to prevent the loſs and inconvenience of their becoming frequently barren in conſequence of the male not having been near them. One bull will generally be ſufficient for from twenty to thirty cows. Theſe male animals are commonly in their prime at two years old, and ſhould ſeldom or never be ſuffered to continue longer in a ſtate of virility than to about the fifth year; as after that time bulls which before were gentle and lay quietly in the cow-paſtures are moſtly apt to contract vicious diſpoſitions, and become very miſchievous and unmanageable. Whenever this happens, they ſhould of courſe be immediately caſtrated, and made what are termed ſegs or ſtags. See STAG and SEG.

It is farther ſtated, that in the vale diſtrict of Buckinghamſhire and in Oxfordſhire, very great numbers of cows are kept for the purpoſe of making butter. The fertile lands in theſe counties are capable of maintaining a breed of large cows, which yield great quantities of milk; ſo that it is not an uncommon circumſtance for one farmer to keep a herd or dairy of fifty or ſixty cows, and to collect a quantity of cream ſufficient to fill a barrel churn of ſixty gallons or more in a week. The butter made from this cream is ſold by the farmer or dairy-man to perſons who make it their buſineſs to purchaſe this article at a ſtated price from Michaelmas to Lady-day, and at an inferior rate or price from Lady-day till Michaelmas: the butter thus collected being ſent to London every week in waggons, it is conſigned to the dealers, who retail it to the conſumer, and no ſmall profit from this traffic accrues to the waggon-owner and the butter-merchant. This ſort of butter is moſtly made up in lumps containing the quantity of two pounds each, and for that reaſon it has obtained the name of lump-butter. Its flavour is peculiarly ſweet and agreeable, which is chiefly owing to the goodneſs of the paſture upon which the cows are fed; for this intrinſic merit would in vain, it is ſaid, be ſought for in butter made from ordinary paſtures, how great ſoever may be the ſkill of the dairy-woman: And that though the graſs ſhould be equally luxuriant, the cows of the ſame breed, and the cream in like abundance, yet would a decided preference ſtill remain in favour of the vale fed cows; for, as a fattening beaſt on rich land will thrive much quicker than on thin ſoils, though the herbage be ſhorter on the former than on the poor ground, ſo will cows give a larger ſtore of milk, and that of a more nutritious quality, when fed on deep fertile meadows; than if depaſtured on thoſe of inferior goodneſs or quality.

But it is well known that, beſides the butter above-mentioned, large quantities are ſent to the London markets from other places. Epping butter has long been held in the higheſt eſtimation; and great quantities are manufactured in Cambridgeſhire, and the adjoining counties. The Cambridge butter is ſent in ſmall pans; and has an additional quantity of ſalt mixed with it, to enſure its keeping for ten days or a fortnight, and is generally perfectly free from any rancid taſte. And farther, Yorkſhire, Lincolnſhire, and other neighbouring counties, where the land is rich and fertile, likewiſe ſupply large quantities of butter, which is ſalted and put into tubs for the ſouthern markets.

It is ſtated further, that in all thoſe counties where the profit of the cow ariſes chiefly from the ſubſequent manufacture of the butter, the whole care and management of the articles reſts with the houſewife; ſo that the farmer has little elſe to do but to ſuperintend the depaſturing of his cattle: the milking, churning, and, in ſhort, the whole internal regulation of the dairy, together with the care of marketing the butter, where the ſame is made up wholly for home conſumption, falling alone upon the wife. In this department of rural economy, ſo large a portion of ſkill, of frugality, cleanlineſs, induſtry, and good management, is required, that without them the farmer, with the utmoſt care, and the moſt aſſiduous attention to his buſineſs without doors, may be materially injured through the imprudence or extravagance of his wife, in the conduct of his domeſtic concerns. This obſervation will indeed hold good in many other parts of buſineſs which paſs through the hands of the miſtreſs in a farm-houſe: but there is none wherein the farmer may be ſo greatly aſſiſted, or ſo materially injured, by the good conduct or want of care in his wife, as in this ſort of dairying. See Butter, and Dairying.

Where the making of cheeſe is the principal object of the farmer, the management, in reſpect to the cows, muſt be nearly the ſame as that deſcribed above. See Cheese, and Dairying.

Where the cows are intended for the purpoſe of ſuckling of calves, the farmer ſhould, it is obſerved, provide himſelf with a breed of cows ſuited to the quality of his land. Where the farm abounds with fertile paſtures, watered with wholeſome ſtreams, and not far diſtant from the yard, ſo that the cows may be turned immediately out of the ſuckling-houſe upon their feed, the benefit will be in every reſpect ſuperior to what can be expected from an arable farm, or where the green land is in a ſmall proportion to the ploughed; for, in this latter caſe, the cows muſt depend for their ſuſtenance and ſupport chiefly on the artificial graſſes, as they are called in many places; ſuch as clover, trefoil, rye-graſs, &c. which, beſides that they are not properly adapted to the nature of this animal, will be ſubject to the further inconvenience of being frequently arreſted in their growth by a dry ſummer; at which time, likewiſe, the ponds, if there be any in the uplands, will moſt probably be dry, ſo that the cows will be cut off from the enjoyment of ſolacing themſelves in the water:—an indulgence which they are very fond of, as in this retreat they find a ſhelter and protection from the continual ſtings of the flies and other inſects, and ſlake their thirſt at their pleaſure. Beſides, by feeding in the uplands, they acquire a habit for roaming, and thus are eternally committing devaſtations in ſearch of freſh aliment, not being eaſily reſtrained by hedges, or other dry fences, under ſuch circumſtances.

It has ſince, however, been found by further experience, that not only thoſe graſſes, which have been uſually denominated artificial, may be advantageouſly applied as a food for milch-cows, but various other vegetables of luxuriant growth, ſuch as the turnip, cabbage, borecole, and many other ſorts. See Dairying.

In caſes where the land is fertile, ſo as to produce throughout the ſummer great ſtore of paſture, and a ſweet and wholeſome fodder for the winter conſumption, it may, as has been already ſhewn, be adviſeable to purchaſe the larger breed of cows, ſuch as thoſe which are bought up from Yorkſhire, Staffordſhire, &c. But on poor ſoils, or where the arable land is in a much larger proportion than the paſture, ſo that the cows muſt depend in a great meaſure on the production of the ſown graſſes for their ſupport, the ſmall North Wales heifers will be found to anſwer every end deſired from them much better than thoſe of a heavier and more weighty kind. See Calf-*Suckling*, and Dairying.

In order to the proper management of cow-ſtock, the cow-houſes or ſheds ſhould be of a ſize adapted to the number of the beaſts to be contaiued in them. Each cow ſhould be driven into the houſe at ſuckling-time, and her head confined in a proper manner, having ſome fodder lying conſtantly before her, and a ſpace left between every beaſt. When they become once accuſtomed to this kind of reſtraint, they will without any trouble come into the places deſtined for them, when the calves may be ſuckled with the greateſt eaſe and facility, and with the leaſt poſſible waſte of time. See Cattle-*Sheds*, and Calf-*Pens*.

It has been remarked by a late writer, that "where it is not the practice to bind up the cows in houſes conſtructed for the purpoſe, eſpecially during the winter ſeaſon, which ſeems by much the beſt method, warm well-ſheltered yards with open ſheds ſhould be provided, in order to protect the animals, and prevent their being expoſed to the weather; as by ſuch means they will afford much larger ſupplies of milk, than where they are left in a ſtate of expoſure to wet and cold in open dirty yards, as is often the caſe. The bottoms of yards for this uſe ſhould be well laid with ſome ſorts of hard materials, and the dung be frequently ſcraped off them, ſo as to keep them as dry and clean as poſſible. They ſhould alſo have plenty of good clean water to drink at pleaſure. If due attention be not beſtowed in theſe reſpects, which is ſeldom done, it is impoſſible that the advantages that might otherwiſe be the caſe can be derived from them."

In reſpect to the management of cows, ſo far as food is conſidered, it has been well ſuggeſted, "that care ſhould be taken to keep them conſtantly in good condition, as, when they are ever ſuffered to become very lean and flat in the winter ſeaſon, it is impoſſible that they can be brought to afford a large quantity of milk, by getting them into perfect condition in the ſummer months; as where cows are lean at the period of calving, no management afterwards is ever capable of bringing them to afford, for that ſeaſon, any thing near the proportion of milk that they would have done, if they had been ſupported in proper condition during the winter. Food of the moſt nouriſhing ſucculent kinds ſhould, therefore, be regularly given in ſuitable proportions, in the cold inclement months; and the animals be kept warm, and well ſupplied with pure water." See Cow-*Keeping*.

Cow-*Bane*, a name provincially applied to a weed *(æthuſa cynapium)*, which is found in arable fields, and is noxious to man; but which cows, horſes, ſheep, goats, and ſwine, eat without injury. According to Withering, it is likewiſe noxious to geeſe. It ſhould be kept from ſpreading in corn fields.

Cow-*Clags*, a term often provincially uſed to ſignify the clotted lumps of hard dirt which hang to the buttocks of cattle, or other animals which are tied up in the houſe during the winter ſeaſon.

Cow-*Ground*, a word provincially uſed in ſome diſtricts to ſignify a cow-paſture.

Cow-*Herd*, a term applied to a perſon whoſe office it is to attend upon and take care of the herds of cattle, in diſtricts where they run in common paſtures.

Cow-*Herd Milk*, a term applied to ſuch as is obtained from the cow-herd.

Cow-*Houſe*, the name of the building or place where cows or other cattle are kept, in order to protect them from the effects of the winter ſeaſon. See Cattle-*Sheds*.

Cow's *Iſland*, in *Geography*. See Vache.

Cow-*Keeping*, in *Rural Economy*, a term ſignifying the buſineſs or practice of keeping cows, with a view of deriving profit from the ſale of the milk in large and populous towns. The buſineſs of dealing in milk has been conſiderably increaſed during the laſt half century, ſo as to be at preſent in many ſituations a very extenſive concern. In the county of Middleſex, the number kept by the London dealers in milk, are ſtated by the intelligent author of the Agricultural Report of that diſtrict, to ſtand as below:

Middleſex.	
Tothill-fields Knightſbridge	285
Edgware Road	550
Paddington Tottenham-court Road Battle-bridge Gray's Inn Lane Bagnigge-Wells Iſlington	3950
Carried over	4785

Brought forward	4785
Hoxton - - - -	150
Ratcliff - - - -	205
Mile-End - - - -	406
Lime-Houſe - - -	180
Poplar - - - -	70
Bethnal-Green - - -	200
Hackney - - - -	600
Bromley - - - -	160
Bow - - - -	100
Shore-Ditch Kingſland - - -	200
Odd cows - - - -	234
Kent.	
Deptford Rotherhithe Greenland-Dock New-Croſs Bermondſey - - -	681
Surrey.	
Lambeth South-Lambeth Kennington-Bridge Cold-Harbour Peckham Peckham-Rye Newington Camberwell - -	619
Total	8590

It has been ſtated, that in the neighbourhood of different villages round the metropolis, as Hackney, Iſlington, Paddington, and many others, the cow-keepers ſecure every inch of land they can meet with; and that ſome of them have remarkable large ſtocks of theſe animals. One of theſe, on the different farms which he poſſeſſes in theſe neighbourhoods, has nearly 1000 cows, having often been aſſerted to have had more than 990, and once to have been within one of a thouſand. The laſt number of theſe cows are ſaid to be worth the vaſt ſum of 23,000*l.*, affording an annual produce of about 38*l.* each, which is 38,000*l.*, and as the net profit of each cow will be ſhewn below to be 6*l.* it is obvious that the keeper of 1000 cows muſt derive the large annual amount of 6,000*l.* from them: an immenſe ſum, when the ſmallneſs of the trouble is conſidered. And as the population in theſe different places has conſiderably increaſed ſince the period at which this ſtatement was made out, it would ſeem not improbable but that the number at preſent ſtands much higher. The ſcarcity of graſs-land in the immediate vicinity of the metropolis has now rendered it neceſſary for this ſort of dealers to remove to a greater diſtance than was formerly the caſe, which they are enabled to do by means of light carts, and a peculiar mode of conveying the milk in a ſort of tin jars ſlung in them.

It is ſufficiently obvious, that the practice of the milk-dealer is only capable of being carried on with adequate profit and advantage in caſes where abundance of all ſorts of food, both for the ſummer and winter ſupport of the animals, can be readily provided, and in ſituations where the population is ſuch as to afford a ready and certain demand for the produce at all ſeaſons. Under other circumſtances this ſyſtem of management cannot be purſued with any chance of ſucceſs.

In the execution of this plan of management, a circumſtance on which much depends, is that of providing ſuch cows as are properly adapted to the intention, which is that of a full ſupply of milk, without much regard to the quality. Of courſe, the cows to be choſen for this purpoſe are, ſuch as are capable of yielding the largeſt poſſible quantity of milk, with the leaſt poſſible conſumption of food. But though the profits of the cow-farmer muſt materially depend upon this circumſtance, it does not appear to have been much regarded, or in any way ſubjected to the teſt of experiment. The nature of the keep, in reſpect to quantity and nutritive properties, will, in a great meaſure, lead to the proper choice of cows; as they ſhould never be diſproportionately large to the nature and kind of food which they are to receive. As in moſt caſes of this ſort of management the food is both rich in its quality, and capable of being applied in an abundant manner, the large breeds may be had recourſe to with the greateſt chance of profit in general, though, under particular circumſtances, the ſmaller ſorts may now and then be employed. This ſeems to agree pretty well with the actual ſtate of the ſtock in moſt inſtances of this kind of farming, as we find the large ſhort-horned Holderneſs breed commonly employed, though, in particular caſes, the ſmaller ſorts, as the long-horned Suffolk and polled breeds, are introduced.

In the ſtocking of cow-farms, the great conſideration ſhould, of courſe, be that of the means of ſupport which the farmer has in his power for the animals; but there are ſome other circumſtances which ſhould, in part, direct his conduct. It has been ſtated, by a writer of conſiderable information on the ſubject, that, though the large breeds of cows may at firſt, while the ſupply of food is of the green ſucculent kind, and in large proportion, afford a greater abundance of milk, yet that the ſmaller ſorts often continue to yield a more regular ſupply for a much greater length of time, which more than compenſates the difference in the quantities on the commencement of the milking in the former ſort.

In regard to the form, ſuch cows ſhould conſtantly be ſelected for this purpoſe as are wide in the horn, when of thoſe breeds which are horned; thin in the head and neck, which have the dewlap not too pendulous or hanging down too much; the carcaſe rather flattiſh, with much depth; the hips wide, and ſomewhat pointed, having the buttocks round and fleſhy; thin in the legs, but with ſhort joints; the udder capacious, without being fleſhy, and ſtretching well backwards, with the milk veins large, and ſtrikingly apparent; the teats large, and of a good length, having the ſurface ſkin fine and even.

It is likewiſe a matter of much conſequence in this ſort of management, to have the cows of a tame and gentle diſpoſition.

As the quantity of the milk, as already obſerved, is the primary object in this practice, all ſuch cows as do not afford it in an adequate proportion to the conſumption of food in their keep, ſhould be immediately parted with, as not affording a due profit in this ſyſtem.

If we recur to the actual practice of the Middleſex cow-keepers, we ſhall find, that they almoſt wholly and invariably have recourſe to the large ſhort-horned Yorkſhire breed, which they purchaſe of the dealers or jobbers in cattle at the different fairs and markets in the country diſtricts, and eſpecially near the capital, where new ſupplies from the country are weekly expoſed, which enables them to keep up their ſtocks with much facility and convenience. They are procured by theſe dealers at firſt from the breeders, when from three to four years old, and in calf. There is likewiſe another way in which they are provided for this uſe by the milk-dealers in the metropolis, which is, by commiſſioning proper perſons to purchaſe the neceſſary lots at the different country fairs and markets, in order to their being ſent up to them under the care of drovers.

The prices of theſe cows have of late been greatly increaſed, being at preſent ſeldom leſs than from 15 to 25 or 30 guineas *per* cow. And in other ſmaller ſorts not leſs than from 10 to 15 or 18 guineas the cow.

It is not the practice of the cow-keeper to breed, except in particular caſes, where the cows are remarkable for giving large quantities of milk. They rarely pay any ſort of attention to the quality of the bulls which are employed in this ſort of buſineſs. See Cow.

The cheapeſt ſeaſon for the buying in of theſe animals is, when there is plenty of food in the autumn, or about the commencement of the winter. Vaſt ſavings may often be made by having them purchaſed at this period.

In this ſyſtem of practice, where any number of cows are kept, it is always proper to have bulls running along with them, as by ſuch means they are not only induced to take them more readily, but with greater certainty, and the inconvenience of driving them to a diſtance avoided. One bull is fully ſufficient for 20 or 25 cows.

The author of the Synopſis of Huſbandry has afforded a variety of remarks on this kind of management, ſome of which may be intereſting to farmers of this deſcription. "In caſes," ſays he, "where the chief deſign of profit from cows is the immediate ſale of the milk, which, near a large town, is certainly, he thinks, the moſt advantageous plan, if the circumſtances of the farm admit of its being carried on. And, in general, he thinks, the ſhorter the diſtance between the cow-yard and place of ſale, the more conveniently will this branch of buſineſs be conducted, and the larger the profits ariſing from it; ſo that ſuch farmers as live in the outſkirts of a large town enjoy the fulleſt advantage from the ſale of their milk, and poſſeſs a preference in every reſpect over thoſe who live at the diſtance of a mile or more from the place of ſale. Such farmers will always, he ſuppoſes, give greater ſatisfaction to their cuſtomers, by ſupplying them with milk freſh from the cow, than the cow-keeper who lives at a diſtance, and who has no ſuch advantage; for the milk, having been perpaps half an hour or upwards undulating in the pails, will, by that means, have loſt much of its original ſweetneſs, and be totally unfit for keeping: nay, in hot weather, the jolting of the pails will often have ſo much injured its quality, as to render it ſcarcely fit for preſent uſe, allowing it to have been brought neat and unadulterated from the cow. Another diſadvantage with which the country milk-man has to ſtruggle, is, he obſerves, the greater expence in carriage; to which may be added the unbounded confidence he is, from neceſſity, compelled to place in the perſon who carries the milk, which it is great odds but he abuſes, by purloining no inconſiderable part of his receipts. Yet, notwithſtanding theſe diſadvantages, a farmer, even at two miles diſtance from the place of ſale, may find, he conceives, a larger profit accrue from this practice of ſelling the milk, than either from ſuckling or making butter, provided he can always meet with a ready ſale, and at a good price; but if he has his milk frequently returned on his hands, or cannot, even in the ſummer ſeaſon, ſell it at three-pence a quart, it will by no means be prudent to follow the practice. But lately, from the enormous increaſe of the price of land about large towns, there can be no doubt but that the ſyſtem of the cow-keeper or milk-dealer, may, in many inſtances, as noted above, be conducted with ſufficient profit at ſeveral miles diſtant from towns where the conſumption of milk is large, as is at preſent the caſe with thoſe ſorts of dealers in the metropolis. And from the lands at ſuch diſtances being leſs impregnated with dung, it ſeems not improbable but that the milk may be of a better quality and flavour, in conſequence of the natural graſſes being more predominant, and of a leſs luxuriant growth.

It is neceſſary in this buſineſs that great regard ſhould be paid to the nature and ſize of the cows; which, as has been already obſerved, ſhould be adapted to the ſtate of the paſture, or other kind of food on which they are to be fed. Where the graſs land is rich and fertile, as has been already noticed, it may be ſtocked with the large Holderneſs and Staffordſhire beaſts, which will yield great ſtore of milk at every meal: but ſuch weighty cows demand a much more ample ſupply of nouriſhment than thoſe of inferior ſize; ſo that not only the graſs in the ſummer muſt be in the greateſt abundance, and produced from paſtures of the moſt fruitful ſoil, but the winter proviſion be alſo in equal proportion. When the weather will not admit the milking cows to be turned into the paſtures in the day-time, and during the nights whilſt they lie in the yard, they ought by no means to be ſtinted in hay, which ſhould be the produce of the richeſt meadows, ſweet and well made. Succulent food likewiſe of different kinds ſhould be provided for them, in order to increaſe their milk, and enable them to yield the greater profit. To this purpoſe, turnips ſhould annually be raiſed as contiguous to the yard as circumſtances will admit, and a tub ſhould never be wanting in the cow-houſe filled with freſh grains. Theſe grains and turnips ſhould be given alternately to the cows in troughs fixed under their yokes; and the cows ſhould be driven into the houſe ſome time before milking, and allowed to remain there a ſmall time afterwards. Neither is this allowance of ſucculent food leſs neceſſary for cows of inferior ſize; which, although they will thrive on more barren paſtures in the ſummer, and with good well-flavoured ſtraw in the winter ſeaſon, require but a ſmall portion of hay, and will eat greedily of ordinary fodder, and yield milk in abundance where cows of a larger carcaſe would refuſe the meat, or fall off their milk: yet even in this caſe the like cautions are to be obſerved of baiting theſe ſmall cows with turnips or grains in the winter, to prevent a decreaſe in the milk. But it is to be remarked, that theſe ſmall cows conſume either in graſs, dry fodder, or other provender, a far leſs quantity than is required for the firſt mentioned kind, and are therefore better adapted to every farm: thoſe excepted in which the paſtures are of the richeſt and moſt fertile kinds. Among cows of this kind, kept for this purpoſe, there are degrees of ſize; but of theſe ſmaller beaſts, thoſe are to be accounted as proper for paſtures where the ſoil is of a middling nature, ſuch as the general run of marſhes on the borders of the Thames, in Kent and Eſſex, which, when fattened, will ariſe to ſixty ſtone. But thoſe of a more ordinary kind, Welſh cows of forty-eight or fifty ſtone, are ſometimes to be preferred; ſome of which are very good, and in proportion to their ſize will yield large meals of milk; though it muſt be confeſſed, that cows of a weight between this Welſh breed, and the large Staffordſhire and Holderneſs kind, ſuch as mentioned above, are in general the moſt profitable; and where the land is ſo poor as not to afford a maintenance for theſe, it will rarely be found adviſeable to ſtock ſuch ground with cows in the view of profiting from the pail.

The neceſſity of giving the milch-cows grains during the winter months, is another reaſon, he thinks, why the farm on which it is propoſed to carry on this buſineſs ſhould be ſituated near a large town: ſince it is neceſſary that theſe grains ſhould be fetched twice or three times a week, in order that the cows may have them perfectly ſweet; for they will refuſe this diet with loathing when it has acquired an ill taſte, which it will do in a very ſhort time, when the water is ſuffered to continue in the grains.

The cow-keepers in the neighbourhood of London, where they make great uſe of this ſort of food for the ſubſiſtence of their herds, have contrived a method of keeping the grains in pits, which being filled with them, and trodden tight down, are then covered over; and by this method they are preſerved from the month of March till the ſummer, when the brewing is diſcontinued, at which time they are dug out perfectly ſweet; the earth at top, and a thin covering from the ſurface of the grain, which may have contracted a mouldineſs, having been firſt taken off. They may in like manner be kept in tubs or caſks, which having holes bored at the bottom to let off the moiſture, are to be placed on ſleepers ſix or eight inches from the ground. By being cloſely preſſed down in theſe tubs, the moiſture paſſes off through the holes at the bottom; and the grains by theſe means may be preſerved for ſeveral months without acquiring any ill taſte; though to a country cow-keeper it will ſeldom be found neceſſary to keep them ſo long, ſince the only uſe which he has for grains is as a winter food. In the ſummer time there will be a ſufficient quantity of graſs, the moſt natural aliment, and with which the cow-keepers about London cannot be ſupplied in a degree equal to the demands of their numerous herds. By this method of keeping grains in theſe reſervoirs, the farmer may ſupply himſelf with this neceſſary article at times when he has little other employment for his horſes; as in a froſt, or in rainy weather, which may render the operations of the field impracticable or inconvenient: and whilſt the weather permits the plough to work, it will not be neceſſary to take the horſes off for the performance of theſe occaſional jobs.

The above method of managing the cows is principally practiſed by the country milk-dealers; a conſiderably different ſyſtem being purſued by the cow-keepers in the vicinity of the metropolis. It is ſtated in the excellent Survey of that county by Mr. Middleton, that there "even in ſummer, and when the graſs is in the greateſt plenty, the cows are regularly fed with grains; which, though the quantity of milk is thereby increaſed, by no means add to its quality. The general allowance is forty-five quarters of grains *per* week (at 1 *s.* 10*d. per* quarter) to every twenty-five cows. They are given them twice a-day; and they have, beſides, two meals of turnips and hay. Some cow-keepers have tried ſalt, he ſays, mixed with the grains, more with a view to preſerve the grains longer in a ſound ſtate, than from any conſideration as to the health of their ſtock, or the improvement of the quality of the milk. It is acknowledged that the cows eat the grains ſo mixed with great avidity; but the proprietors not getting an adequate return for their trouble and expence, he does not find that it is now much practiſed."

And it is added in the ſame report, that during the night the cows are confined in ſtalls. About three o'clock in the morning each has an half-buſhel baſket of grains. From four o'clock till half paſt ſix they are milked by the retail milk-dealers, who contract with the cow-keepers for the milk of a certain number of cows, at one ſhilling and tenpence for eight quarts: this, however, varies with the diſtance from town. When the milking is finiſhed, a buſhel baſket of turnips is given to each cow; and very ſoon afterwards they have an allotment, in the proportion of one truſs to ten cows, of the moſt graſſy and ſoft meadow hay which had been the moſt early mown, and cured of the greeneſt colour. Theſe ſeveral feedings are generally made before eight o'clock in the morning, at which time the cows are turned into the cow-yard. About twelve o'clock they are again confined to their ſtalls, and ſerved with the ſame quantity of grains as they had in the morning. About half paſt one o'clock in the afternoon the milking commences in the manner above deſcribed, and continues till near three, when the cows are again ſerved with the ſame quantity of turnips, and, about an hour afterwards, with the ſame diſtribution of hay as before deſcribed.

"This mode of feeding generally continues during the turnip ſeaſon, which is from the month of September to the month of May. During the other months in the year they are fed with grains, cabbages, tares, and the foregoing proportion of rowen, or ſecond-cut meadow-hay; and are continued to be fed and milked with the ſame regularity as before deſcribed, until they are turned out to graſs, when they continue in the field all night; and even during this ſeaſon they are frequently fed with grains, which are kept ſweet and eatable for a conſiderable length of time by being buried in pits made for that purpoſe," as deſcribed above.

It is ſtated by the writer of the Agricultural Survey of the Weſt-riding of Yorkſhire, that in the vicinity of the large manufacturing town of Leeds, in that diſtrict, the cow-keepers in ſome caſes feed their cows with cut-graſs in the ſummer ſeaſon, and brewers' grains, without ſtraw, in the winter. And that near the populous town of Sheffield, the moſt experienced in this ſort of buſineſs, make uſe of five hundred weight of linſeed duſt in mixture with three hundred weight of bran, in the courſe of the week, for every ſix cows; while others apply a quarter of a peck of beans, with a peck of grains, as one feed for one cow three times during the day. And though theſe are expenſive methods of feeding, they are found to anſwer well in ſome caſes.

In the feeding of cows it has been attempted to prove by different correct calculations, that a larger profit may be obtained by keeping them in the houſe, and ſupplying them with green and other proper food, than in the common mode of permitting them to collect their own food in the paſtures: in ſupport of which the writer of the Agricultural Report of the Weſt-riding of Yorkſhire ſtates, that by keeping cows upon red clover and rye-graſs, tied up in the houſe in the day time during the ſummer ſeaſon, only putting them out after milking in the evening for the ſake of air and water, one acre of the former has been found to go as far as two under the paſturing ſyſtem; beſides the affording a larger ſupply of milk. The largeneſs of the quantity of manure that is thus raiſed, and its ſuperior richneſs, are ſuppoſed to compenſate for any additional trouble or expence that may be incurred in the cutting and removing the food to the cattle yards.

In reſpect to the uſe of cut-graſs for ſoiling or feeding in the yards; Mr. Middleton has, however, offered ſome remarks in oppoſition to the late recommendations of different writers. He conceives that the practice of cutting and carrying the graſs, to be conſumed in the ſheds by the cows inſtead of permitting them to collect it themſelves, can only be ſupported without exhauſting the land ſo as to leave nothing for the ſcythe, in ſuch caſes as where half the extent can be annually manured; or in ſuch flooded meadows as can be covered with water occaſionally in the ſummer and other ſeaſons. In all other circumſtances ſuch a ſyſtem would, it is ſuppoſed, quickly prove ruinous to the land.

Beſides, it is ſuggeſted that the great labour and expence of ſuch a plan muſt render it uneconomical; as one perſon ſo employed with a horſe and cart, could not bring in the produce of many acres, and at the ſame time attend the cows, though it would annually ſtand the farmer at the rate of more than an hundred pounds. It is alſo ſuppoſed to have other diſadvantages, though it prevents the injury of poaching. It is ſtated that a man might cut two acres in the week, and cart the graſs, ſuppoſe eight tons, into the yards, beſides attending the cattle, which is equal to the conſumption of about ſix head of cattle , and ſuppoſing this ſhould be continued fifteen weeks, thirty acres would be cleared once, or ten acres three times. Of courſe it would require ſuch a number of men as could not be conveniently procured. It is concluded, therefore, to be one of thoſe cloſet ſyſtems which cannot be profitably reduced to practice over more than a very few acres of land, and then only when done without any addition of men or horſes.

In the practice of J. C. Curwen, Eſq. M. P. as detailed in the fifth volume of Communications to the Board, it was found highly advantageous and economical to ſupply the cows immediately after milking in the morning, with a ſtone of ſteamed chaff each, which had been prepared the preceding night, and was now become ſufficiently cold for uſe. And this was followed by three pounds of oil-cake. The animals were then turned out to water; when, on returning to their ſheds, green food was given them in the proportion of about a ſtone. Before the period of milking in the evening another feed of chaff was given, and after it a ſecond feed of green food ; and at ſix o'clock a foddering of ſtraw in the quantity of ſix or eight pounds was adminiſtered.

The daily expence of feeding *per* cow in this way is thus ſtated :

ſto.	lb.		*d.*
2	0	Of green food	0½
2	0	Of chaff, &c.	2
0	3	Of oil-cake -	3
0	8	Of ſtraw - -	1
4	11	each	6½

But it is ſuggeſted that, if the cake was well reduced to powder, a pound and an half, or two pounds at moſt, would be fully ſufficient, which would reduce the expence to not more than five-pence the day. The cake is found to have a great effect in the produce of milk as well as in improving the condition of the cows, eſpecially when combined with the chaff. With this treatment the produce was about eight quarts wine meaſure *per* day, with a breed of ſmall cows. The uſe of cole as a green food was likewiſe found to have a wonderful effect in promoting the quantity of milk.

In feeding cows with hay and ground oats, the quantity and expence were found to ſtand thus *per* day :

	ſto.	lb.	
Hay - -	1	6	
Green food	2	0	
Ground oats	0	4	
	3	10	which coſts 9¼*d.*

It would ſeem from Mr. Curwen's trials, that by combining ſome ſort of ſtimulant dry food with that of a green kind, a very beneficial effect was produced in the increaſe of the quantity of milk. And the London cow-keepers have long been aware of the advantage derived in this ſyſtem from the uſe of ſoft green rowen hay or ſuch as has heated but little in the ſtack.

In regard to the manner of applying ſuch food as is employed in this ſyſtem of practice with the moſt ſucceſs and benefit, it has been obſerved by Dr. Dickſon, in his ſyſtem of Practical Huſbandry, after noticing the ſeveral kinds of ſucculent and other food which is had recourſe to in the common methods of ſupporting the animals, that by ſuch " means much juicy matter is thrown into the ſyſtem, and a continual varied ſtimulus kept up, by which a large increaſe of milk is produced." And that " as the different articles thus employed muſt have leſs effect in exciting the ſecretory organs of the animals, in proportion to the frequency of their uſe, the utility of varying their food as much as poſſible, is rendered ſufficiently obvious. On the ſame principle there are, ſays he, probably various other ſubſtances, as well as theſe, that might be made uſe of with great benefit ; but too few experiments have yet been made with them in this view to lead to any uſeful concluſions." And there is another circumſtance which he ſuggeſts as worthy of the conſideration of the cow-keeper in the keeping of his cows, " which is that of the dry food being properly proportioned to that of the green or rich ſucculent kind, as, where this is not well attended to, the cows by being kept in too lax a ſtate of their bowels, from the great tendency which ſuch materials have to run off in that way, may afford a much leſs quantity of milk than would otherwiſe be the caſe. We know, continues he, from repeated experiments that conſiderable loſs ſometimes takes place in this manner. In the foddering of the cows, he likewiſe adviſes, that, " regard ſhould alſo be had to ſupply them with the food in ſuch a way as to excite the ſecretions in as regular a manner as poſſible. In this view too much food ſhould never be given at one time, but ſupplied more frequently, as three or four times, or oftener, in the courſe of the day." It is ſuggeſted that " this practice will likewiſe have an advantageous effect in having the fodder more cleanly eaten up."

Great regard ſhould likewiſe be paid to the watering of the cows in this plan of management, as much depends upon it in reſpect to the quantity of milk which is afforded. It was found by an experienced cow-keeper, that the more clean and pure the water was, the more the ſecretion of milk was excited. The London milk dealers muſt of courſe ſuffer great loſs in not attending more to this point, as their cows are often permitted to drink the moſt filthy, ſtagnant, putrid water, in the ponds which adjoin their cow-yards. Where running ſtreams are not at hand, this inconvenience might often be eaſily obviated by the contrivance of proper long troughs or ciſterns, which might be filled from pipes or the roofs of the buildings.

In this practice the cow-keepers in London never ſuckle the calves, but in from two to three or four days, as the circumſtances may be, they are ſent to the markets to be ſold, as they could not be diſpoſed of before. Of courſe the cows are left in full milk from within a few days of the time of their calving, which is a great advantage. This method cannot however be followed in country ſituations in general, from there being little demand for the new dropped calves, they muſt conſequently be ſuckled by the milk-dealer.

The length of time which the cows are kept in this practice, is not certain or regular, being moſtly determined by the milking, ſuch as are good milkers being continued much longer than where the contrary is the caſe. When they fail in their milk they ſhould probably always be diſpoſed of as ſoon as poſſible. In this ſyſtem it is obvious, that young cows muſt conſtantly afford the beſt profit ; but they may perhaps be profitably kept till the third or fourth calf, and in ſome caſes even longer.

In the practice of the London milk-men, the cows are often ſuffered to remain in the dirty yards, without being ſufficiently protected from the weather, even during the winter ſeaſon; but this ſhould conſtantly be avoided by having proper ſheds, or other low buildings, conſtructed for them, and to which, if ſtalls for tying them up were added, it would probably be ſo highly convenient and beneficial as to repay the expence in a very ſhort time. The influence of the atmoſphere is ſo greatly prejudicial to theſe animals, that they cannot be too much guarded againſt its effects. Mr. Curwen found it produce a difference in the milking in a ſmall number of cows of more than two gallons at a meal.

The yards in which they are contained ſhould be ſufficiently ſpacious, in proportion to the number of cows which are to be kept, in order that they may be airy, being well encloſed with low fences, and the bottoms laid with ſome hard durable ſort of materials. Mr. Middleton has recommended for this purpoſe lime rubbiſh and chalk, which, he ſays, makes a firm ſound bottom, by which poaching is prevented, and the dirt rendered eaſily capable of being ſcraped off, and the yards be kept clean.

In the milking of the cows in this, as well as the dairy practice, greater attention is perhaps neceſſary than is commonly beſtowed upon the buſineſs, to procure the greateſt poſſible quantity of milk. It has been adviſed on the well known phyſiological principle of the ſecretions of animals, being increaſed in proportion to the frequency of withdrawing the fluid, that more frequent milkings ſhould be had recourſe to, in order to augment the quantity of milk in theſe animals.

By thus producing a habit in the organs, which perform this office, it is not improbable but that the quantity afforded, in a given time, may be greater than in other caſes; but in order to effect the buſineſs perfectly, great care and attention are requiſite, both to the feeding and to exactneſs in the times of milking, as well as to the drawing away every drop of the fluid at each operation. With the view of ſubjecting this matter to the teſt of experiment, Mr. Macro has recorded the following trials in the twelfth volume of Mr. Young's Annals of Agriculture.

May 21, 1789.

	Pints.
Firſt meal, - - - -	9½
Second ditto, - - - -	13
	22½

May 22.

Firſt meal, - - - -	13
Second ditto, - - - -	8
Third ditto, - - - -	5
	26

May 23.

Firſt meal, - - - -	12
Second ditto, - - - -	7
Third ditto, - - - -	6
Fourth ditto, - - - -	1
	26

October 22, 1789.

Firſt meal, - - - -	11
Second ditto, - - - -	6
	17

October 23.

Firſt meal, - - - -	11
Second ditto, - - -	3
Third ditto, - - - -	3
	17

October 24.

Firſt meal, - - - -	10
Second ditto, - - - -	1½
Third ditto, - - - -	1½
Fourth ditto, - - - -	3
	16

To have afforded any ſatisfactory reſults, theſe experiments ſhould have been much longer continued and more varied in the periods of drawing the milk, as well as carefully compared with the quantity, and kind of food on which the cows were fed, and by thus determining what depends on ſimply withdrawing the milk, and what on the nature and quantity of the food conſumed, the influence of the practice might be aſcertained.

In this intention it has been adviſed to milk the cows when well fed in the ſummer ſeaſon, three times in the courſe of the day at equal diſtances of time, by which ſome have ſuppoſed the augmentation in the quantity of the milk to be nearly one-half of the whole quantity, while others conſider it as much leſs: but were a third more obtained, the additional trouble and expence would be fully compenſated. More experiments require to be made in this view to fully decide the benefit that may be thus derived.

The practice of cow-farmers, in general, is merely that of having the milk withdrawn twice in the period of twenty-four hours, the operation being performed about ſeven o'clock in the morning, and five in the afternoon. But with milk-dealers it is uſual to have it performed at from four to about ſix in the morning, and from a little after one to three in the afternoon. In theſe caſes more frequent milkings would probably not anſwer to the cow-keeper. But the buſineſs ſhould be ſo executed as that no milk be left undrawn, as otherwiſe not only loſs in the milk, but in the cows becoming more quickly dry may be ſuſtained. The work ſhould alſo be performed as expeditiouſly as poſſible, and with great circumſpection in regard to cleanlineſs. A good milker is capable of finiſhing from ſix to eight cows in the hour.

The profit of this ſyſtem of management muſt be different, according to circumſtances of different kinds; but, in general, is accompliſhed with leſs trouble and expence than moſt other modes of farming practice.

In the Survey of the County of Middleſex, it is ſtated that, from the facts which are there brought forward, it would ſeem that there are kept for the purpoſe of ſupplying the capital and its vicinity with milk, about the number of eight thouſand five hundred milch-cows; and that according to the information which has been procured, the quantity of milk, which is afforded by each cow, is, on an average, about nine quarts in the day, which is equal to, *per annum*, 3285 quarts.

The calf takes part of the milk, it is obſerved, for the firſt two or three days, during which time it would not be ſaleable; and there is a falling off for a few days before the cow calves: theſe occaſion a deduction of about eighty-five quarts, leaving the annual ſaleable produce of each cow about 3200 quarts, which, at the preſent price of two-pence three farthings the quart, amounts to £36 13 4

To which ſum add for a calf, at two or three days old, from 25*s.* to 31*s.* 6*d.* the medium is about - - - -	1	6	8
And it gives the total annual produce, *per* cow, about - - -	£38	0	0

which, on 8500 cows, amounts to 317,400*l.* *per annum.*

Expences of Keep.

The cow-keepers feed their cattle very highly, in order to their producing the greateſt poſſible quantity of milk. The expence is nearly as follows:

	£.	s.	d.
Turnips 7 cwt. or 14 buſhels *per* week each cow, at 3*d.* is - - - - - -	0	3	6
Brewer's grains, 7 buſhels, at 5*d.* or more, is -	0	2	11
Hay, one truſs and a half, *per* week, at 2*s.* 6*d.*	0	3	9
The expence of the food of a cow *per* week is	0	10	2
which is nearly equivalent to 26*l.* 13*s.* *per ann.* and that ſum taken from the produce in milk and calf, as before ſtated, of 38*l.* leaves -	£11	7	0

The price here charged for the hay may perhaps, he ſays, be deemed low; but it will not appear to be ſo when it is taken into the account, that the cow-keepers mow their land two or three times in a ſeaſon, as their object is to procure the moſt graſſy and ſoft hay they can. It is likewiſe not burthened with market charges.

There are ſeveral other charges to be ſuſtained by the cow-keepers, particularly,

	£.	s.	d.
Intereſt of ſtock annually - - -	1	5	0
Damaged and loſt cattle - - -	0	7	0
Horſes, harneſs, and waggons - -	1	15	0
Rent of Buildings - - - -	0	10	0
Hire of ſervants - - - -	1	0	0
Expences of fairs and markets; unforeſeen expences and loſſes - - -	0	10	0
Amounting annually, *per* cow, to - - -	5	7	0
which, taken from the 11*l.* 7*s.* before mentioned, leaves a remainder of the nett profit of each cow about - -	6	0	0

The produce of a cow, as found by the late Mr. Harper, near Liverpool, in the management of an induſtrious cow-keeper, was nine quarts of milk *per* day, on the average, the whole year through, which was ſold at 2*d.* the quart, with the advantage of ſelling cream. But there is a diſcount to be made, as when the ſummer months come in there is often a great flow of milk comes out of the country, which reduces the average of both milk and cream to two-pence *per* quart the year through.

	£.	s.	d.	£.	s.	d.
To 3235 quarts of milk, at two-pence *per* quart, - - - -				27	7	6
To the average keep of a cow in grains, &c. for one year, at 4*s.* 6*d.* *per* week - - - -	11	14	0			
To 160 ſtone of hay at 8*d.* *per* ſtone	5	6	8			
To 16 weeks graſs at 3*s.* 6*d.* *per* week - - -	2	16	0			
Together - -				19	16	8
Remains - -				7	10	10

for intereſt of ſtock, loſſes in cattle, and profit.

In Mr. Curwen's method of keeping cows, the expences and profits for the ſpace of 220 days, with cows of the ſmaller kind, are thus ſtated:

Dr.				*Cr.*			
To keep for 220 days at 6*d.* *per* day, -	5	10	0	To 8 quarts of milk *per* day for 220 days, at 2*d.*	14	13	4
To labour in attendance of cows - -	2	0	0	To 33 carts of manure - - -	1	13	0
To loſs, riſks, &c. &c. - -	3	0	0	To calf - - - - -	2	0	0
	£10	10	0		18	6	4
				Coſt - -	10	10	0
				Clear profit -	£7	16	4

It is ſtated further, by the author of the Middleſex Report, that "the conſumers pay four-pence halfpenny *per* quart to the retailers. If the latter were to ſell the milk pure and unadulterated at this price, it would yield them a profit of 64*l.* *per cent.* But, in order to diſcover the actual profit of the retailers, we muſt add eight-pence for cream ſhort-meaſure, and the extraneous articles mixed with it, which increaſes 3*s.* the uſual price of eight quarts, to 3*s.* 8*d.*; and, as it coſts them only 1*s.* 10*d.* there remains for labour and profit 100 *per cent.* thus the retailer clears 36*l.* 13*s.* 4*d.* by every cow. On the whole, they are ſtated to divide among them the unreaſonably large ſum of 308,833*l.*; and the ſum paid for milk amounts to 626,233*l.*

"When the families of faſhion are in London for the winter ſeaſon, it is ſuppoſed that the conſumption, and conſequent deterioration, of milk are at the higheſt. During the ſummer months, when ſuch families are for the moſt part in the country, the milk may probably be of rather a better quality. The cream is taken from ſo much of it as remains unſold, and made into freſh butter for the London markets. The butter-milk is given to the hogs.

"The milk is always given in its genuine ſtate to the retail dealers; and, as it is ſold to them by the cow-keepers after the rate of two-pence three-farthings *per* quart, and is retailed by them at four-pence halfpenny *per* quart, the profit is ſurely ſo large as ought to prevent even the ſmalleſt adulteration. But when it is conſidered how greatly it is reduced *by water*, and impregnated with worſe ingredients, it is much to be lamented that no method has yet been deviſed to put a ſtop to the many ſcandalous frauds and impoſitions in general practice, with regard to this very neceſſary article of human ſuſtenance. It is certainly an object well deſerving the particular conſideration of the legiſlature. It cannot be doubted that many perſons would be glad to make ſome addition to the price now paid for it, (high as that price is,) provided they could, for ſuch increaſed price, procure ſo uſeful an article in domeſtic economy perfectly genuine."

But beſides this, it has been ſtated in the ſame report that "it is a common practice with the retailers of this uſeful article to carry the milk firſt home to their own houſes, when it is ſet up for half a day, when the cream is taken from it, at leaſt all that comes up in that time, and it is then ſold for new milk; by which means, what is delivered in the morning is no other than the milk of the preceding afternoon, deprived of the cream it throws up by ſtanding during that time. By this means, a further conſiderable profit accrues to the retailer, and the milk is rendered leſs nutritious. It is ſuggeſted as a matter of ſurpriſe, that in the city of London, ſo long and deſervedly famous for the attention and vigilance of its magiſtrates, in the conduct and regulation of the markets, no notice has hitherto been taken of, or any means adopted to prevent, the abuſes ſo generally and juſtly complained of in an article, the conſumption of which, in London and its environs, is greater than in half the cities of Europe. Milk, ſays the able writer, has always been a favourite part of the food of Britons; and in a great and populous city, it is highly conducive to the health of its inhabitants. "Lacte et carne vivunt," ſays Cæſar in his Commentaries.

The ſame writer adds, in regard to the management of the cows, that "five or ſix men only are employed in attending near three hundred cows;" and that "as one woman cannot milk more than eight or nine cows twice a day, that part of the buſineſs would neceſſarily be attended with conſiderable expence to the cow-keepers, were it not that the retailer, as before obſerved, agrees for the produce of a certain number of cows, and takes the labour and expence of milking on himſelf." In this practice too, with the London cow-keepers it is obſerved that "every cow-houſe is provided with a milk-room, (where the milk is meaſured, and ſerved out by the cow-keeper,) and this room is moſtly furniſhed with a pump, to which the retail-dealers apply in rotation, not ſecretly, but openly before any perſon that may be ſtanding by; from which they pump water into the milk-veſſels at their diſcretion. The pump is placed there, it is ſaid, expreſsly for that purpoſe, and indeed is very ſeldom uſed for any other. A conſiderable cow-keeper in Surrey has a pump of this kind, which, the writer ſays, goes by the name of the famous black cow, (from the circumſtance of its being painted black,) and is ſaid to yield more than all the reſt put together. Where ſuch a pump is not provided for them, things are much worſe; for in that caſe the retailers are not even careful to uſe clean water. Some of them have been ſeen to dip their pails in a common horſe-trough; and, what is ſtill more diſguſting, though equally true, one cow-houſe happens to ſtand cloſe to the edge of a ſtream, into which runs much of the dung, and moſt of the urine, of the cows; and even in this ſtream, ſo fully impregnated, they have been obſerved to dip their milk-pails.

"A cow-keeper informs the author, he ſays, that the retail milk-dealers are, for the moſt part, the refuſe of other employments; poſſeſſing neither character, decency of manners, nor cleanlineſs. No perſon could poſſibly drink of the milk, were they fully acquainted with the filthy manner of theſe dealers in it. The ſame perſon, he alſo obſerves, ſuggeſts, as a remedy for theſe abuſes, that it would be highly proper for every retail milk-dealer to be obliged to take out an annual licence from the magiſtrates; which licence ſhould be granted only to ſuch as could produce a certificate of good conduct, ſigned by the cow-keeper, and a certain number of their cuſtomers; and alſo on their being ſworn to ſell the milk pure and unadulterated."

It is obſerved by the writer of a work entitled "Synopſis of Huſbandry," that "of the ſeveral different ways of raiſing a profit from milch-cows, that of ſelling the milk, where circumſtances will allow of its being carried on to a due extent, is by far the moſt eligible. In the economy of making butter and cheeſe, the trouble and expence are daily and perpetual. Several extraordinary domeſtics muſt be employed, where the dairy is large; and no ſmall allowance of fuel is neceſſary, that boiling water may be ſtill at hand, to ſcald the pails and other utenſils employed on the occaſion." That "in ſuckling, alſo, the charges are much heavier than when the milk is ſold out of the pail; for ſucklers are continually wanted, which are often bought in at very advanced prices; and ſometimes theſe are not to be procured at any rate, juſt when they may be required; ſo that either the calves, which are ready for the butcher, muſt be kept a week or two longer than would otherwiſe have been neceſſary, in which the farmer will rarely find his account; or, if theſe calves are ſold off, there will be an overplus of milk, of which it will be found difficult to make any profit, ſince it will not produce a quantity of cream ſufficient to make any advantage by the butter. Now the milk-man, it is remarked, has none of theſe inconveniences to ſtruggle with; and, whilſt the cows continue to yield an ample produce, and this goes off at a quick ſale, the whole of the buſineſs is performed with little trouble; and, what is an additional advantage, each cow yields a profit before her milk is ſent to market, by the ſale of the young calf; whereas the ſuckling farmer, as was mentioned before, is often under the neceſſity of purchaſing ſuch young calves to keep up his ſtock: a balance greatly in favour of thoſe perſons who make ſale of their milk."

And it is further obſerved, that "on farms where there are many cows maintained, either for the profit of the milk, or the fatted calf, it will be often neceſſary, on a variety of accounts, to buy in freſh ſtock, either to ſupply the place of thoſe which are rendered unfit for theſe purpoſes by age or accident, or to furniſh an additional demand for milk, &c. In order, therefore, that the utmoſt emolument may be reaped from his profeſſion, it will be convenient that the farmer do not embark further in the buſineſs than he can carry on to the greateſt poſſible advantage; ſo that whenever a cow is to be turned off, and another bought in to ſupply her place, a paſture may be in readineſs to receive the former, where ſhe may remain to fatten, or to recover from diſeaſe, as the caſe may be: whereas, if the farm be fully ſtocked with milch-cows, thoſe which are turned off muſt immediately be driven to market, and ſold at a low price, to make room for their ſucceſſors, which in all probability were bought in at a dear rate." See DAIRYING, and COW.

This ſyſtem of farming is one which, from the many conveniences and little trouble or riſk which attends it, ſhould never be loſt ſight of by thoſe farmers who are ſituated contiguous to large towns, or villages, or even on the banks of canals at ſome diſtance, by which the produce can be readily and cheaply conveyed to them. And it is the more neceſſary to be regarded, in conſequence of the increaſing demand for the produce, and its vaſt utility in the rearing of the children of the rich, as well as thoſe of the labouring poor.

Cow-*Leaſe*, in *Agriculture*, is a term applied to ſuch grounds, whether meadows or paſtures, as are preſerved for the purpoſe of being depaſtured with cows.

Cow-*Mig*, in *Rural Economy*, is a provincial term often applied to the drainage of cow-ſheds, dunghills, and cow-ſtalls.

Cow's *Mouth*, in *Geography*, a cavern ſo called by the Hindoos, near 300 miles above the place where the Ganges enters Hindooſtan. According to Mr. Daniel's ſketch, to which major Rennell refers, this is above the Upper Gangoutra, which is about 150 geographical miles from Sirinagur. See GANGES.

Cow-*Par*, in *Rural Economy*, is a word ſometimes provincially made uſe of to ſignify a cow-yard, fold-yard, or ſtraw-yard, where cows are turned in for the purpoſe of eating the ſtraw.

Cow-*Parſley*, in *Botany*. See CHÆROPHYLLUM.

Cow-*Parſley*, in *Rural Economy*, a name frequently applied to a plant *(Chærophyllum ſylveſtre)* which is common in paſture grounds, and which is ſaid to indicate a fruitful ſoil. Cows are ſaid to be fond of it even to ſuch a degree, according to Mr. Wainwright, that about Dudley, when the paſtures are over-run with it, as frequently happens, they are conſtantly turned in to eat it up. Rabbits reliſh it; but neither horſes, ſheep, nor ſwine, chooſe it. From its being one of the moſt early plants in riſing in the ſpring, it might perhaps be converted to uſe as an early green food. In the beginning of April it has often the height of two feet, or more. It ſhould be eradicated from all paſture grounds, as injurious to the natural graſs, and as ſpreading itſelf rapidly by ſeeds. The roots, from being perennial, are often very troubleſome, and difficult to be deſtroyed.

Cow-*Parſnep*, in *Botany*. See HERACLEUM *ſphondylium*.

Cow-*Parſnep*, in *Rural Economy*, the name of a plant *(Heracleum ſphondylium)* which is very troubleſome as a weed in ſome grounds, and which riſes to the height of nearly three feet. Rabbits, hogs, and aſſes, eat the leaves with eagerneſs; and it is likewiſe eaten by cows, goats, and ſheep; but horſes refuſe it, or eat it indifferently. It is known by various names, as wild parſnep, meadow parſnep, madnep, hogweed, &c. It is a plant which contains a large proportion of ſaccharine matter in its conſtitution.

Cow-*Quakes*, in *Botany*. See BRIZA.

Cow-*Quakes*, in *Rural Economy*, the name often given to a plant of the graſs kind *(Briza media)*, which is frequent in fields and paſtures of the more wet kind. It is eaten by cows, goats, and ſheep. The land ſhould be well drained to get quit of it.

Cow-*Rake*. See COWL-*Rake*.

Cow, *Sea*, in *Zoology*. See SEA-*Cow*.

Cow-*Tie*, in *Rural Economy*, the name often provincially made uſe of to ſignify the ſhort thick hair-rope, which has a wooden nut at one end of it, and an eye at the other, that is employed by the milker to hopple the hind-legs of the cow during the time of milking, and keep her quiet and ſecure from kicking and overturning the pail.

Cow-*Weed*, in *Botany*. See CHÆROPHYLLUM.

Cow-*Weed*, in *Rural Economy*. See Cow-*Parſley*.

Cow-*Wheat*, a name applied to a plant frequently met with in both tillage and paſture ground, *(Melampyrum arvenſe,)* of which there are different ſpecies, as the *pratenſe* and *ſylvaticum*. It has a ſeed ſomewhat ſimilar to that of wheat, from which its name has probably ariſen. This, when ground with the grain, is ſaid to give it a dark colour and bitteriſh taſte; though Ray aſſerts, that he could not perceive any unpleaſant reliſh in the bread with which it was blended. Cows and goats eat the plant, according to Withering; but ſheep refuſe it. And Miller conſiders it as a delicate food for cattle, eſpecially ſuch as are under the proceſs of fattening, and for cows; ſuggeſting that it may be worth while to cultivate it for theſe purpoſes. Where the meadow ſort *(pratenſe)* abounds, it is aſſerted by Withering that the butter is yellow and uncommonly good, when made from the milk of cows feeding upon it. Sheep and goats eat it, and cows are fond of it; but ſwine, though they are very fond of the ſeeds, refuſe the plant; which is alſo the caſe with horſes.

The yellow kind *(ſylvaticum)* is likewiſe, according to the ſame authority, eaten by cows, ſheep, and goats, which, when plentifully ſupplied with the plant, ſoon get into condition. The ſeeds, when ſhed in the autumn, riſe in the ſpring; but, in other caſes, do not come up till the ſecond year after ſowing. The firſt ſort ſhould be kept out of corn-fields, as being a troubleſome weed.

Cow-*Yard*, is the name of the encloſed place in which cows are kept and ſheltered from the ſeverity of the weather. They ſhould be made ſpacious, and laid with ſolid materials in the bottoms, in order to prevent poaching.

COWARD, a term in *Heraldry*, applied only to the lion, when his tail is repreſented hanging down and paſſing between his legs.

COWARDICE, in *Pathology* and *Ethics*, denotes that habitual temper and diſpoſition, which diſqualifies from oppoſing the dangers and difficulties which it is our duty or intereſt to combat; and every indication of cowardice is an indication of culpable and unmanly fear.

COWAY STAKES, in *Geography*, a place of England, near Walton upon Thames, in the county of Surrey, where Cæſar is ſaid to have paſſed this river into Middleſex.

COWBRIDGE, a market town in Glamorganſhire, Wales. The ancient name is *Pont y fôn*; but the natives have changed the latter word to *faen*, or *Pont y faen*, *Stone Bridge*. Robert de St. Quintin, who afterwards built Llanblethian caſtle, and who was lord of the territory, walled the town with ſtone in 1091; a handſome gate of which ſtill remains. It is ſituated in a remarkably fertile and pleaſant valley, generally called the "Vale of Glamorgan," or the "Garden of Wales," and conſiſts principally of one ſtreet, tolerably well built, about three-quarters of a mile in length. The pariſh church is a handſome edifice. There is a town-hall, and the county Bridewell ſtands within the ancient walls. The quarter-ſeſſions of the county are held here annually at Eaſter; and the Glamorganſhire races alternately at Cowbridge and Cardiff. The free ſchool, though not originally founded by ſir Llewelin Jenkins, ſecretary of ſtate in the reign of Charles II., is indebted to that gentleman for conſiderable aſſiſtance towards the general purpoſes of the inſtitution, which poſſeſſes two fellowſhips, two ſcholarſhips, and an exhibition at Jeſus College, Oxford. There is, beſides, a good ſchool for reading, writing, and arithmetic. The town is governed by two bailiffs, twelve aldermen, and twelve common-council-men; and it has a town-clerk, &c. &c. The market day is Tueſday, and there are three annual fairs.

COW *and* Calf *Paſture Rivers*, are head branches of Revanna river, in Virginia.

Cow *and* Calf *Rocks*. Theſe are the names of ſome rugged rocks projecting out of the ſea off Trevore Head, near Padſtow in Cornwall. The higheſt of theſe rocks had its ſituation determined in the government trigonometrical ſurvey in 1795, by an obſervation from St. Agnes Beacon, diſtant 94.650 feet, and bearing 23° 7′ 22″ S.W. from the parallel to the meridian of St. Agnes; and another from Karuminnis, diſtant 169,450 feet: whence is deduced its latitude 50° 32′ 45″.7 N., and its longitude 5° 2′ 22″, or 20′ 9″.5 W. of Greenwich.

COWDEN, a rectory in Kent, in the lathe of Sutton. The ſituation of its ſteeple was ſettled in the government trigonometrical ſurvey in 1799, by an obſervation from Frant ſteeple, diſtant 41,943 feet, and bearing 67° 18′ 3″ S.E. from the parallel to the meridian of Greenwich; and another from Bidborough ſtation, diſtant 30,485 feet, bearing 72° 17′ 27″ N.E. from the ſame parallel: whence is deduced its latitude 51° 7′ 34″.2 N. and longitude 0° 6′ 9″.9 E. of Greenwich.

COWE′, the capital town of the Cherokee Indians, ſituated at the foot of the hill, on both ſides of the river Tenneſſee. At this place terminates the great vale of Cowé, exhibiting one of the moſt charming mountainous landſcapes that can be ſeen. This vale is cloſed at Cowé by a ridge of high hills, called the "Jore mountains." The town contains about 100 habitations. In the conſtitution of the ſtate of Tenneſſee, Cowé is deſcribed as near the line which ſeparates Tenneſſee from Virginia, and is divided into Old Chota, another Indian town, by that part of the great Iron or Smoky mountain, called Unicoi or Unaca mountain.

COWEN, a river of Wales, which runs into the Tave, in the county of Carmarthen.

COWES, a ſea-port town on the N. coaſt of the Iſle of Wight, ſeated on the river Medan, which divides it into Eaſt and Weſt Cowes. It is a place of good trade, and a great reſort of merchant ſhips, which often lie here for convoy. Paſſage-boats are continually paſſing between this place and Portſmouth and Southampton; and the packet with the mail from the iſland to London ſails from this place; 9 miles W.S.W. from Portſmouth, and 10 S.S.E. from Southampton. In the progreſs of the government trigonometrical ſurvey in 1793, the exact ſituation of the ſummer-houſe, belonging to the horſe-ſhoe inn above this town, was determined by an obſervation from Butſer-hill, diſtant 115 573 feet, and bearing 41° 57′ 52″ N.E. from the parallel to the meridian of Dunnoſe; and from Rook's-hill, diſtant 140,005 feet: whence is deduced its latitude 50° 44′ 35″.1, and its longitude 1° 18′ 33″.7, or 5′ 14″.2 W. of Greenwich.

COWETAS, or Kowetas, a town of the Lower Creeks in Eaſt Florida, called the "Bloody-town." It lies on the weſt bank of Chata-Uche river, and contains 280 perſons.

COWIE, a river of Scotland, which runs into the ſea a little to the N. of Stonehaven, in the county of Kincardin.

COW-Itch, in *Botany*. See Dolichos *pruriens*.

COWL, or Coul, *Cuculla*, a ſort of hood, worn by certain monks. See Coul.

Cowl, *Friar's*, in *Botany*. See Arum *maculatum*.

Cowl, in *Rural Economy*, the name often applied, in different diſtricts, to ſignify a ſort of tub, particularly that which is uſed in the making of cheeſe.

Cowl, a provincial term, frequently made uſe of to denote the raking or ſcraping of any thing, as dung, &c. together.

Cowl-*Preſs*, a provincial word, employed to ſignify a ſort of lever.

Cowl-*Rake*, the name of a ſort of tool of the rake kind, which is employed in ſcraping up mud, dirt, or other matters from the ſurface. It is uſually pronounced *cow-rake*.

COWLEY, Abraham, in *Biography*, was born at London in the year 1618. His father was a grocer, and, according to Dr. Johnſon, he was probably a diſſenter from the eſtabliſhed church. He died, however, before the birth of his ſon Abraham, the care of whom devolved wholly on the mother, who, when he became of a fit age, obtained for him a place in Weſtminſter ſchool, as king's ſcholar. He is repreſented as having been ſo deficient in memory as to have been unable to retain the common rules of grammar; but his biographer, already referred to, ſeems to ſuppoſe that he was able to perform his exerciſes without them, and, being an enemy to conſtraint, he ſpared himſelf the trouble. At any rate, he laid in a good ſtock of claſſical learning, and attained a correct and elegant taſte. While he was at ſchool, he publiſhed a collection of verſes, under the title of "Poetical Bloſſoms:" he was then but 13 years of age, and his "Tragical Hiſtory of Pyramus and Thiſbe" was written three years before this; and when he was 15, he wrote his "Conſtantia and Philetes." At this early period he likewiſe produced a comedy, entitled "Love's Riddle," which was publiſhed after he had been ſome time at Cambridge, whither he went in 1636. The early productions of this young man were diſtinguiſhed rather for a moral and ſententious turn, than for any extraordinary flights of imagination. At Trinity College he ſoon ſoared above his contemporaries, and appeared as an author by publiſhing, beſides the "Love's Riddle," a Latin comedy, entitled "Naufragium Joculare," which was acted before the univerſity by the members of his college. At the beginning of the civil war, as the prince paſſed through Cambridge, he was entertained with the repreſentation of the "Guardian," one of Cowley's comedies, which was afterwards ſurreptitiouſly printed during his abſence from the country. He continued to reſide at Cambridge, where he had obtained his degree of maſter of arts, when he was ejected from Cambridge by the Puritan viſitors. From Cambridge he went to Oxford; publiſhed a ſatire, entitled "The Puritan and Papiſt;" and ſo diſtinguiſhed himſelf for his loyalty, that he gained the kindneſs and confidence of thoſe who attended the king; and was honoured with the particular friendſhip of lord Falkland. When Oxford ſurrendered to parliament, Cowley followed the queen to Paris, and was ſecretary to the earl of St. Albans. He was alſo employed in the correſpondence carried on in favour of the royal cauſe, and particularly in cyphering and decyphering the letters that paſſed between the king and queen, which occupied his nights as well as his days. In the midſt of theſe ſerious and very important avocations he publiſhed a collection of amorous poems, entitled "The Miſtreſs." In 1656, having no longer any affairs to tranſact abroad, he returned to England, and, very ſoon after, publiſhed an edition of his poems. In the ſearch for another perſon, Cowley was arreſted and impriſoned, but liberated by the generoſity of Dr. Scarborough, who gave bail for him in the ſum of 1000*l*. It is ſuppoſed that he came home with a view of benefitting the party, whoſe cauſe he had eſpouſed; and to diſſemble his deſign, it was ſaid that he wiſhed to be regarded as a phyſician, and accordingly took his degree. In the character of Dr. Cowley he appears among the experimentaliſts who laid the foundation of the

Royal Society. On the death of Cromwell he went again to France, and became a ſecond time an agent in the royal cauſe; and when Charles II. was reſtored to the throne of theſe realms, he returned and was in hopes of ſome ſignal reward for his many ſervices: but after a conſiderable lapſe of time, during which he made many fruitleſs applications, he obtained what was equal to about *300l. per annum.* He had already, from a deſire of retirement, taken his abode at Barn-elms on the banks of the Thames, and ſeems to have had enough of the world to deſire never to engage again in its vexations and changes. From Barn-elms he removed to Chertſey, where he lived but a ſhort time; but long enough to find that neither his body nor mind were properly adapted to this new ſcene. He died at the Porch-Houſe in Chertſey, in the year 1667, in the 49th year of his age. He was buried near Chaucer and Spencer in Weſtminſter Abbey, with great pomp; and the king himſelf became his eulogiſt, by ſaying that "Cowley had not left a better man behind him in England." By Dr. Spratt he is repreſented as the moſt amiable of mankind, to which no one ever objected. He was of a free and independent ſpirit, modeſt, ſober, and ſincere; of gentle affections, and moderate wiſhes; neither making a parade of his own merits, nor undervaluing thoſe of others.

For a complete account of Cowley as a poet, and of his various pieces, we refer to Johnſon's Lives of the Poets; where, among other things, we are told, "that Cowley brought to his poetic labours a mind replete with learning; and that his pages are embelliſhed with all the ornaments which books could ſupply; that he was the firſt who imparted to Engliſh numbers the enthuſiaſm of the greater ode, and the gaiety of the leſs; that he was equally qualified for ſprightly ſallies and for lofty flights; that he was among thoſe who freed tranſlation from ſervility, and, inſtead of following his author at a diſtance, walked by his ſide; and that, if he left verſification yet improveable, he left likewiſe, from time to time, ſuch ſpecimens of excellence as enabled ſucceeding poets to improve it." Biog. Brit. Johnſon's Lives of the Poets.

Cowley, in *Geography*, one of the Gallapagos iſlands, in the Pacific Ocean, ſituated under the equinoctial line.

Cowley, a rectory in Middleſex, in the hundred of Elthorn, is ſituate near to the Colne river, at the point where that river, owing to the ſtrata dipping faſter than its bed, obtains the top of the London-clay ſtratum, and where the Grand Junction Canal leaves the vale of Colne, and changes its courſe towards the eaſt, upon the top of the clay ſtratum. The firſt lock which occurs in proceeding along the canal from Paddington is in this pariſh, called Cowley-Lock.

Cowpen *Colliery*, in the pariſh of Horton in Northumberland, is one of thoſe works which contribute to the ſupply of the London market; called Cowper, by an error of the preſs, (ſee Coal;) and is ſituate on the ſouth ſide of the Blyth river, to which it has a rail-way laid, for the conveyance of large waggons laden with coals to the ſhipping ſtaiths on the river. Cowpen main coals obtain a better price than many other ſorts, on account of their quality of burning freely.

COWPER, William, in *Biography*, a very diſtinguiſhed modern poet, deſcended from an ancient and highly reſpectable family, who can trace their anceſtry as far back as the reign of Edward IV., was born at Berkhamſtead in Hertfordſhire, November 26, 1731. His father, Dr. John Cowper, was rector of the pariſh, and nephew to lord chancellor Cowper. The infancy of Cowper was extremely delicate; and his conſtitution at that early period diſcovered a tendency to diffidence, to melancholy, and deſpair, which darkened, as he advanced in years, into periodical fits of the moſt deplorable depreſſion. In quitting the houſe of his parents, he was ſent to a reputable ſchool at Hertford, under the care of Dr. Pitman. From hence he was removed, in conſequence of ſome complaint in his eyes, to which he himſelf alluded in a letter to Mr. Hayley, his biographer. "I have been," ſays he, "ſubject to inflammations of the eyes; and in my boyiſh days had ſpecks on both, that threatened to cover them. My father, alarmed for the conſequences, ſent me to a female oculiſt of great renown at that time, in whoſe houſe I abode two years, but to no good purpoſe. From her I was ſent to Weſtminſter ſchool, where, at the age of fourteen, the ſmall-pox ſeized me, and proved the better oculiſt of the two, for it delivered me from them all; not, however, from great liableneſs to inflammation, to which I am in a degree ſtill ſubject." At Weſtminſter he acquired the claſſical knowledge and correctneſs of taſte for which he is celebrated; yet he was often heard to deplore the perſecution he ſuſtained, both here and at Hertford, from the cruelty of his ſchool-fellows, not daring, to uſe his own expreſſion, to raiſe his eye above the ſhoe-buckle of the elder boys, who were apt to tyrannize over his gentle ſpirit. The acuteneſs of his feelings, in his childhood, rendered thoſe important years, which might have produced, under tender cultivation, a ſeries of lively enjoyments, miſerable years of increaſing timidity and depreſſion, which, in the moſt cheerful hours of advanced life, he could hardly deſcribe to an intimate friend without ſhuddering at the recollection of his early wretchedneſs. At the age of eighteen he exchanged a public ſchool for an attorney's office. He reſided three years in the houſe of a Mr. Chapman, to whom he was engaged by articles for that time. After this period he ſettled himſelf in chambers of the Inner Temple, where he reſided till he was *33* years of age. Even here his native diffidence confined him to ſocial and ſubordinate exertions: he wrote and printed, but it was as the concealed aſſiſtant of leſs diffident authors. He had, however, an opportunity, which he embraced, of cultivating the friendſhip of ſome eminent literary characters, who had been his ſchool-fellows at Weſtminſter, particularly Colman, Bonnel Thornton, and Lloyd, who are referred to in the courſe of our work. See Churchill, &c. Of himſelf Cowper ſays in a letter to Mr. Park: "From the age of 20 to 33 I was occupied, or ought to have been, in the ſtudy of the law; from 33 to 60 I have ſpent my time in the country, where my reading has been only an apology for idleneſs; and where, when I had not either a magazine or a review, I was ſometimes a carpenter, at others, a bird-cage maker, or a gardener, or a drawer of landſcapes. At 50 years of age I commenced an author: it is a whim that has ſerved me longeſt and beſt, and will probably be my laſt." Lightly as this moſt modeſt of poets has ſpoken of his own exertions, and late as he appeared to himſelf in producing his chief poetical works, he had received from nature a contemplative ſpirit perpetually acquiring a ſtore of mental treaſure, which he at laſt unveiled to delight and aſtoniſh the world. He began, however, his poetical career at the age of 14, by tranſlating an elegy of Tibullus; and there ſeems to be no room to doubt that in his early life he wrote many poems of great merit, which are probably for ever loſt to the world. In his 31ſt year he was nominated to the offices of reading clerk and clerk of the private committees in the houſe of lords: but the peculiarities of his mind rendered him unable to ſupport the ordinary duties of his new office; for the idea of reading in public proved a ſource of torture to him. An expedient was deviſed: he reſigned his ſituation of reading clerk, and was appointed clerk of the journals in the ſame houſe. This change, it was hoped, would render it unneceſſary for him to make a perſonal appearance in parliament. Certain unexpected buſineſs, however, called upon him to appear at the bar of the houſe of lords. His terrors on this occaſion overwhelmed his reaſon. Though he had prepared himſelf for his public duty, he was ſure, that all his knowledge, acquired with much aſſiduity and toil, would forſake him at the bar of the houſe. This diſtreſſing apprehenſion increaſed to ſuch a degree, that he was not only unable to make the experiment, but the very friends, who called on him for the purpoſe of attending him to the houſe, acquieſced in the cruel neceſſity of his relinquiſhing the proſpect of a ſtation to which, it was now evident, he was unequal. The conflict between the wiſhes of his ambition, and the terrors of diffidence ſo completely overwhelmed his health and his mental faculties, that it was found neceſſary to remove him to St. Alban's, where he reſided a conſiderable time, under the care of Dr. Cotton, an eminent phyſician, the author of ſome well-known poems.

“ The misfortune of mental derangement,” ſays Mr. Hayley, “ is a topic of ſuch awful delicacy, that I conſider it as the duty of a biographer rather to ſink in tender ſilence, than to proclaim, with circumſtantial and offenſive temerity, the minute particulars of a calamity to which all human beings are expoſed, and, perhaps, in proportion as they have received from nature thoſe delightful but dangerous gifts, a heart of exquiſite tenderneſs and a mind of creative energy.” From December 1763 to the following July, the mind of Cowper appears to have laboured under the ſevereſt ſufferings of morbid depreſſion. At length, by the medical ſkill of Dr. Cotton, the indeſcribable load of religious deſpondency, which had borne down the admirable faculties of this worthy man, was removed. His ideas of religion were changed from the gloom and terror of deſpair to the luſtre of comfort and delight; and in the ſpring of 1765 he removed to a private lodging at Huntingdon, where he was ſoon introduced to the family of Mr. Unwin, which afforded him every conſolation and aid that his circumſtances required. It is not poſſible, in a work of this kind, to follow our poet through all his ſcenes of retirement. On the death of Mr. Unwin, he removed with his widow to Olney in Buckinghamſhire. This happened in October, 1767, which was thenceforth the principal reſidence of Mr. Cowper. His retirement was ennobled by many private acts of beneficence; and his exemplary virtue was ſuch, that the opulent ſometimes delighted to make him their almoner. In his ſequeſtered life at Olney, he adminiſtered abundantly to the wants of the poor, from a fund with which he was ſupplied by the late John Thornton, eſq. Before he quitted St. Alban's, he even took upon himſelf the charge of a neceſſitous child, in order to extricate him from the perils of being educated by very profligate parents: he put him to ſchool at Huntingdon, removed him on his own removal to Olney, and finally ſettled him as an apprentice at Oundle in Northamptonſhire.

At Olney he contracted a cloſe friendſhip with the late reverend Mr. Newton, then miniſter there, and who for many years paſt, till within a few weeks, was the rector and very popular preacher at St. Mary Woolnoth, Lombard-Street, London, whoſe religious opinions were in uniſon with his own. To a collection of hymns publiſhed by Mr. Newton, Mr. Cowper contributed a large number of his own compoſition. To the public he firſt became known as a poet by the publication of a volume in 1782. If the pieces of which it conſiſted, and which were written in rhymed heroics, did not at once place the author high in the ſcale of poetic excellence, they ſufficiently eſtabliſhed his claim to originality, and gave tokens of a genius rather kept down by his ſubject than deficient in native powers. The ſtyle is rather ſtrong and forcible than poetic: though often proſaic, he is never flat or inſipid; and ſometimes the poet breaks through in a vein of lively deſcription or bold figure. In 1785 he publiſhed a ſecond volume, which raiſed him to an equality, of reputation at leaſt, with any of his contemporaries. The principal part of this volume is occupied by the poem, entitled, “ The Taſk;” a name given it from the injunction of a lady upon him to write in blank verſe, for the ſubject of which ſhe gave him “ The Sofa.” It commences with ſome ſportive diſcuſſions of this topic; but it ſoon falls into a ſerious ſtrain of moral deſcriptions, intermixed with excellent ſentiments and portraitures, with no perceptible method, but freely ranging from thought to thought, from the image to its improvement, as unſhackled fancy happens to ſuggeſt. “ It is difficult,” ſays an able critic, “ to determine which is the moſt conſpicuous excellence of this charming production. In the deſcription of natural objects, it unites the moſt minute accuracy with ſtriking elegance and pictureſque beauty. The pious and moral reflections of the “ Taſk” touch the heart with irreſiſtible force; and its delineations of character are life itſelf. The perſonifications and allegorical figures interſperſed, diſplay high powers of fancy; and the figure of Winter riding on his ſledgy car, may vie in ſublimity with any poetical effort of imagination.” There is added to this volume a piece, entitled, “ Tirocinium, or a Review of Schools,” which poſſeſſes great merit, and is replete with ſtriking obſervations. The popular ſtory of “ John Gilpin” ſhews that Mr. Cowper had a ſtrong perception of the ludicrous, naturally balancing in his diſpoſition the gloomy propenſity which circumſtances rendered finally predominant. With a view of loſing in employment thoſe diſtreſſing ideas, which were ever apt to recur, he undertook a tranſlation of Homer's Iliad and Odyſſey into blank verſe; which he performed with great ability, and which was to the author a valuable ſource of innocent amuſement; and its completion is mentioned by him with the regret felt on parting with a beloved companion. Nothing, however, was capable of durably relieving his mind from the horrible impreſſions which it had undergone; and almoſt abſolute deſpair was the ſtate in which it finally ſettled. The reader would not fail of receiving a deep, though melancholy, intereſt in every event of Mr. Cowper's life, did our limits allow us to trace them over. His letters contain a rich ſtore of intellectual pleaſure for thoſe who are capable of refined feelings, and of eſtimating high moral excellence: for theſe, which will unqueſtionably live as long as our language exiſts, we refer to the “ Life” by Mr. Hayley. It remains for us only to notice the laſt ſtruggles of this worthy man and exalted poet. He paſſed ſome of his latter years under the affectionate care of a relation at Eaſt Dereham in Norfolk; nor did he entirely drop his literary employments, and the occaſional compoſition of poetical pieces, till a ſhort time before his death. In the beginning of the year 1800, a rapid decline of health was evident to all thoſe about him; and on the 19th of April, the cloſe of a life ſo wonderfully chequered, and ſo univerſally intereſting, appeared to be very near. On the next day he ſeemed to revive; but on the 25th, at five in the morning, a deadly change appeared in his features. He ſpoke no more. His laſt words were uttered in the night; in rejecting a cordial preſented to him, he ſaid, “ What can it ſignify!” Yet even at this time he did not ſeem impreſſed with the idea of dying, although he conceived that nothing would contribute to his health. The deplorable inquietude and darkneſs of his latter years were terminated by a moſt gentle and tranquil diſſolution. He was buried in St. Edmund's chapel, in Dereham church, where a tablet is raiſed to his memory by his affectionate friend and relation, lady Heſketh.

The perſon and mind of Cowper ſeem to have been formed with equal kindneſs by nature; and it may be queſtioned, if ſhe ever beſtowed on any man, with a fonder prodigality, all the requiſites to conciliate affection and to inſpire reſpect. He was beloved and revered by all who knew him, with a ſort of idolatry. "I may," ſays Mr. Hayley, "be ſuſpected of ſpeaking with fond partiality the unperceived exaggerations of friendſhip; but the fear of ſuch a cenſure ſhall not deter me from bearing my moſt deliberate teſtimony to the excellence of him whoſe memory I revere, and ſaying, that as a man he made, of all men whom I have ever had opportunities to obſerve ſo minutely, the neareſt approaches to moral perfection. Indeed a much more experienced judge of mankind, and Cowper's aſſociate in early life, lord Thurlow, has expreſſed the ſame idea of his character; for being once requeſted to deſcribe him, he replied, with that ſolemn air of dignified elocution, by which he was accuſtomed to give a very forcible effect to a few ſimple words, "Cowper is truly a good man."" Hayley's Life and Poſthumous Writings of William Cowper, eſq. Gen. Biog.

Cowper, William, a celebrated ſurgeon and anatomiſt of London, was born about the middle of the ſeventeenth century, but in what year, or in what place, is not known. Of his firſt work, "Myotomia Reformata, or a new adminiſtration of all the Muſcles of the Human Body," which was publiſhed in London in 1694, in 8vo. Haller ſays, "Although it may not be compared with the later works of Albinus on the ſubject, yet it far excels all that had preceded it, in correctneſs, and as containing delineations and deſcriptions of ſeveral muſcles that had not been before obſerved." A ſplendid edition of this work was publiſhed by Dr. Mead in 1724, in folio, ſeveral years after the death of the author, with an introductory diſcourſe on muſcular motion, and ſome but not very important additions. More attention, on the whole, appears to have been paid to the elegance, than to the correctneſs of the figures, in this edition. In 1697, the author publiſhed, at Oxford, in folio, "The Anatomy of Human Bodies." The greater part of the plates, with which this magnificent work is illuſtrated, was purchaſed by ſome London bookſellers, in Holland, and belonged to Bidloo's anatomy. Our author added 40 figures, from drawings made by himſelf. He alſo very much improved, and corrected the deſcriptions of the figures, given by Bidloo, and added ſome ingenious and uſeful anatomical and chirurgical obſervations. Bidloo, and with reaſon, complained of the plagiariſm. Cowper anſwered his complaints, in a publication, called "Euchariſtia," in which he gives a deſcription of ſome glands, ſeated near the neck of the bladder, which have obtained the name of Cowper's mucous glands. He pretended to believe that the plates belonged to a work, projected by Swammerdam, but this excuſe, for which there was no foundation, gained little credit. Two later editions of this work, which is ſtill in great requeſt, have been publiſhed, the one at Leyden, in 1737, the other at Utrecht in 1750.

Cowper was alſo author of ſeveral communications to the Royal Society, on the ſubjects of anatomy and ſurgery, which are printed in their Tranſactions, and of ſome obſervations inſerted in the Anthropologia of Drake. He died in the year 1710. Haller Bib. Anat. General Biog.

Cowper's *Glands*, in *Anatomy*, are two glandular bodies, varying in ſize, and ſituated at the bulb of the urethra.

Cow-*Pox*, or *Cow-Pocks*, in *Medicine*, the popular name of a diſeaſe which, till lately, was never deſcribed by medical writers.

§ 1. *Its Deſcription and Origin.*

This diſeaſe, in the brute animal, is commonly called the cow-pox; in the human ſubject the cow-pock. It appears on the teats of cows, in the form of irregular puſtules, ſurrounded with inflammation. The colour of the puſtules is a paliſh blue, approaching to livid. The animals become indiſpoſed; and the ſecretion of milk is much leſſened. Solutions of ceruſſa acetata, vitriolum zinci, vitriolum cupri, and other aſtringents, are a ſpeedy remedy for the puſtules; otherwiſe they degenerate into troubleſome and obſtinate ulcerations.

Similar effects are produced on the hands of the milkers; attended with febrile ſymptoms, and tumours in the armpits. The diſorder is alſo ſometimes communicated to other parts of the body by the nails of the patient, or ſome other cauſe.

It is the popular opinion in the county of Glouceſter, and ſome other counties, that the cow-pox derives its origin from the heel of a horſe; and that men who are employed in dreſſing horſes, and alſo in milking, from want of cleanlineſs, transfer the virus from the horſe to the cow. Dr. Jenner, however, is of opinion, that it is the thin fluid of a darkiſh colour, oozing from a recent crack in the heel, and not the thick matter of greaſe, which poſſeſſes the property of exciting this diſeaſe; and that there is no other ſource to which the genuine cow-pox can be traced.

Many inſtances of this diſorder in the human ſubject, together with the moſt authentic and ſatisfactory evidence of its originating from the horſe, may be found in Dr. Jenner's "Inquiry into the Cauſes and Effects of the Variolæ Vaccinæ," publiſhed in 1798, in the London Medical Review, the Medical and Phyſical Journal, and in Ring's "Treatiſe on the Cow-pox," of which the firſt volume was publiſhed in 1801, the ſecond in 1803.

It appears by the writings of Dr. Jenner, that farriers are frequently inſuſceptible of the ſmall-pox, in conſequence of their having been infected with this diſeaſe from the horſe. It is, however, not always confined to the heel of the animal. Dr. Jenner relates a caſe, in which matter from the ſhoulder, and Dr. La Font of Salonica one, in which matter from the leg produced the genuine affection.

One ſtrong argument, that it never proceeds from any other origin than the horſe, is, that it has never been obſerved in Cheſhire; where it is not cuſtomary for men, who have the care of horſes, to be employed in milking.

Matter taken from the horſe by Dr. Loy of Whitby, proved equally efficacious with that from the cow, both in the inoculation of the cow, and of the human ſubject. Dr. Sacco of Milan alſo made the ſame experiments with the ſame ſucceſs. A portion of the ſame virus was tranſmitted by him to Dr. de Carro of Vienna, and by Dr. de Carro to Dr. Frieſe of Sileſia; both of whom uſe it indifferently with vaccine matter, and find it produces a ſimilar effect.

Some people ſuppoſe, that the cow-pox derives its origin from the ſmall-pox; and that the infection is communicated to the cow by the hand of the milker; but this hypotheſis is neither warranted by reaſon, nor confirmed by fact. There is no analogy to render it probable, that any poiſon is thus mitigated by tranſmiſſion through the brute animal. The experiment has often been tried in many parts of the world. A local puſtule has ſometimes been excited; but the matter which it yielded has not ſucceeded in ſubſequent inoculations.

Were the cow-pox thus communicated to the cows, it would be as common in Cheſhire as in Glouceſterſhire, as common in Scotland or France as in England, and as common in Aſia or America as in Europe. As an additional proof that it is not thus produced, it will be ſufficient to ſtate the information received from Mr. Dalton, a ſurgeon at Madras. After obſerving, that he had not been able to procure genuine matter in India, in order to make experiments, or even to learn that horſes in India are ſubject to the greaſe, he gives the reſult of repeated experiments which he made in the government gardens at Madras, by order of the governor, earl Powis, and in his preſence.

To render theſe experiments as complete and ſatisfactory as poſſible, ſeveral milch-cows were ſelected; and ſome of them were inoculated by Mr. Dalton, in their teats and udders, with the moſt active variolous matter; while the teats of others were rubbed with it for a conſiderable time, till they became highly inflamed. No puſtule was excited in any one of them; but ulcerations appeared on thoſe teats, into which matter had been rubbed, the third day after the friction. Several young children were inoculated with the matter thus produced, and their arms inflamed and feſtered. They had alſo a ſlight degree of fever, which gave Mr. Dalton hopes that his experiment had ſucceeded, and that he had generated a mild ſpecies of ſmall-pox; but on putting them to the teſt of variolous inoculation, they all had the ſmall pox in the moſt indubitable manner, and regularly went through the diſeaſe. Mr. Dalton concludes with remarking, that all theſe circumſtances will bear the ſtricteſt ſcrutiny; as they are well known to ſeveral medical practitioners at Madras.

§ 2. *On the Diſcovery and early Practice of Vaccination.*

It has been juſtly obſerved, that, for the diſcovery of this excellent art, we are indebted, under providence, to a fortunate concurrence of circumſtances; firſt, to the talents of Dr. Jenner, ſecondly, to his education under the celebrated Hunter, and thirdly, to his ſituation in the vale of Glouceſter. His inquiry into the nature of the cow-pox commenced about the year 1776. His attention to this ſingular diſeaſe was firſt excited by obſerving, that among thoſe whom he inoculated for the ſmall-pox, many were inſuſceptible of that diſorder. Theſe perſons, he was informed, had undergone the caſual cow-pox, which had been known in the dairies from time immemorial; and a vague opinion had prevailed, that it was a preventive of the ſmall-pox.

He met with many apparent exceptions to this rule; which led him to aſk the opinions of other medical practitioners in the neighbourhood, who all agreed, that the prophylactic power of the cow-pox was not to be relied on. This for a while damped, but did not extinguiſh his ardour; for he had the ſatisfaction to learn, that the cow was ſubject to various eruptions, called by that name, all of which were capable of infecting the hands of the milkers. Having ſurmounted this obſtacle, he formed a diſtinction between the different kinds of puſtular eruptions, to which the cow is liable; denominating one ſpecies the true, and all the others the ſpurious cow-pox.

This impediment to his progreſs was not long removed, before another, of far greater magnitude in appearance, ſtarted up. Inſtances were not wanting to prove, that when the genuine cow-pox broke out in a dairy, ſome perſons who had experienced the diſeaſe reſiſted the ſmall-pox, and others continued ſuſceptible of that diſtemper. This obſtacle, as well as the former, gave a painful check to his fond aſpiring hopes; but reflecting that the operations of nature are for the moſt part uniform, and that when two perſons have had the cow-pox, it is not probable one ſhould be perfectly ſhielded from the ſmall-pox, and the conſtitution of the other remain unprotected, he reſumed his labours with redoubled ardour.

The reſult was fortunate; for he now diſcovered that vaccine, as well as variolous matter, undergoes a change; and that when it has loſt its ſpecific property, it is ſtill capable of producing a puſtulous eruption. Hence, a perſon who milks a cow one day, may receive the infection of the genuine cow-pox, and be rendered for ever ſecure from the infection of the ſmall-pox; while another, who milks the ſame cow the next day, may have a puſtulous eruption, and perhaps a conſtitutional indiſpoſition to a conſiderable extent, yet ſtill remain ſuſceptible of the variolous contagion.

While thus inveſtigating the nature of the cow-pox, he was ſtruck with the idea, that it might be practicable to propagate the diſeaſe by inoculation, after the manner of the ſmall-pox; firſt, from the cow, and then from one human ſubject to another. The firſt caſe in which he put his theory to the teſt inſpired him with confidence; and a regular ſeries of experiments, which he afterwards inſtituted for that purpoſe, was crowned with ſucceſs. Several perſons were ſucceſſively inoculated from each other with vaccine matter, and afterwards expoſed, in a variety of ways, to the infection of the ſmall-pox, which they all reſiſted.

This happy diſcovery was communicated to the world by Dr. Jenner, in a treatiſe publiſhed in June 1798, entitled, "An Inquiry into the Cauſes and Effects of the Variolæ Vaccinæ, a Diſeaſe diſcovered in ſome of the weſtern Counties of England, particularly Glouceſterſhire, and known by the name of the Cow-pox." The reſult of his further experience was alſo brought forward in ſubſequent publications, in the courſe of the two ſucceeding years; and the whole work has been ſince republiſhed in one volume. He has alſo written a ſmall tract, entitled, "The Origin of Vaccine Inoculation;" from which the preceding account of this moſt ſingular improvement of the healing art, is, in a great meaſure, extracted.

It has been juſtly remarked, that the ſame fortune which has attended all other great diſcoveries, and all other great benefactors of mankind, attended Dr. Jenner on this occaſion. Envy aſſailed his fame; his diſcovery was firſt depreciated, then denied; and as he ſurpaſſed Harvey himſelf in glory, ſo he alſo ſurpaſſed him in the oppoſition which he had to encounter. Truth, however, ultimately prevailed. Vaccination obtained a complete triumph; and the foes of Jenner and humanity were covered with confuſion.

In July 1798, Mr. Cline inoculated a child with vaccine virus, received from Dr. Jenner; which ſucceeded. He afterwards put the child to the teſt of inoculation with ſmall-pox matter in three places; which he reſiſted. On this occaſion, Mr. Cline informs Dr. Jenner, that Dr. Liſter, formerly phyſician of the Small-pox Hoſpital, and himſelf, are convinced of the efficacy of the cow-pox; and that the ſubſtitution of this mild diſeaſe for the ſmall-pox, promiſes to be one of the greateſt improvements ever made in medicine. He adds, the more I think on the ſubject, the more I am impreſſed with its importance. This inſtance of the *firſt* introduction of vaccine inoculation into the metropolis, it was neceſſary to mention; becauſe another medical practitioner has laid claim to that honour. Attempts were made by Mr. Cline to continue the practice, by vaccinating other ſubjects with the virus thus produced; but they proved abortive; probably from the matter not being taken at an early period of the diſeaſe.

In November 1798, Dr. Pearſon publiſhed his "Inquiry concerning the Hiſtory of the Cow-pox, principally with a view to ſuperſede and extinguiſh the Small-pox." In this work he brings forward the reſult of an extenſive correſpondence with medical practitioners, and others, in different parts of the kingdom; tending to confirm Dr. Jenner's opinion, that the cow-pox is a preventive of the ſmall-pox. He had been informed of this diſcovery of Dr. Jenner by Mr. Hunter, nine years before; and had conſtantly mentioned the circumſtance in every courſe of his lectures, from that time. The fact had been mentioned in three publications: by Dr. Adams, in his "Treatiſe on Morbid Poiſons;" in 1795, and by Dr. Woodville, in his "Hiſtory of Inoculation," in 1796; having been communicated to them by Mr. Cline, and to him by Dr. Jenner. It had alſo been mentioned by Dr. Beddoes, in 1795, in his "Queries concerning Inoculation," in a letter from Mr. Rolph, who was acquainted with Dr. Jenner.

Information concerning the prophylactic property of the cow-pox had been given to ſir George Baker, many years before, by his relation, the Rev. Herman Drewe, of Abbots, in Dorſetſhire, and ſeveral medical practitioners; but not gaining credit, it was never publiſhed. The ſame circumſtance had alſo been noticed in a weekly paper, called "General Amuſements," publiſhed at Gottingen in 1769. The author, whoſe name was not announced, ſpeaking of the diſeaſes ſaid by Livy to be common to men and cattle, obſerves that the cow-pox prevails in the neighbourhood of Gottingen, and infects the milkers; and that thoſe who have had the cow-pox, flatter themſelves they are perfectly ſecure againſt the infection of the ſmall-pox. He alſo tells us, he had made many inquiries, and was well aſſured by very reſpectable perſons, that this opinion of the milkers was well-founded.

But the moſt ancient reference to the prophylactic power of this diſorder on record, is probably that in "Ring's Treatiſe on the Cow-pox," p. 167. It is as follows: "Being deſirous of knowing, whether there was any alluſion to this diſeaſe in any ancient author, I wrote to Dr. Jenner on that ſubject; who favoured me with the following anſwer:" "I know of no direct alluſion to the diſeaſe, in any ancient author; yet the following ſeems not very diſtantly to bear upon it. When the ducheſs of Cleveland was taunted by ſome of her companions, that ſhe might ſoon have to deplore the loſs of that beauty which was then her boaſt, the ſmall-pox at that time raging in London, ſhe replied, that ſhe had no fears about the matter; for ſhe had had a diſorder, which would prevent her from ever catching the ſmall-pox. This was lately communicated to me by a gentleman in this county; but unfortunately he could not recollect from what author he derived his intelligence."

In the Medical Journal for March 1799, it is ſtated, that the cow-pox had broken out at ſome farms in the environs of London, about the latter end of December; and that matter had been taken for inoculation. This alludes to the commencement of the practice of vaccination by Dr. Woodville.

In the ſame work for the enſuing month, is a letter from Dr. Pearſon, dated March 12th, in which he ſtates, that upwards of a hundred and ſixty perſons had been inoculated by Dr. Woodville and himſelf, ſeparately; and that none of the patients had been conſidered to be dangerouſly ill. He alſo obſerves, that ſo many caſes of the ſevere kind did not occur in this practice, as uſually occur in the ſame number of caſes of the inoculated ſmall-pox; but he nevertheleſs acknowledges, that although many of theſe patients were leſs indiſpoſed, yet "the whole amount of their conſtitutional illneſs ſeemed to be as great, as in the ſame number of patients in the inoculated ſmall-pox." He alſo ſtates, that "in many of the caſes, eruptions on the body appeared; ſome of which could not be diſtinguiſhed from the ſmall-pox."

The next article in the ſame publication is a letter from Mr. Lawrence, a veterinary ſurgeon; in which he adviſes us not to be very ſanguine in our hopes reſpecting this diſcovery; and expreſſes an opinion that the cow-pox will prove only a temporary preventive of the ſmall-pox. Hence it is evident, that he has a right to diſpute the palm of priority with Dr. Moſeley, who confeſſedly advanced the ſame opinion before he knew any thing of the cow-pox; and with Mr. Birch, who, as well as Dr. Moſeley, boaſts that he was, for a long time, the only opponent of the practice. Be this as it may, Mr. Lawrence obſerves, that "ſome of Dr. Pearſon's accounts make the cow-pox a more ſevere diſeaſe than the inoculated ſmall-pox;" and that "if theſe accounts are to be depended on, the cow-pox has already had its day."

In one reſpect Mr. Lawrence has proved himſelf a much better prophet than either of the other gentlemen in queſtion. He ſays, "whatever may be the fate of cow-pox inoculation, it has given, and will give occaſion to a pretty large and open diſcuſſion; which is always beneficial, as having a tendency to produce diſcovery, and promote improvement; and when the public ardour for the preſent topic ſhall have become a little cool and ſatisfied, I hope it will be turned by enlightened men towards another, perhaps of nearly as great conſequence, namely, *the prevention of the original malady in the animals themſelves.* Thoſe who have witneſſed, or only reflected on, the exceſſive filth and naſtineſs, which muſt unavoidably mix with the milk in an infected dairy of cows, and the corrupt inſalubrious ſtate of their produce in conſequence, will ſurely join with me in that ſentiment." How well this hope has been realiſed, and this prediction fulfilled, is evident from Dr. Jenner's account, that the cow-pox is already become ſo rare in Glouceſterſhire, where it uſed to be ſo frequent; and from its never having re-appeared in the neighbourhood of London, ſince the farmers' there have known its origin, now a period of nine years. This is no ſmall proof of the rectitude of Dr. Jenner's opinion, that it originates from the greaſe.

In the ſame number of the Journal, is a communication from Dr. John Sims, containing the caſe of Mr. Jacobs of Briſtol; who is there ſtated to have had the cow-pox twice, and yet to have had the ſmall-pox afterwards in ſo ſevere a manner, that his life was deſpaired of. This caſe has ſince been proved by Mr. Henry Jenner, and acknowledged by Dr. Sims to have been the ſpurious cow-pox; and Dr. Sims, who publiſhed the account of it from the moſt honourable motives, is ſo perfectly convinced of it, that he is become one of the moſt zealous advocates of vaccination.

He tells us, that Mr. Jacobs deſcribed the cow-pox which he had as the moſt loathſome of diſeaſes; and obſerves, that Dr. Jenner had entirely overlooked this circumſtance, although in itſelf ſo formidable an objection to the practice, even if it ſhould be found to anſwer the purpoſe for which it was introduced. He alſo remarks, that it was impoſſible to know how far ſuch a diſorder might prove injurious to others, as well as to the individual who ſubmitted to inoculation.

All theſe unfavourable accounts of the new ſpecies of inoculation deterred numbers of medical practitioners from adopting it. But perhaps no author ſounded a louder alarm on this occaſion than Dr. Moſeley. This gentleman boaſts of his having been the firſt who warned parents againſt vaccination; and he ſeems determined to perſiſt in his oppoſition, in ſpite of any evidence that can poſſibly be advanced in its favour. Among the number of thoſe who publiſhed adverſe evidence, was alſo the celebrated Dr. Beddoes; the reſpectability of whoſe name added conſiderable weight to that ſide of the queſtion. As a proof, however, that this gentleman was influenced in his conduct only by the moſt pure and upright motives, he has ſince voluntarily come forward as a zealous advocate of the practice, and pronounced the moſt flattering panegyric on Dr. Jenner.

Not ſo Dr. Moſeley; he is ſo far from being convinced of the utility of vaccination, that he ſeems to be more and more exaſperated againſt it, by every new account of its ſucceſs. This, however, is not any great wonder, when he confeſſes that he wrote againſt it before he knew what it was; when he pretends that inoculation has diſarmed the ſmall-pox of its terrors; that accidents in the inoculated ſmall-pox are uncommon, and that under proper treatment, it leaves nothing behind injurious to the conſtitution. After this, we cannot be ſurpriſed at his endeavouring to terrify parents with the idea of beſtial humours; and of the ill conſequences which may ſpring from that ſource, after a lapſe of years.

A publication like this, although ill calculated to bear the teſt of criticiſm, was very well adapted to inſtil prejudices into the minds of the vulgar and ignorant; who are at all times averſe from innovation in the practice of phyſic; and not yet reconciled to the idea of engrafting diſeaſes. But whatever effect this publication might produce on vulgar minds, it produced much leſs effect on the minds of medical practitioners, and of all other learned and ſcientific men than ſome of the firſt reports of thoſe, into whoſe hands vaccination, on its ſecond introduction into the metropolis, happened to fall.

In addition to what is already ſtated, Dr. Woodville's work on this ſubject appeared ſoon after; in the dedication of which he informs ſir Joſeph Banks, that it *does not afford the ſatisfactory evidence which he expected.* It did not, indeed, afford the ſatisfactory evidence which others expected. Many people were of opinion, that in his account, he rather exaggerated the ſymptoms of thoſe caſes which had fallen under his care, in order to prevent vaccination from being eſtabliſhed; as it tended to exterminate the ſmall-pox, and to cut off the principal branch of his practice. This ſuſpicion was perhaps natural when it was conſidered, that the cow-pox was repreſented by Dr. Jenner as a mild diſorder, and by Dr. Woodville as a violent one; and that it was conſiſtent with his intereſt to repreſent it as ſuch. The truth is, that the phyſician of the Small-pox Hoſpital was the laſt man in the world who ſhould have made the experiment of inoculating for the cow-pox; and the Small-pox Hoſpital the laſt place in which it ought to have been made.

By peruſing Dr. Woodville's publication, any one may diſcover, that when he commenced vaccination, he commenced it not only in the moſt improper place, but alſo without any competent knowledge of the nature of the diſeaſe. He did not know whether it was puſtular, or veſicular; general, or local; contagious, or not contagious. He alſo commenced it without any precaution; for he confeſſes, that many of his patients were in apartments where they were compelled to breathe a variolous atmoſphere; and he even added to this danger of infecting them with the ſmall-pox, that of inoculating them for the diſeaſe, at almoſt every period, while they were under vaccination! The conſequences were ſuch as might well be apprehended. Many of them had the ſmall-pox at the ſame time with the cow-pox. In a conſiderable number of caſes, the cow-pox and ſmall-pox matter were mixed together, in order to gratify curioſity, and ſee whether it was poſſible to create a new diſeaſe; but happily providence has ſet bounds to the power of doing miſchief, and fruſtrated ſuch attempts. In ſome inſtances one of thoſe diſeaſes is ſaid to have prevailed, and in ſome the other; but in none of them was any hybrid diſorder produced.

Dr. Woodville tells us he ſent Dr. Jenner ſome of his cow-pox matter; which, at firſt, in ſome inſtances, occaſioned a trifling eruption; probably the relics of the variolous matter, with which it had been contaminated by one of the circumſtances already mentioned. He tells us, Dr. Jenner attributed the puſtulary eruption to ſome peculiar influence of the town air; but he informs us, that ſeveral of his patients, in whom theſe puſtules appeared, were inoculated at the diſtance of eight miles from London; and that eighteen others, at a ſtill greater diſtance, were inoculated with the ſame matter, in all of whom it produced a ſimilar puſtulous eruption. Nevertheleſs, he was ſo far from believing this eruption to be the ſmall-pox, that he ſtrenuouſly labours to prove it was the cow-pox.

In one reſpect he is rather inconſiſtent with himſelf; for at page 145 he ſays, "the cow-pox, in every caſe which we are acquainted with, has been introduced into the human conſtitution through the medium of external local inflammation; and is therefore to be conſidered as an inoculated diſeaſe. The virus of it ſeems alſo to affect a ſimilar mode of action, and to be governed by the ſame laws as that of the ſmall-pox." But at page 153, after obſerving that the cow-pox is not infectious by effluvia, he ſays, "this is certainly true, when the diſorder is confined to the inoculated part; but where it produces numerous puſtules upon the body, the exhalations which they ſend forth are capable of infecting others in the ſame manner as the ſmall-pox. Two inſtances of caſual infection in this way have lately fallen under my obſervation. In one the diſeaſe was ſevere, and the eruption confluent; in the other the diſeaſe was mild, and the puſtules few."

It muſt be allowed that Dr. Woodville, in ſome inſtances, excited the cow-pox; ſince he has given a very accurate deſcription of it. He ſays, "if the inoculation be performed by a ſimple puncture, the conſequent tumour, in the proportion of three times out of four, or more, aſſumes a form completely circular; and continues circumſcribed, with its edges elevated and well defined, and its ſurface flat throughout every ſtage of the diſeaſe; while that which is produced from variolous matter either preſerves a puſtular form, or ſpreads along the ſkin, and becomes angulated and irregular, or disfigured with numerous veſicles."

"Another diſtinction, ſtill more general and deciſive, is to be drawn from the contents of the cow-pox tumour; for the fluid which it forms, unleſs from ſome accidental circumſtance, very rarely becomes puriform; and the ſcab which ſucceeds is of a harder texture, exhibits a ſmoother ſurface, and differs in its colour from that which is formed by the concretion of pus." So far Dr. Woodville purſues the deſcription of the cow-pox; but ſuddenly he loſes ſight of that object, and again relapſes into his former error, in the following words: "All the appearances here deſcribed, however, do not conſtantly attend the diſeaſe; but are ſometimes ſo much changed, that they can in no reſpect be diſtinguiſhed, from thoſe which ariſe from the inoculation of the ſmall-pox. When the diſeaſe thus deviates from its uſual appearance, at the inoculated part, its effects on the conſtitution have commonly, though not always, been felt

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more ſeverely, than where the tumour was diſtinctly characteriſed."

Dr. Woodville acquaints us, that ſince his table was compoſed, an infant at the breaſt died on the eleventh day after the cow-pox matter had been inſerted in its arm. In this caſe, he tells us, the local tumour was very inconſiderable; and the eruptive ſymptoms took place on the ſeventh day; when the child was attacked with fits of the ſpaſmodic kind, which recurred at ſhort intervals, with increaſed violence, and carried it off at the time above-mentioned, after an eruption of eighty or a hundred puſtules."

Thus, he tells us, it appears, that out of about five hundred caſes of the inoculated cow-pox, one proved fatal; while in the variolous inoculation, at the Small-pox Hoſpital, only one caſe proved fatal in ſix hundred. Many reſpectable members of the medical profeſſion were deterred from vaccination by the foregoing ſtatement; but it has ſince been proved that the child died of the ſmall-pox.

Dr. Woodville indeed acknowledges, that vaccination in general produces much fewer puſtules, and leſs indiſpoſition, than the inoculation of the ſmall-pox; but at the ſame time he contends, that in ſeveral inſtances, the cow-pox has proved a very ſevere diſeaſe; that in three or four caſes out of five hundred, the patient had been in conſiderable danger, and that one child had actually died of the diſorder. He confeſſes, that if one out of five hundred caſes of cow-pox proved fatal, he ſhould not be diſpoſed to introduce the diſeaſe into the Inoculation Hoſpital; but that he is inclined to think, if matter for the vaccine inoculation were only taken from thoſe in whom the diſeaſe appeared in a mild form, the reſult would be more favourable than in the ſtatement which he had given. He ſays, it had occaſionally happened, that matter taken from the arm of a patient, in whom the diſorder neither produces fever nor eruptions, had in others produced both; yet it had much more commonly produced a milder diſeaſe, than matter taken from ſecondary puſtules, or from a patient who had the diſeaſe in a ſevere manner.

He tells us, that out of ſixty-two of his patients who were inoculated with the puſtule matter, fifty-ſeven had an eruption; and that thoſe who received the diſeaſe from any of theſe fifty-ſeven patients alſo had puſtules in nearly the ſame proportion. He alſo informs us, that the diſorder which proved fatal to one of his patients, was excited by matter of this deſcription; that is, by matter of the *ſmall-pox*. So far, however, was he from being aware of this, as to draw from theſe caſes the following inference; that the cow-pock, from certain circumſtances, is not only liable to loſe the characters which diſtinguiſh it from the ſmall-pox, but alſo to continue to propagate itſelf under this new and caſual modification. From theſe erroneous premiſes he, therefore, draws a concluſion equally erroneous, that the ſmall-pox and the cow-pock ought to be conſidered only as varieties of the ſame diſeaſe.

In the London Medical Review for Auguſt 1799, p. 626, Dr. Pearſon expreſſes an opinion, that the puſtules reſembling the ſmall-pox, which occurred at that time in vaccination, afforded matter, which, he believed, in ſome caſes, produced the cow-pock in its uſual mild way. This opinion, however, is not ſupported by any proof, and is now perfectly exploded.

In the Medical Journal for the ſame month, Mr. Ring publiſhed a defence of vaccination, in anſwer to Dr. Moſeley, in which he brings forward evidence to prove, that it is much milder and ſafer than it had hitherto been repreſented to be by ſome London practitioners, and affirms that the ſucceſs of it had, on the whole, been ſuch as to gratify every reaſonable expectation. He alſo cautions medical men not to take matter for inoculation from any but an original puſtule; and not to make uſeleſs experiments, or wantonly expoſe the lives of their fellow-creatures to unneceſſary danger, by inoculating them with one kind of matter, before another had produced its final effect. This caution, unfortunately, has been too often diſregarded.

He alſo advanced an opinion, which he has ſince fully confirmed in his treatiſe on the Cow-pox, that two morbid actions may take place in the body at the ſame time, notwithſtanding the contrary had been maintained by Mr. John Hunter, and was conſidered in the ſchools of medicine as an unqueſtionable doctrine.

About the ſame period, Dr. Jenner publiſhed the ſecond part of his work, entitled "Further Obſervations on the Variolæ Vaccinæ;" in which he tells us, that ſoon after the publication of the former part of his work, he clearly perceived that his theory, which promiſed to be ſo beneficial to mankind, was likely to fall into diſrepute, owing to haſty concluſions. He therefore requeſts medical practitioners to be a little more careful in their obſervations, and the public to ſuſpend their judgment till they had more ample information.

In the courſe of the following year, he republiſhed theſe two parts of his work, together with a third, in which he ſays, he has the pleaſure of ſeeing the feeble efforts of a few individuals to depreciate the practice, ſinking faſt into contempt.

He there obſerves, that upwards of ſix thouſand perſons had then been vaccinated, and that the far greater part of them had ſince been inoculated for the ſmall-pox, and expoſed to the infection of the diſorder in every rational way that could be deviſed, but to no purpoſe.

He then alludes to the experiments of Dr. Woodville, the reſult of which, he obſerves, eſſentially differed from his own in a point of much importance, three-fifths of Dr. Woodville's patients having had eruptions reſembling thoſe of the ſmall-pox. Theſe Dr. Jenner could not aſcribe to the inſertion of vaccine virus, when he conſidered, that in his own neighbourhood, out of the great number of caſual and other caſes which he had ſeen and heard of, although the matter was derived from different ſources, nothing like a variolous puſtule had ever appeared. He therefore juſtly concluded, that thoſe which had occurred in the practice of Dr. Woodville, and of others to whom Dr. Woodville had given matter, were occaſioned by the *variolous* matter with which he had inoculated his vaccine patients, on the third or fifth day after vaccination.

In the Supplement to the Encyclopædia Britannica, under the article Variolæ Vaccinæ, or Cow-pox, are ſome erroneous, if not miſchievous, opinions, which ought to be corrected. Vaccination is there repreſented as a more ſevere proceſs than what Dr. Jenner gave us reaſon to expect: an eruption exactly reſembling the ſmall-pox is ſtated to be a very common occurrence; and in ſome caſes the febrile ſymptoms are ſaid to be conſiderable and alarming. In one inſtance it is aſſerted that the diſorder proved fatal. It is there alſo ſtated, on the authority of Dr. Woodville, that the cow-pox is ſometimes infectious by effluvia, like the ſmall-pox, and has a ſimilar appearance on the arm.

Dr. Woodville has ſince acknowledged, that the infant whoſe caſe is above referred to, died of the ſmall-pock, and not of the cow-pock; but as there are ſtill ſome perſons who endeavour to prove that the cow pock is an eruptive diſeaſe, it is neceſſary to enter a little further into the inveſtigation of this point.

In the ſame article of the Supplement to the Encyclopædia,

dia, as well as in other publications, we are told, that from the occurrence of ſuch puſtulous eruptions, in the practice of Dr. Woodville and others, Dr. Pearſon draws the following concluſions; that in certain conſtitutions, or under the circumſtances of certain co-operating agents, *the vaccine poiſon produces a diſeaſe reſembling the ſmall-pox*, and of courſe the puſtule in the inoculated part *is very different from that of the vaccine-pox ordinarily occurring*, and the eruptions *reſemble very much, if not exactly, ſome varieties of the ſmall-pox*; that in ſome inſtances theſe eruptions had occurred, although the inoculated part had exhibited the genuine vaccine puſtule; that the matter of ſuch eruptive cow-pocks, whether taken from the inoculated part, or from others, univerſally, or at leaſt generally, produces ſimilar eruptive caſes, and has not, as Dr. Pearſon believes, been ſeen to go back, by paſſing through different conſtitutions, to the ſtate in which it produces what is called the genuine vaccine diſeaſe.

In the ſame article it is ſtated, that Dr. Woodville ſays, if the inoculated part aſſumes a puſtular form, though it continues only *one* or *two* days, the inoculation is as effectual as where it proceeds through its regular courſe. This, as well as the former opinion, being founded in error, the more widely it is diffuſed, the more neceſſary it is to correct it. One inſtance, proving its fallacy, may be ſeen in the Medical Journal for February, 1801, in a letter from Dr. Harriſon to ſir Joſeph Banks; and many others in the various authors who have written on vaccination.

Here it may not be ſuperfluous to remark, that the term *puſtule*, however common, is not expreſſive of the cow-pock, which is a *veſicle*, of a cellular conſtruction.

With regard to the other opinion advanced in the Encyclopædia, namely, Dr. Pearſon's, that in certain conſtitutions, and under certain circumſtances, cow-pock matter is capable of producing a diſeaſe reſembling the ſmall-pox,—it is proper to lay before the reader ſuch arguments and facts as may enable him to form his own judgment.

In the London Medical Review for April, 1800, Mr. Blair called the attention of the faculty to an examination of this queſtion, and contended, that either the matter uſed in theſe inoculations was contaminated, or the cow-pox is a puſtulous diſeaſe, and capable of communicating infection by effluvia. That concluſion he founded on two caſes which occurred in the practice of Mr. Ring, and which Mr. Ring had related to the Medical Society. With matter taken from one of theſe patients Mr. Blair inoculated a child, and produced a puſtular diſorder, which, like the former, was not diſtinguiſhable from the ſmall-pox, and, like the ſmall-pox, proved infectious by effluvia; for another child in the ſame apartment caught the diſeaſe!

The matter which occaſioned this eruptive diſorder, was obtained by Mr. Ring from Dr. Pearſon, and by him from Dr. Woodville; and this event furniſhes one proof, out of many, of the melancholy effects of practiſing vaccine inoculation at the Small-pox Hoſpital. In the Medical Review for May, 1800, Mr. Ring obſerves, that the appearance of a conſiderable eruption, in the two caſes referred to by Mr. Blair, occaſioned a variety of conjectures at the time; but no one who had ſeen much of the practice with genuine cow-pock virus, could then poſſibly entertain a doubt that the matter was variolated by ſome means or other. Whether this contamination took its riſe from a variolated lancet, or a variolated atmoſphere, he does not pretend to determine, not having ſeen the matter, nor the lancets, till the moment when inoculation was about to be performed.

He then ſtates, that for the ſpace of ſix months he had uſed matter from the ſtock of Dr. Jenner, which had not produced puſtulous eruptions, and quotes an extract of a letter from Dr. Jenner, to prove that the cow-pock is not infectious by effluvia; adding, that even the caſual diſeaſe, when moſt ſevere, has never been ſuſpected to be capable of infecting any perſon, except by contact.

In the Medical Review for June, 1800, Mr. Ring ſtates, that the opinion which he had ventured to advance in the Medical Journal for Auguſt, 1799, in oppoſition to the hypotheſis of Mr. Hunter, and other celebrated phyſiologiſts, that two morbid actions in the ſame ſubject, at the ſame time, are incompatible, was then confirmed by two additional caſes, publiſhed by Dr. Tracey in the New York Medical Repoſitory; and alſo by a caſe of co-exiſtence of the cow-pock and meaſles, which had lately occurred in his own practice. In this caſe, which he ſhewed to Dr. Jenner, Dr. Marſhall, and other medical practitioners, the meaſles appeared on the eighth day of vaccination; yet the cow-pock was neither ſuperſeded nor retarded by that diſeaſe. This, and many other inſtances of the co-exiſtence of eruptive diſorders, which he has related in his treatiſe on the Cow-pox, corroborate the opinion, that the puſtular eruptions in patients under vaccination at the Small-pox Hoſpital and elſewhere, owed their origin to the ſmall-pox and not to the cow-pox.

In the Medical Review for July, 1800, he publiſhed ſome additional obſervations on this ſubject, in which he ſtates, that he had lately ſeen three inſtances of the ſmall-pox, in conſequence of the inſertion of matter obtained from the Small-pox Hoſpital as cow-pock matter. In the ſame letter he expreſſed his ſurpriſe, that Dr. Woodville was not yet convinced of his error. Dr. Woodville having advanced an opinion, that in thoſe places where *the ſmall-pox* is epidemic *the cow-pox* produces puſtules, Mr. Ring obſerves, that where the ſmall-pox prevails, it is more reaſonable to aſcribe theſe eruptions to the action of variolous matter, than to ſay, that where *the ſmall-pox* prevails, *the cow-pox* produces puſtules.

In the ſame publication for September, he inſerted ſome further remarks on the ſame ſubject, in which he ſtates, that he had ſince known ſeveral inſtances in which the ſmall-pox was excited, inſtead of the cow-pock, by ſuppoſed vaccine matter procured from the Small-pox Hoſpital, and from Dr. Woodville; and expreſſes his doubt whether it was of advantage to the public, that any ſpecies of inoculation ſhould ſtill be practiſed at the Small-pox Hoſpital. He adds, "for my own part, I muſt confeſs, that however uſeful it has heretofore been in this reſpect, its utility ceaſed on the introduction of the new practice by Dr. Jenner. Either that Augæan ſtable ought to be cleanſed, or to ſerve as a mere peſt-houſe for the reception of ſuch as are ſeized with the natural ſmall-pox. It was not deſigned to propagate that diſeaſe, nor to diſſeminate a deadly poiſon."

In the ſame paper he aſſerts, that when perſons already infected with the ſmall-pox are vaccinated, the cow-pock ſometimes appears to mitigate, and at others to ſuperſede the ſmall-pox; but that this rule was not without an exception, on which account he thought much greater caution neceſſary in the practice of vaccine inoculation than had hitherto been obſerved.

In his treatiſe on the cow-pock, he has given a full detail of the riſe and progreſs of vaccination in the metropolis, and an analyſis of Dr. Woodville's publications; proving that the diſorder which had created ſo much alarm, and ſo greatly retarded the progreſs of the new inoculation, was, in reality, not the cow-pock, but the *ſmall-pox!*

§ 3. *The comparative Advantages of Vaccination.*

The following comparative ſtatement of the advantages of the new practice is, in a great meaſure, taken from Ring's Compendium of Vaccination.

The natural ſmall-pox is a loathſome, infectious, painful, and fatal diſeaſe. It is confined to no climate; but rages in every quarter of the world, and deſtroys a tenth part of mankind. Thoſe who ſurvive the ravages of that dreadful diſtemper, often ſurvive only to be the victims of other maladies; or to drag out a miſerable exiſtence worſe than death. This cruel and lamentable diſorder leaves behind it pits, ſcars, and other blemiſhes; and bodily deformities which embitter life.

The inoculated ſmall-pox alſo is loathſome, infectious, painful, and ſometimes fatal; and when partially adopted, ſpreads the contagion, and increaſes the mortality of the diſeaſe. It ſometimes occaſions the ſame maladies as the natural ſmall-pox. It frequently leaves behind it the ſame blemiſhes and deformities as the natural ſmall-pox; which are the more deplorable, as they were brought on by a voluntary act.

The inoculated cow-pock ſcarcely deſerves the name of a diſeaſe. It is not infectious; and, in the opinion of the moſt experienced practitioners, has never proved fatal. It occaſions no other diſeaſe. On the contrary, it has often been known to improve health; and to remedy thoſe diſeaſes under which the patient before laboured. It leaves behind no blemiſh, but a bleſſing—one of the greateſt ever beſtowed on man—a ſecurity againſt the future infection of the ſmall-pox.

§ 4. *The Manner of taking and inſerting Cow-pock Matter.*

The following inſtructions for the practice are alſo taken from Ring's Compendium. Cow-pock matter may be taken at any period, from the firſt appearance of the veſicle, till the areola begins to form, by ſmall punctures; allowing it time to flow; or promoting the diſcharge by gentle preſſure with the lancet. It muſt be taken with great caution; otherwiſe the intention of the inoculator may be fruſtrated, or violent inflammation and ulceration of the arm may enſue.

The cow-pock matter is to be inſerted, by a ſuperficial puncture, into the middle of the arm, between the ſhoulder and the elbow; or, when the arm is likely to be much uſed, into the inſide of the leg. Fluid matter is preferable to dry; but thoſe inoculators who have not a conſtant ſucceſſion of patients, and cannot readily procure a freſh ſupply of matter, ſhould preſerve it on vaccinators for future occaſions. In this manner, when kept in a cool place, it may be preſerved ſeveral months.

§ 5. *The Manner of preſerving Cow-pock Matter.*

Cow-pock matter may be preſerved, and conveyed, on the point of a vaccinator; that is, a bit of ivory, ſhaped like the tooth of a comb, and pointed like a lancet.

When the matter is intended to be ſent to a diſtant place, or to be kept long, the vaccinator ſhould be charged ſeveral times. It ſhould not be dried before the fire; and, when ſuffered to dry on a lancet, ſhould not be kept above two or three days. When dry matter is uſed, it ſhould not be moiſtened previouſly to inſertion; but the longer it has been kept, the longer the point of the inſtrument ought to remain under the cuticle, that it may have time to diſſolve. When fluid matter is uſed, the lancet ſhould be waſhed in cold water, and wiped dry after every puncture.

Various other methods have been contrived for the preſervation and conveyance of cow-pock matter; but the ivory lancet, invented by Dr. de Carro, and the vaccinator above-deſcribed, invented by Mr. Ring, which is generally conſidered an improvement of it, being much cheaper and more portable, are now commonly preferred. When vaccinators are to be ſent to a moderate diſtance, they may be wrapped in paper; but when they are to be ſent to a great diſtance, they may be incloſed in a quill, to be ſtopped with white wax. Sealing wax is not proper for this purpoſe; becauſe it cannot be employed without heat, which is extremely prejudicial to the matter. When a vaccinator is to be uſed for inoculation, a ſmall oblique puncture is firſt to be made with a lancet; then the point of the vaccinator is to be inſerted, and held in the puncture ſome time, and afterwards repeatedly wiped on the part; in order to inſure, if poſſible, the lodgment of the matter.

General Obſervations on the Practice.

One cow-pock is generally ſuppoſed to be a ſecurity againſt the future infection of the ſmall-pox; but when the patient reſides at a diſtance, or is in danger of catching the ſmall-pox, it is proper to inoculate in both arms. Another reaſon for inoculating in both arms is, that a more copious ſupply of matter is thus afforded for future inoculation.

Thoſe who have been expoſed to the infection of the ſmall-pox, ought to be inoculated with the cow-pock; which ſeldom fails to ſuperſede, or mitigate, the ſmall-pox.

§ 6. *The local Symptoms of Vaccine Inoculation.*

On the third day, the day of inoculation being reckoned the firſt, a red ſpot commonly appears; and, on the fourth or fifth, a cellular veſicle, of a light pink, ſometimes with a blueiſh tint, gradually changing into a pearl colour. The margin is elevated, the centre depreſſed, the contents are limpid. It increaſes till the tenth day.

About the ninth, the inflammation ſurrounding the baſe ſpreads rapidly, and forms a circumſcribed areola, which, in a day or two, commonly begins to fade. When the areola is complete, the veſicle ſoon begins to decline. Firſt, it turns brown in the centre; it is then gradually converted into a hard, ſmooth, ſhining ſcab, of a dark mahogany colour, approaching to black; which falls off about the end of the third week, leaving a ſcar, which is generally round and circumſcribed, and ſome degree of indentation.

§ 7. *Spurious Puſtules.*

A ſpurious puſtule is more elevated and opake than the genuine; and more rapid in its progreſs. It is not cellular; nor ſurrounded with a diſtinct circumſcribed areola; nor converted into a dark ſhining ſcab. Spurious puſtules often occur in thoſe who are vaccinated after having had the ſmall-pox. They are ſometimes alſo produced in thoſe who have not had the ſmall-pox, by blunt or ruſty lancets, by matter taken from a ſpurious puſtule, or from a genuine puſtule at too late a period; or by that which has been kept too long, or dried before the fire. When there is any irregularity, or doubt of ſucceſs, the patient ought to be inoculated again.

§ 8. *The conſtitutional Symptoms.*

Sometimes a drowſineſs appears on the ſecond or third day of vaccination. Febrile ſymptoms alſo ſometimes commence early; but more frequently about the eighth day. They are commonly ſlight and tranſient. In many caſes there is no apparent conſtitutional indiſpoſition; yet the patients are rendered ſecure from the future infection of the ſmall-pox.

The ſuperiority of vaccine inoculation being now fully aſcertained, ſome reſtriction ought to be impoſed on the inoculation of the ſmall-pox; and thoſe mercenary practitioners who prefer their own private intereſt to that of the public, ſhould no longer be ſuffered to diſſeminate a malignant poiſon, or to ſcatter the ſeeds of death with impunity.

§ 9. *Prejudices againſt Vaccination.*

The prejudices againſt vaccination are ſimilar to thoſe which formerly prevailed againſt the inoculation of the ſmall-pox. They proceed partly from ignorance; but ſelf-intereſt has alſo a conſiderable ſhare in exciting them, as is too evident in the conduct of certain individuals, who wiſh to profit by the credulity of the public, and to enrich themſelves by the inoculation of the ſmall-pox.

One of the prejudices againſt vaccination is, that it produces other diſeaſes; another, that it is no ſecurity againſt the future infection of the ſmall-pox. With reſpect to the firſt, it may perhaps be ſufficient to obſerve, that no ſuch diſeaſes are produced by the cow-pox in the caſual way, though much more ſevere than under inoculation, nor in the children of perſons in a reſpectable ſituation of life. Thoſe which are aſcribed to this cauſe occur chiefly in the children of the lower claſs; and are occaſioned by want of care, and of cleanlineſs or other cauſes to which the poor are, in all countries, in ſome meaſure, unavoidably expoſed.

Theſe diſorders, which uſed to be concealed as much as poſſible by parents, and other parties concerned, have lately been dragged into light; and accounts of them have been circulated with great induſtry, and with the moſt ſhameful exaggeration and miſrepreſentation. It has, however, been proved, that they are leſs frequent than they were before vaccination was introduced into practice; and that even in Glouceſterſhire, where the natural cow-pox has been moſt known, and beſt underſtood, no perſon has ever applied to the Infirmary for any diſeaſe, ſuppoſed to be occaſioned by the cow-pox.

We ſhall conclude this article with an extract from the Report of the Royal Jennerian Society for the Extermination of the Small-pox, dated October 1, 1807.

"The Directors congratulate the public on the very favourable opinion which the Royal College of Phyſicians of London, after a moſt minute and laborious inveſtigation, made by command of his majeſty, have a ſecond time expreſſed on the ſubject of vaccination, in their Report laid before the houſe of commons, in the laſt ſeſſion of parliament; in conſequence of which the ſum of twenty thouſand pounds was voted to Dr. Jenner, as a remuneration for his diſcovery, in addition to ten thouſand pounds before granted.

"In this Report, the college of phyſicians, after premiſing that they advance nothing but what is ſupported by multiplied and unequivocal evidence, aſſert, that the teſtimonies before them are decided in declaring, that the cow-pox is much milder, ſafer, and much leſs apt to cauſe other diſeaſes than the ſmall-pox: that the monſtrous diſeaſes attributed to vaccination, are either the inventions of deſigning, or the miſtakes of ignorant, men; and that the prints and publications which have been ſo widely circulated, in order to alarm timorous and uninformed parents, originate either in groſs ignorance or wilful miſrepreſentation.

"They are alſo of opinion, that if due encouragement were given to vaccination,—if the public were fully informed of its advantages, and the benefits of this ſalutary operation were every where offered to the poor free of expence, it would in time ſuperſede the inoculation of the ſmall-pox. One particular advantage of the cow-pox is, that it protects thoſe individuals who ſubmit to the operation, without endangering the health of the community at large; whereas the inoculation of the ſmall-pox keeps up a continual ſource of contagion, and increaſes the fatality of the diſeaſe."

In fine, the college of phyſicians declare, "that they feel it their duty ſtrongly to recommend the practice of vaccination; that they have been led to this concluſion by no preconceived opinion, but by the moſt unbiaſſed judgment, formed from an irreſiſtible weight of evidence which has been laid before them; and that when the number, the reſpectability, the diſintereſtedneſs, and the extenſive experience of its advocates, are compared with the feeble and imperfect teſtimonies of its few oppoſers,—and when it is conſidered that many who were once adverſe to vaccination have been convinced by further trials, and are now to be ranked among its warmeſt ſupporters, the truth ſeems to be eſtabliſhed as firmly as the nature of ſuch a queſtion admits; ſo that the College of Phyſicians conceive that the public may reaſonably look forward with ſome degree of hope to the time when all oppoſition ſhall ceaſe, and the general concurrence of mankind ſhall at length be able to put an end to the ravages, at leaſt, if not to the exiſtence of the ſmall-pox."

"It is highly ſatisfactory to obſerve, that theſe opinions of the royal college of phyſicians of London are ſupported by the concurrent teſtimony of the other colleges of phyſicians and ſurgeons in the United Kingdom.

"The Royal Jennerian Society, aware of the neceſſity of uſing their utmoſt exertions for accompliſhing the great object of their inſtitution, continue to offer gratuitous vaccination to all deſcriptions of perſons, at their Central-houſe, No. 14, Saliſbury-ſquare, Fleet-ſtreet, and at their other ſtations in different parts of the metropolis: as well as to afford their utmoſt aſſiſtance in extending its benefits, by the diſtribution of vaccine matter, with proper inſtructions, and by all other means in their power: and, they truſt, a generous public will enable them further to promote a practice, which is ſo eſſential to the proſperity of the Britiſh empire, and to the welfare and happineſs of mankind."

We refer thoſe who wiſh for further information on this important ſubject, to Dr. Jenner's Inquiry into the Cauſes and Effects of the Variolæ Vaccinæ, or Cow-pox; Dr. Pearſon's Inquiry concerning the Hiſtory of the Cow-pox; Dr. Woodville's Reports on Vaccine Inoculation; Dr. Willan on Vaccine Inoculation; the Evidence at large, by the Rev. George Jenner; Practical Obſervations on the Inoculation of the Cow-pox, by Mr. Bryce, member of the Royal College of Surgeons of Edinburgh; the London Medical Review; the Medical and Phyſical Journal. Alſo, A Treatiſe on the Cow-pox, 2 vols. with plates; a Compendium of Vaccination; an Anſwer to Mr. Goldſon; an Anſwer to Dr. Moſeley; an Anſwer to Mr. Birch; and A Rowland for an Oliver, containing an Anſwer to Dr. Moſeley and Mr. Birch, by Mr. Ring, member of the Royal College of Surgeons of London, to whom we are indebted for this article.

COWRING, in *Falconry*, the quivering of young hawks, who ſhake their wings, in ſign of obedience to the old ones.

COWRY, or KOWRY, in *Commerce*, a ſmall ſhell uſed in Hindooſtan, particularly at Calcutta, as a ſmall coin, and brought from the Maldives in exchange for rice. Cowries are alſo uſed as current coin in Africa. It is ſaid that about 100 tons of cowries are annually ſhipped from England alone to Guinea. Theſe are originally imported from the Maldive iſlands to Bengal, and from Bengal into England. In Bengal 80 cowries make a *poni*, and 60 or 65 ponies, as there are few or many cowries in the country, make a rupee. There is, however, a great variation in the value of cowries in Bengal. Ricaud ſays, that 2560 make a rupee; Bolts ſays, 4000 to 4800 are of the ſame value; and Stavorinus makes a rupee equal to 4800, and as high as 5200. Others ſay, that in Bengal 2400, more or leſs, are equal to a ſhilling; and yet, notwithſtanding the incredible ſmallneſs of the denomination, ſome articles in the market may be purchaſed for a ſingle cowry. In the inland parts of Africa, they are about ten times as dear, varying from 220 to 280. Mr. Beaufoy was told that in Kaſſan they were at the rate of about 250. Mr. Park reports that they are about the ſame price at Sego, but cheaper at Tombuctoo, which is about the centre of the cowry country; dearer towards Manding, which is the weſtern extremity of it. Hence they are probably carried in the firſt inſtance to Tombuctoo, the gold market, and thence diſtributed to the Eaſt and Weſt. Their circulation ſeems to be confined between Bornou, where they have a coinage of baſe metal, and Manding.

COWSLIP, in *Botany*. See PRIMULA *veris*.

COWSLIP, *Virginian*. See DODECATHEON.

COWTENS, in *Geography*, a place of America, in S. Carolina, between Pacolet river, and the head branch of Broad river, where general Morgan gained a conſiderable victory over lieut. col. Tarleton, Jan. 11, 1781.

COX, RICHARD, in *Biography*, a learned prelate, was born of mean parents in Buckinghamſhire, in the year 1499. He received his grammatical inſtructions at Eton; from thence he obtained a ſcholarſhip in King's college, Cambridge, of which he was afterwards a fellow; and, in the ſame year, 1519, he took his degree of B. A. From Cambridge, at the invitation of cardinal Wolſey, he went to Oxford, where he was appointed a junior canon of Cardinal college, and admitted to the ſame degree as he had before taken at Cambridge. In 1526, having performed with much credit his regular exerciſes, he proceeded to the degree of M. A. He was now greatly diſtinguiſhed, as well for his moral conduct, as for diligence and aſſiduity as a ſtudent; but his zeal for the opinions of Luther, and his deſire of extending the limits of the reformation, rendered him obnoxious to his ſuperiors, who ſtripped him of his preferment, and threw him into priſon. Here, however, he was not long confined; and, upon his releaſe, he was choſen maſter of Eton ſchool, over which he preſided with great credit and uſefulneſs. Through the intereſt of archbiſhop Cranmer he was raiſed to ſeveral important ſtations in the church, and was appointed preceptor to prince Edward; on whoſe acceſſion to the throne, he was ſworn of the privy council, made king's almoner, and appointed chancellor of Oxford, canon of Windſor, and dean of Weſtminſter. In ſome of theſe ſtations his great zeal for the reformation led him to deſtroy a number of curious and valuable books, for no other reaſon than to ſhew his hatred to the catholic cauſe, by the abettors of which they had been written. On the acceſſion of queen Mary, religious zeal and bigotry were turned againſt him. His preferments were ſeized, and himſelf once more impriſoned; but he fortunately obtained a ſpeedy releaſe, of which he took advantage, and left the kingdom. At Straſburg, whither he went, he was permitted, with others of his countrymen, to exerciſe public worſhip according to the forms eſtabliſhed in the reign of Edward VI. On the death of the queen, who, on account of the cruelties and murders which diſgraced her reign, has juſtly obtained the title of bloody Mary, Cox returned to England, and, with other divines, was appointed to reviſe the liturgy. He was elevated to the ſee of Ely, which he continued to enjoy upwards of twenty years. His ſtrenuous oppoſition to certain relics of popery, upon which he often preached, and his defence of the marriage of the clergy, prevented him from riſing very high in Elizabeth's eſteem. She even, in the latter years of the biſhop's life, alienated from him, much of the property belonging to his ſee. He reſiſted this ſtretch of royal authority, but the arm with which he contended was too powerful for him, and he was eventually forced to propoſe reſigning his biſhopric, and to retire upon a ſmall penſion. There was, however, too much virtue in his brethren to induce any one to accept of his benefice on ſuch ignominious conditions. Dr. Cox, therefore, continued in his office till death deprived him of the honours, and releaſed him from all the vexations of life. He died at the age of 81, in the year 1581, leaving behind him a character for great learning and integrity; but he was a ſevere enemy to thoſe who differed from him, and the perſecutor of papiſts and puritans. He was author of many works of conſiderable eſtimation on theological ſubjects; and was principally concerned in the compilation of the Liturgy of the Church of England: he tranſlated the Goſpels and Acts of the Apoſtles, and the Epiſtle to the Romans, in the new tranſlation of the Bible in the reign of queen Elizabeth, and is ſuppoſed to have been concerned in the compoſition of Lily's Grammar. Some of his letters to the queen are to be found in Strype's Annals of the Reformation.

COX, RICHARD, diſtinguiſhed as lord chancellor of Ireland, and hiſtorian of that country, was born at Bandon, in the county of Cork, in 1650. By the death of his father, the care of his education devolved upon an uncle, who put him firſt to a country grammar-ſchool, and afterwards articled him to an attorney, a profeſſion which he followed till he obtained as much money as was ſufficient to enter his name on the books of Gray's Inn, with a view of being called to the bar. Having attained his object, he returned to Ireland, married, and commenced farmer. In this line he continued about ſeven years, when he was called into activity as a lawyer. Under the patronage of ſir Robert Southwell he was appointed recorder of Kinſale in 1680; but the zeal which he at all times exhibited in defence of proteſtantiſm, rendered his abode in Ireland unſafe. He accordingly withdrew to England, and ſettled at Briſtol, where he wrote his Hiſtory of Ireland, which was publiſhed in 1689. Previouſly to this, he had made himſelf known by a ſmaller work, to ſhew the neceſſity of calling the prince of Orange to the throne of theſe realms, and of ſending an effective force to Ireland. Early in the reign of the illuſtrious William he accompanied his friend ſir Robert Southwell to Ireland, in the quality of ſecretary: his ſervices in this ſtation were rewarded by a juſticeſhip in the common pleas, and by being made military governor of the city and county of Cork. His conduct in this ſtation has been cenſured on account of the rigour which he exerciſed upon the natives, whom he treated as a conquered and hoſtile people. His ſeverity was tempered with juſtice, though not ſoftened by clemency: he inſiſted upon the faithful obſervance of the Articles of Limerick, which many proteſtants oppoſed, as being too favourable to the catholics. It is to his honour that he gave up his employments, rather than his integrity, in this particular; which were not reſtored to him till the year 1701. His advice was ſought by the miniſters of queen Anne, who, in 1703, raiſed him to the office of lord chancellor of Ireland, which he filled with much credit, during four years, when, being diſmiſſed, he retired into the country, and ſpent his time in the improvement of his eſtate, and in the ſtudy of divinity, to which he was much attached. From the country he was called to the poſt of chief juſtice of the queen's bench in Ireland; but on the acceſſion of George I. he was removed from the bench, and from his ſeat in the privy council, and fell under the cenſure of the houſe of commons, on account of his too great attachment to the power of the crown. He now withdrew from public life, and, in 1733, he died at the age of 83.

His principal work as an author was "Hibernia Anglicana; or, the Hiſtory of Ireland, from the Conqueſt thereof by the Engliſh, to the preſent Time." Biog. Brit.

COX'S, in *Geography*, a town of America, in the ſtate of Virginia, 152 miles W.S.W. of Philadelphia.

COXÆ, or Coxendicis, *oſſa*, in *Anatomy*, are terms applied to the oſſa innominata.

COXAMARGUILLA, in *Geography*. See Caxamarguilla.

COXCIE, Michael, in *Biography*, an eminent painter, born at Mechlin, in the year 1497. At a very early age, he was placed under the tuition of Bernard Van Orley, from whoſe inſtructions he derived conſiderable benefit; but it was in Rome, from the leſſons of the divine Raffaele, and from contemplating and copying his productions, that our young artiſt caught a ray of the excellence of that great maſter. He ſojourned many years in Rome, where he married. The reputation of his abilities occaſioned his being employed, upon his return to Flanders, in decorating many of its principal churches, where ſeveral of his pictures, evincing no ſmall degree of merit, ſtill remain. Many of his other productions, during the war with Spain, were carried to that country, where they are held in high eſtimation.

But however great the reputation Coxcie enjoyed through life, and however generally his pictures have been eſteemed ſince his death, he yet has not eſcaped cenſure; and he is accuſed of having too frequently availed himſelf of the ſtudies which he made from Raffaele, by introducing the figures of that great maſter into his own compoſitions.

Towards the cloſe of his life, having become very rich, he built three houſes in Malines, which he furniſhed with his own performances. His pictures, though from the length of his life, and his inceſſant application, very numerous, are yet rarely to be met with. Coxcie was killed by a fall from a ſcaffold in 1592, in the town-hall of Antwerp, where he was painting, at the very advanced age of 95 years.

We ſhall only notice the following works of this artiſt. In the church of Notre Dame at Antwerp, is a "Holy Family" by him, which frequently excited the admiration of Rubens; and in the ſame church he painted a "St. Sebaſtian," a "Crucifix," and ſeveral portraits, juſt imitations of nature, and highly expreſſive.

If, as Vaſari has affirmed, Coxcie was the inventor of thoſe beautiful compoſitions of the ſtory of Cupid and Pſyche, engraved in 32 plates, by the ſchool of Marcantonio, the greateſt eulogiums would be due to him, as the author of ſome of the moſt exquiſite productions of the art. The ſtyle of Raffaele, however, in theſe prints, appears ſo evident, that we can ſcarcely heſitate to pronounce, that upon this occaſion, as on ſome others, the Florentine biographer has been miſinformed. Deſcamps. Vaſari.

COXHALL, in *Geography*, a townſhip of America, in the county of York, and diſtrict of Maine, containing 775 inhabitants.

COXILITLI, in *Ornithology*, the Crax *rubra* of Gmelin; which ſee.

COXSAKIE, in *Geography*, a townſhip of America, in the weſtern part of Albany county, and ſtate of New York, containing 3406 inhabitants; of whom 302 are ſlaves, and 613 electors.

COXSWAIN, on board a ſhip. See Cockswain.

COXWYCK, in *Geography*, a town of Norway, 44 miles N.N.E. of Romſdal.

COYA, or Coyba, a venomous inſect in South America, of a fiery red colour, and about the ſize of a bug. The poiſonous juices of this inſect, when burſt upon the ſkin of any animal, are often fatal. However, the Indians have an antidote againſt it, in the dried ſtems of an herb.

COYAMATL, or Quaukinyamatl of Fernandez, in *Zoology*, the tajacu of Marcgrave, and the *pecari* of Buffon, the Mexican hog of Pennant, and Sus *Tajaſſu* of Gmelin; which ſee.

COYAU, in *Geography*, a ſettlement of America, on the river Tenneſſee; 30 miles below Knoxville.

COYDALLA, in *Ancient Geography*, a town of Aſia Minor, placed by Ptolemy in the interior of Lycia.

COYEGEM, in *Geography*, a town of Flanders, $1\frac{1}{2}$ league from Furnes.

COYL, a river of Hindooſtan, which riſes 20 miles N. from Chuta Nagpour, in the province of Bahar, and joins the Soank, 34 miles S. of Conjour; by their junction they form the Bramnee.

COYLAN, or Quilon, a Dutch factory, now in the hands of the Engliſh, about 14 geographical miles to the N.N.W. or N.W. of Anjenga. Along the whole coaſt from Coylan in N. lat. 8° 51′, to Cranganore, in N. lat. 10° 23′, there is a vaſt aſſemblage of lakes, that extend in ſome places 30 miles inland, and are the repoſitories of the waters which ſpring from the weſt ſide of the Gauts:—the whole country here being very flat, marſhy, and unwholeſome.

COYOLCOS, in *Ornithology*, the coyolcozque of Hernandez, Ray, &c. the leſſer Mexican quail of Latham, is a ſpecies of Tetrao (which ſee), in the ſyſtem of Gmelin.

COYOLTOTOTL of Fernandez, the red cotinga of Cayenne of Buffon, the red chatterer of Latham, the red bird from Surinam of Edwards, and Ampelis *carnifex* of Gmelin; the ſpecific character of which is, that it is red, with its ocular band, and tips of the quills of the wings and tail black. It is found in New Spain, Guiana, Cayenne, and Surinam. It is about eight inches long. See Cotinga.

COYPEL, Noel, in *Biography*, a French painter of conſiderable eminence, born in Normandy in 1628. Guyon Coypel, an artiſt of no note, the father of Noel, perceiving his ſon's predilection for the pencil, placed him under the tuition of a painter named Poncet, the diſciple of Vouet. He ſoon, however, quitted his maſter, and, at the age of fourteen years, went to Paris. There accident made him known to Quillerier, who, admiring the boy's talent, took him under his care.

He remained ſome time with Quillerier, and ſo rapid was his progreſs, that he was ſhortly afterwards employed at Verſailles, under Charles Errard, and was thought worthy of receiving a ſtipend equal to that of other more experienced profeſſors.

In 1668 he was made a member of the royal academy at Paris, and a few years afterwards was by Louis XIV. appointed director of the French academy at Rome, which ſtation he filled ſeveral years, with credit to himſelf, and great benefit to the ſtudents over whom he preſided. He returned to Paris, where he enjoyed the favour of the king until his death, which happened in the year 1709.

Coypel's works denote conſiderable fecundity of invention, and although of a ſtyle decidedly French, poſſeſs expreſſion joined to ſufficient correctneſs of deſign, and a good tone of colouring.

His performances are very numerous. In the church de Notre Dame at Paris is a picture from the pencil of Noel, repreſenting St. James the Greater converting a Gentile at the place of his execution. He alſo painted Cain killing Abel in one of the halls of the royal academy, and a Trinity and an Aſſumption in the church of Invalids. He is ſaid to have etched two or three plates in aquafortis. Extrait des differens Ouvrages, &c. Huber.

Coypel, Antoine, the ſon of Noel, born at Paris in 1661, accompanied his father to Rome, and though only eleven years of age, ſtudied in that city the works of Raffaele, Michelangiolo, and Annibale Caracci, with ſuch benefit that he ſhortly afterwards became a ſucceſsful candidate at a public concurrence of the young artiſts of the academy, and bore away the prize. He then undertook a journey to Lombardy, to contemplate the maſterpieces of Correggio, Titian, and Paul Veroneſe.

Upon his return to Paris, he diſplayed evident proofs of his poſſeſſing no inconſiderable degree of talent. At the age of 20 years he was made a member of the royal academy, and was afterwards appointed principal painter to Monſieur the king's brother. The duke de Chartres was alſo particularly partial to our artiſt, for learning that advantageous overtures had been made to induce him to go to England, this prince viſited him incognito, and prevailed on him to remain in his native country.

Having painted the middle of the vault in the royal chapel at Verſailles, the king, to recompenſe the ability he had ſhewn in that work, appointed Antoine his principal painter, and granted him letters of nobility. In 1707 he was made profeſſor of the royal academy, and in 1714 he became director.

One of his laſt works is the grand gallery of the palais royal, in which he has repreſented the principal actions of the Æneid. His intenſe application to this and his other performances, and the fatigue he underwent, threw him into a ſickneſs which terminated his life in 1722.

Few painters have better underſtood the poetry of the art, or have been better inſtructed in hiſtory and fable, than Antoine Coypel; and his works, though they ſhew the manneriſt, poſſeſs great ſpirit. He made Rubens his model for colouring, and he ſucceeded in giving a ſtrong though ſometimes an exaggerated expreſſion to his figures. Two of his beſt pictures are in the church de Nôtre Dame; one repreſenting Chriſt diſputing with the Doctors, the other the Aſſumption of the Virgin. The halls of the academy, the chapel at Verſailles, and many churches in Paris, alſo contain the productions of this artiſt. He engraved with his own hand ſeveral plates which are enumerated by Heinecken. Extrait des differens Ouvrages. Heinecken.

Coypel, Noel Nicolas, was alſo the ſon of Noel Coypel, and born at Paris in 1692. He had only the benefit of his father's inſtructions until he was 15 years old, but he compenſated for the loſs he ſuſtained by his aſſiduity in ſtudying the ancient ſtatues and other works which might contribute to his advancement. In the year 1720 Noel Nicolas was admitted a member of the royal academy, and thirteen years afterwards was made profeſſor. He died in 1735.

The churchdes Minimes at the palace royale, poſſeſſes one of his beſt performances. It repreſents S. François de Paul, with his companions, paſſing the ſea, ſupported only by his mantle. We have a few etchings by this maſter, one of which repreſents the triumph of Amphitrite; another a Sleeping Nymph ſurpriſed by a Satyr. Extrait des differens Ouvrages. Heinecken.

Coypel, Charles Antoine, the ſon of Antoine, was born at Paris in the year 1694. He was made member of the royal academy in 1716. In 1720 he was created profeſſor, and afterwards director of that inſtitution. He died in 1752.

One of his principal works is a large picture in the church of *Les Peres del'Oratoire*, in the *rue d'Enfer*. It repreſents Chriſt before Pilate, and is deſcribed as an extenſive and magnificent compoſition. He likewiſe was employed upon many works from fable and profane hiſtory, for the tapeſtries of the gobelins. Like others of his family he ſometimes amuſed himſelf with engraving. His productions in this way are enumerated by M. Heinecken. Extrait, &c. Heinecken.

COYPUS, in *Zoology*, a ſpecies of mouſe, found in Chili. See Mus *Coypus*.

COYZEVOX, Antoine, an able ſculptor of Spaniſh extraction, born at Lyons in 1640. At the age of 17 he went to Paris, where, after having wrought ſeveral years under the moſt eminent ſculptors of that city, he was employed upon many works by cardinal de Furſtenburgh, and afterwards conducted by him into Germany. Upon his return to Paris he chiſſelled many ſtatues for Louis XIV. for the royal gardens at Verſailles and Marli, and amongſt other productions, executed the bronze ſtatues of that monarch, both on foot and on horſeback. He was ſome time director of the academy. Orlandi.

COZCAQUAUHTLI, in *Ornithology*, king of the vultures of Edwards, and Vultur *Papa* of Gmelin, which ſee.

COZES, in *Geography*, a ſmall town of France, in the department of the Lower Charente, 5 miles S.W. of Saintes, and in the diſtrict of that name. It has 1889 inhabitants, and is the chief place of a canton, which in fifteen communes, and upon a territorial extent of 222 kiliometres and a half, comprizes a population of 12,335 individuals.

COZOLA, in *Ancient Geography*, a town of Aſia, in Greater Armenia. Ptolemy.

COZTIOCOTEQUALLIN of Fernandez, in *Zoology*, the coquellin of Buffon, varied ſquirrel of Pennant, and Sciurus *variegatus* of Gmelin; which ſee.

COZUMEL, in *Geography*, an iſland of North America, near the eaſt coaſt of Yucatan, inhabited by native Indians; the country is fertile, and abundant in fowl and cattle; 40 miles long, and from 3 to 10 wide. N. lat. 19° 40′ W. long. 85° 51′.

COZZA, Francesco, in *Biography*, an hiſtorical painter, born in Palermo in 1605. He was one of the ſcholars of Domenichino, and after the death of that great maſter, was employed, with others of his ſcholars, to complete ſome of his unfiniſhed works. Although this circumſtance evinces him to have been an artiſt of conſiderable merit, we do not find that he attained any great eminence. He died in 1682.

One of his beſt works is a madonna in the church of S. Franceſca at Rome, where he chiefly reſided. Lanzi.

Cozza, Giambatista, an hiſtorical painter, born at Milan in 1676. At an early period he domiciliated himſelf at Ferrara, where he enjoyed conſiderable reputation until his death, which happened in 1742. His works are numerous in the churches and convents of that city. Lanzi.

COZZANO, in *Geography*, a town of the iſland of Corſica; 21 miles E. of Ajaccio.

CRAANEU, Theodore, in *Biography*, an eminent phyſician and teacher of medicine, flouriſhed in the middle, and latter part of the ſeventeenth century. After practiſing ſome years at Nimeguen, he went to Leyden, where he was appointed one of the profeſſors in medicine, and phyſician, and Aulic counſellor to Frederic William, elector of Brandenburgh, an honour which he continued to enjoy to the time of his death, which happened March 27th 1688. His works, which were numerous, were collected together a year after his death, and publiſhed at Leyden, in two volumes 4to. The principal of them, "Lumen Rationale Medicum," afterwards entitled, "Tractatus Pyſico-Medicus de homine, tabulis æneis illuſtratus," has been frequently reprinted, and contains among ſuch that cannot be commended, ſome uſeful obſervations. There is a good delineation of the thoracic duct, but his anatomical figures are in general far from being correct. "His zeal for the Carteſian ſyſtem, Haller obſerves, to which he made his phyſiology bend, led him into great errors;" and even thoſe parts of his work, which gained him moſt credit, have been ſuperſeded by the labours of later anatomiſts.

CRAB, in *Zoology*. See CANCER, and CANCER *Pagurus*.

CRAB, in *Commerce* and *Domeſtic Economy*, is particularly applicable to the *cancer mænas* of Linnæus. An account of this ſpecies will be found under the article CANCER; but as it is the only one of the genus which is uſed as food in Europe, it requires a more particular diſcuſſion than properly belonged to our ſcientific arrangement.

Of the various modes of catching crabs the moſt ſimple is that of ſearching under the ſtones of a rocky beach at the time of low-water. Numbers are thus found in the crevices of the ſtones. When the ſtones are ſmall they are removed, but where they are large, a ſtick, with a hook faſtened to its extremity, is thruſt into the holes or crevices, to which the crab faſtens, and is then pulled out. This, however, is practiſed only on a ſmall ſcale, and generally by private perſons for their own uſe or amuſement. Large crabs are ſeldom to be procured by this method, the weaker only being more readily left behind by the tide.

On the coaſts of Northumberland, Durham, and Yorkſhire, thoſe parts of the ſhore which the crabs frequent are generally ſkirted with rocks, in which are many ſmall cavities. Near the entrance of theſe holes the fiſhermen place a bait formed of the entrails and heads of fiſhes. To this garbage they attach a ſtone by means of a cord or ſtring. The animals, when the water flows, come to theſe places, drag the bait into their holes, and the ſtone, which is drawn with it, cloſes the entrance, and prevents them from making their eſcape. When the water falls, the fiſhermen remove the ſtones, and, by means of an iron hook faſtened to a ſtick above 3 or 4 feet long, they draw out the crabs from theſe receſſes. The crabs are able to drag theſe ſtones by the aſſiſtance of the buoyant power of the water; but when left dry, by the ebbing of the tide, the ſtones without that aſſiſtance are too weighty for the efforts of the crabs to be able to remove them.

Notwithſtanding the apparent ſimplicity of this method for catching theſe animals, it preſents a curious inſtance of the application of gravity, as varying in different *media*; and we doubt not but the principle might be extended, in many caſes, as an uſeful mechanical power. It is neceſſary that the ſtone be large enough to ſtop the hole ſufficiently to prevent the exit of the crab, and, at the ſame time, light enough to be dragged by him with the ſtring. By the conſtruction of his body and claws he will be able to pull what he could by no means puſh along, ſo that the ſtone may be lighter than what at firſt ſight might be imagined. Of all this, experience has taught the fiſherman to judge.

From Berwick-upon-Tweed northwards, as far as Aberdeen, wherever the ſhore affords a ſituation favourable to theſe animals, they are caught in a ſort of baſket or trap called a *cruive*, or *creel*. See *Plate* III. *Miſcellany*, *fig.* 6. Theſe creels are generally about five feet long and two feet wide, and nearly of a cylindrical form, cutting off a tranſverſe ſection to form the baſe. They are made with ſlips of thin wood or deal for the bottom, and of wooden hoops for the curve, over which is woven a ſtrong net. From each end the net-work is wrought inwards into a narrow entrance, ſomething ſimilar to the plan of a common wire trap for rats or mice. A bait, made of ſuch garbage as before mentioned, is ſuſpended within about the middle of the trap, that it may be viſible to the crabs and entice them into the ſnare. The whole of this apparatus is then ſunk in the water by means of a large flat ſtone, which is faſtened to its bottom. A rope of ſufficient length is tied to the top, by which it can be lifted up; and by a buoy or float made of cork, and fixed to this rope, the fiſhermen are directed to the ſpot where the *cruive* is placed. The crab enters, falls down, and cannot get out again on account of the entrance projecting over his head. The coſt of one of theſe *creels* is from eight to ten ſhillings. In warm weather the fiſhermen drop them near the ſhore, in from three to five fathoms water. In cold weather the crabs go further off for deeper and conſequently warmer water, but they are always on rocky ground.

As an article of commerce crabs are ſometimes brought from Norway, along with lobſters in veſſels particularly adapted to the purpoſe. On the rocky coaſts of that country they are extremely abundant. As a domeſtic ſource of wealth in Great Britain, the catching and ſale of theſe animals furniſh a ſhare of employment and ſupport to numerous induſtrious families. It is joined with the general trade of a fiſherman, who drops his *creels*, leaves them, and rows farther out to ſea for other fiſh. From twelve at night, in ſummer, to ſeveral hours into morning, the fiſherman goes out to ſea, lays his line at dawn, which is the beſt time for the fiſhing, at ſlack of ebb or flow, when the current of tide does not impede, and returns with his catch; then he draws his *creels* for ſhell-fiſh.

The price of crabs on the different coaſts varies with the ſucceſs of the fiſhing. In the north of Scotland they are ſeldom above twopence, and are uſually as low as a halfpenny a-piece. In England they vary from threepence to three ſhillings.

The ſexes are denominated in England the *cock* and the *hen crab*. In Scotland they are known by the names of *carl* and *queen*, or *quoin*, *partons*. The common crab, of which we now treat, is always termed by the Scotch a *parton*. All the other ſpecies of cancer, except the lobſter, are called crabs. The ſexes are eaſily diſtinguiſhed from the flap, flag, or apron, which is upon the breaſt of both. That on the female is large, broad, and looſe, and, when the animal is alive, is eaſily opened. That of the male is much ſmaller and narrower, in proportion to his ſize, and is opened with conſiderable difficulty. Under the flap of the male are diſcovered two thread-like appurtenances, and below that of the female are two orifices. If the rims of theſe orifices appear full and plump, the fiſh may be ſafely pronounced freſh food; but if they be ſhrivelled, fallen, or ſunk, it proves that the crab has been ſome time dead, and, when dreſſed, will be ſtale and watery. The male has a bigger body and larger claws, and is, therefore, of greater value than the female; the carl ſelling generally two-thirds higher than the queen.

The quality of the crab, before boiling, is alſo diſcovered by its outward appearance. Thoſe that have a conſiderable degree of roughneſs, particularly on the claws, are good; while the bad ones are known by their clear, ſmooth, and watery-looking ſhell. The ſhell of a good one is of a duſky-red colour. In chuſing them, it is alſo proper to obſerve, that ſuch as have ſmall bodies, in proportion to their claws, are generally beſt: provided that the crab be offered to the purchaſer alive, or rather, unboiled. When boiled, it is almoſt impoſſible to be deceived. After picking out the heavieſt, hold all the claws tight, ſo that they ſhall make no noiſe or rattle. Shake it, and if it jumbles, or ſounds as if there were water in it, it is certainly bad; but if good there will be no perceptible motion in the inſide.

Crabs are brought to market either raw or boiled, according to the diſtance, or the known preference of the buyers to one ſtate rather than the other. Much has been ſaid of the cruelty of the fiſhers, who endeavour to carry their crabs alive to a diſtant market, by which they are allowed to linger out life for ſeveral days, under the tortures of hunger and ſuffocation, to which many fall victims. The fact is, that the fiſher, in the routine of his trade, ſeldom reflects on the diſtinction between cruelty and humanity. Like the far greater part of mankind, he is actuated ſolely by feelings of pecuniary intereſt, and accommodates his practice to the pleaſure of his cuſtomers. That the fiſh be freſh, or newly caught, is a general recommendation; and the purchaſers, in moſt places, prefer uſing their own judgment in this reſpect, by examining the horrid maſs of deſtruction, and ſeparating the dying from the dead.

The crab is peculiarly tenacious of life, and is capable of exerting a conſiderable degree of muſcular force after it has been two days removed from its natural element. The writer of this once ſaw a crab in that ſituation, who accidentally got hold of the tip of the tail of a grey-hound, and was dragged to a conſiderable diſtance on the ſtreet by the dog, who, howling with pain, was unable to get rid of the convulſive graſp of his unwelcome paraſite, till the crab was literally daſhed to pieces on the pavement.

The crab is often dead to outward appearance when connoiſſeurs can ſatisfy themſelves that it is yet alive, and ſtill fitted for one of the luxuries of the table. They raiſe up its apron, and if any ſpark of life remain it will be exhibited in the exertions of the creature, with its claws, to keep the apron cloſed, and its degree of life is eſtimated from its activity in that reſpect.

Crabs are in ſeaſon from eight to nine months in the year; May, June, and July being the only months in which they are not ſo. The months here ſpecified are, however, generally, and not individually, applicable; the age, ſize, and ſex of the crab cauſing a variation of a month ſooner or later. Some are even good through the whole year.

The length of time during which crabs are boiled is exceedingly different in England from what it is in Scotland; and follows, in that reſpect, the diſtinguiſhing rules of cookery generally obſerved in theſe diviſions of the iſland. The time is counted from the moment the water begins to boil, whether the crabs be put in the water juſt then or previouſly. In England they are boiled only fifteen minutes; whereas, in Scotland, they are often kept boiling nearly two hours. Sea water is preferred for boiling theſe, and indeed all other fiſh; and where that cannot be procured, a quantity of ſalt is put into the kettle equivalent to a table ſpoonful for each crab. It is, perhaps, owing to the length of the time of boiling, that the Scotch, in general, prefer the claws to the body of the parton. The claws are leſs liable to be injured by overboiling, while the body, taken from the Scotch kettles, is reduced to a dry maſh or pulp, and would be reckoned perfectly uſeleſs on the table of an Engliſhman; though, when properly boiled, he generally prefers it to the claws. On the contrary, it is common on the coaſt between Dundee and Aberdeen, and more particularly at the town of Perth, to eat the large claws only and to throw the others, along with the body, to the dung-hill.

It is well known that the change which the animal fibre has ſuſtained when it is ſaid to be *ſufficiently done*, or boiled, may be produced in a lower heat than 212 degrees, or that of boiling water. In many kinds of fiſh, good cooks are careful to keep the water below the boiling point, at leaſt at the commencement of the operation. It may be on this account that crabs are ſuppoſed to be *better done* when they are put into the water while cold, and ſuffered to expire in torments gradually increaſed with the heat, than if they were plunged at once into the boiling fluid. Other cauſes have combined to induce this cruel practice. Crabs, as well as lobſters, are apt to throw off their claws on the ſudden ſtimulus of extraordinary fright or pain; and the body thus ſeparated from its members, is ſuppoſed to furniſh a leſs pleaſing object on the table of the epicure, and leſs to diſplay the attention of the cook. However theſe things may be, it were certainly a praiſe-worthy inquiry to endeavour to diſcover, for theſe ill-fated animals, the ſhorteſt road to death, which might, at the ſame time, be conſiſtent with that delicacy of flavour and ſeemlineſs of appearance which their tyrants and murderers, by boiling them alive, ſo imperiouſly require.

In the boiling of lobſters, in particular, a curious change takes place in the colour of their ſhells. Naturally they poſſeſs a colour approaching to black; on a nearer examination, it appears of a deep purple; the colouring matter, in many parts, is too thick to admit the paſſage of the light to the ſhell and back again; where it is thinner, it conſtantly appears like a blue film. This is turned into a pale red by boiling, which is thus accounted for: the colour is merely ſuperficial; it is ſpread over the white calcareous earth of which the ſhell is compoſed; ſcraping or filing will entirely remove it; the action of boiling water does this in part. It effects alſo another change; it alters the capacities and form of the pores of the ſhell. By the firſt operation, the rays of light, which were abſorbed in the dark colour, become reflected; and by the ſecond the colouring matter obtains the power of reflecting red rays rather than any other.

We have already mentioned the mode of diſtinguiſhing the ſexes from the two thread-like appurtenances of the male, and the two correſponding orifices of the female. Their intercourſe is accompliſhed, by the females lying on their backs, and receiving the two filiform appendages of the male into her two orifices, or *vulvæ*. What time elapſes between this and the excluſion of the ovæ we have not been able exactly to aſcertain; but when that period arrives, the ſpawn, or ovæ, are exuded through the two orifices, and are often ſo abundant as to raiſe the flap an inch and a half or two inches from the ſhell. During this operation the female is much weakened, and rendered totally unfit for the market.

It is among ſuch animals alone, as thus poſſeſs double organs of generation, that true hermaphrodites can be found. The author of this article recollects ſeeing, in one of the periodical publications of this country, a drawing of a lobſter, on which, a line being continued down the middle of the body, from the head to the tail, one ſide exhibited all the marks of the male, while the other as completely diſplayed thoſe of the female, not only in their more peculiar ſexual diſtinctions, but alſo in the ſhape of the ſcales and the ſize of each diviſion of the body, as well as of the claws. See article Lobster. Nicholſon's Journal for 1806, article *Scotch* Fisheries.

Crab, in *Mechanics*, an engine uſed for mounting guns on their carriages. See Gin.

Crab, in *Sea-Language*, a wooden pillar, whoſe lower end is let down through the ſhip's decks, and reſts upon a ſocket like the capſtan: in its upper end are three or four holes at different heights, through the middle of it, above one another; into which long bars are thruſt, whoſe length is nearly equal to the breadth of the deck. It is employed to wind in the cable, and for other purpoſes requiring a great mechanical power.

The crab with three claws is uſed to launch ſhips, and to heave them into the dock or off the key. See *Plate* XVIII. *Mechanics, fig.* 1.

CRAB *catcher*, in *Ornithology*, a variety of the ALCEDO *Alcyon* of Gmelin; the *martin-pecheur de la Louiſiane* of Buffon;—and alſo to a variety of the ARDEA *vireſcens*, the ſmall bittern of Ray and Sloane, and the *Etoilé* of Buffon.

CRAB's *Claws*, or CRAB's *Eyes*, *Chelæ Cancrorum*, in the *Materia Medica*, the tips of the common crab broken off at the verge of the black part; ſo much of the extremity of the claws only being uſed in medicine, as is tinged with this colour. The blackneſs, however, is only ſuperficial; they are of a greyiſh white within, and, when levigated, furniſh a tolerably white powder: this is of the number of the alkaline abſorbent powders, but ſuperior to moſt of them. It makes the baſis of the famous Gaſcoign powder, the *lapis contrayerva*, and many other of the compound ſudorific powders; and is ſometimes, though rarely, preſcribed ſingly. The compound powder of crab's claws is directed in the London Pharmacopæia to be prepared by taking of the claws, prepared, one pound, and of chalk and red coral, of each, prepared, three ounces by weight, and mixing them. The compound powder of contrayerva is prepared by mixing of powdered contrayerva 5 ounces by weight, and of compound powder of crab's claws 1½ pound.

It is the common opinion, that theſe crab's eyes act as mere abſorbents in the *primæ viæ*, and extend their efficacy no farther than thoſe paſſages. The French memoirs, however, give us an account of their certainly paſſing into the blood, in a remarkable caſe. Mem. Acad. Par. 1709.

CRAB's *Eyes*, *Oculi Cancrorum*, or *Lapides Cancrorum*, in *Natural Hiſtory* and *Medicine*, are little, white, round, ſtones, ordinarily flat; ſo called, though really taken out of the cray-fiſh, or river lobſter: and bearing no great reſemblance to eyes, though reſembling them more than any other part. They are uſed in medicine as a powerful alkali, or abſorbent.

The moſt able naturaliſts long imagined them formed in the brain of the animal. Van Helmont firſt found them in the region of the ſtomach: M. Geoffroy, the younger, has obſerved the manner of their formation much more accurately. Whilſt the ſhell of the cray-fiſh, which it caſts every year, is hardening, a white nutritious juice, ſecreted in two portions of the ſtomach, forms, by degrees, a ſoft calculous ſubſtance, of a cruſtaceous texture, from ſucceſſive appoſitions of the juice. Before the caſting of the ſhell, the animal is in a weak and ſickly ſtate; takes no food for ſome days; and in this period the calculi ſeem to ſerve for its nouriſhment. And on this account the crab's eyes are met with only whilſt the fiſh are loſing their ſhells, and for a few days afterwards, and not for a conſiderable time after this period. Neumann.

CRAB's *Iſland*, in *Geography*, derives its name from the number of crabs that are found there. It is conſiderably larger than St. Cruz; but, from the jealouſy of the European powers, remains uncultivated. The Spaniards had formerly ſome plantations on it; but government, apprehending that the planters might carry on a ſmuggling trade, they were removed to Porto Rico. In 1718, the Engliſh ſettled there; but they were attacked by the Spaniards, who murdered ſome, and carried the ſurvivors to Porto Rico. Since this period, the Engliſh, Danes, and Spaniards have uſed this iſland in common for the purpoſes of wooding, watering, and fiſhing. The iſland is remarkably fertile and has plenty of excellent freſh water. See BIEKA.

CRAB *Iſland*, a rocky iſland of the Arabian gulf, near the coaſt of Abyſſinia. N. lat. 13° 2′ 45″. E. long. 43° 25′.

CRAB *Lice*, a troubleſome kind of vermin, which ſtick ſo faſt with their claws to the ſkin, as to render it difficult to diſlodge them. Being viewed with a glaſs, they nearly reſemble the ſmall crab-fiſh; whence they obtained their popular name. They are alſo called *pluctulæ*, *morpiones*, *petolæ*, and *peſſolatæ*: they uſually infeſt the arm-pits, eye-lids, eye-brows, and *pudenda*.

They will be quickly deſtroyed, and drop off dead, upon the application of a rag wet with the milk of ſublimate. This ſort of vermin is vulgarly reckoned to prognoſticate mortality to thoſe whom they abandon, without being removed by medicine.

CRAB-*Orchard*, in *Geography*, a poſt-town of America, on Dick's river, in Kentucky; 8 miles from Cumberland river, and 25 miles S. E. of Danville. The road to Virginia paſſes through this place.

CRAB-*Tree*, in *Botany*. See PYRUS *malus*.

CRAB-*Valley*, in *Geography*, a bay on the weſt coaſt of the iſland of Antigua; two miles S. from Reed Point.

CRABASIA, in *Ancient Geography*, a town of Iberia or Hiſpania. Steph. Byz.

CRABET, WOUTER and DIRK, in *Biography*, two brothers, painters on glaſs in the 16th century. They are ſaid by ſome to have been natives of France, by others of Germany; but it is moſt probable that they were born at Gouda in Holland, where they painted the windows of the great church with ſuch force and brilliancy, that the work has been eſteemed the moſt excellent of its kind in Europe. The ſubjects are from ſacred ſtory: the following are the moſt worthy of remark. A window painted by Wouter, in 1564, repreſenting the birth of Chriſt, and another by Dirk, in 1567, in which is introduced Chriſt driving the buyers and ſellers out of the temple. Dirk died in 1601. Deſcamps.

CRABETJE. See ASSELYN.

CRABIER, in *Zoology*, the name given by Buffon to the DIDELPHIS *cancrivora* of Gmelin.

CRABIER, *Martin-pecheur*, in *Ornithology*, a name given by Buffon to a variety of the ALCEDO *Senegalenſis*, or crab-eating king-fiſher of Latham:—alſo, to the ARDEA *ludoviciana*, *cornuta*, &c. &c.

CRABRO, in *Entomology*, a ſpecies of VESPA, which ſee:—and alſo a name by Geoffroy to the TENTHREDO *femorata*.

CRABRONES, a claſs or diviſion of the genus Veſpa by Fabricius, including thoſe with filiform antennæ.

CRACATOA, in *Geography*, an iſland, the ſouthernmoſt of a group, ſituated in the entrance of the ſtraits of Sunda. It has a high-peaked hill on the ſouth end, which lies in S. lat. 6° 9′, and E. long. 105° 15′. The whole circuit of the iſland is not more than 3 leagues. Off the N.E. end lies a ſmall iſland, which forms an anchoring road; and within a reef that runs off the S. end of the latter, there is good ſhelter againſt all northerly winds, with 18 fathoms water near the reef, and 27 in the mid-channel. To the N.W. there is a narrow paſs for boats between the two iſlands. The ſhore, which forms the weſtern ſide of the road, is in a N.W. direction, and has a bank of coral ſtretching into the ſea, about one-third of a cable's length, which makes the landing difficult for boats, except at high water; but the anchoring ground is good, and free from rocks. A little to the ſouthward is a very hot ſpring, which is uſed by the natives as a bath.

Cracatoa is eſteemed very healthy, in compariſon of the neighbouring countries. It conſiſts of high land, riſing gradually on all ſides from the ſea; and the whole is covered with trees, except a few ſpots which the natives have cleared for rice-fields. The population is inconſiderable. The chief of the iſland, like thoſe of all the iſlands in the ſtraits, is ſubject to the king of Bantam. The coral-reefs afford plenty of ſmall turtles; but other refreſhments are ſcarce and very dear. The latitude of the road in which captain Cook anchored with the Reſolution was 8° 6′ S.; the longitude by Mr. Bayly's time-keeper, 104° 48′ E., and by obſervation, 105° 36′ E.; the dip of the S. end of the magnetic needle 26° 3′; the variation of the compaſs 1° 0′ W. On the full and change days, it is high water about ſeven in the morning; and the water riſes three feet two inches perpendicular.

CRACCA, in *Botany*, Riv. See Vicia *cracca*.

Cracca *flore ochroleuco*, Riv. See Vicia *piſiformis*.

Cracca *floribus albis*, Buxb. See Vicia *bithynica*.

Cracca *major*, Taber. See Vicia *ſepium*.

Cracca *minor*, Taber. Riv. See Ervum *hirſutum*.

Cracca *minor cum ſiliquis gemellis*, Riv. See Ervum *tetraſpermum*.

Cracca *ſylvatica*, Riv. See Vicia *dumetorum*.

CRACHE, in *Commerce*, a piece of coin current at Florence and Leghorn, at three-farthings.

CRACINAS, in *Ancient Geography*, an iſland of the ocean, near the coaſt of Gallia Aquitanica.

CRACKAU, in *Geography*, a ſmall town of Saxony on the river Pulſnitz, in the circle of Meiſſen, on the boundaries of Upper Luſatia, part of the town being actually ſituated in Upper Luſatia.—Alſo, a Saxon village of the ſame name in the biſhopric of Merſeburg.

CRACKER, or Sea-*pheaſant*, in *Ornithology*, names given by Ray, Willughby, and Albin to the pin-tail of Pennant and Latham, or the Anas *Acuta* of Gmelin, with an acuminated lengthened tail, beneath black, a white line on each ſide of the head, and an undulated cinereous back. It inhabits America, Europe, and the ſouthern part of Aſia, and in winter migrates in flocks towards the ſouth as far as Italy and the Caſpian ſea.

Cracker, in *Pyrotechny*, is formed in the following manner: Cut ſome cartridge paper into pieces 3½ inches broad, and 1 foot long; fold down one edge of each length-wiſe about a quarter of an inch broad; then fold the double edge down one-fourth of an inch, and turn the ſingle edge back half over the double fold; then open it, and lay all along the channel, which is formed by the folding of the paper, ſome meal-gunpowder; then fold it over and over till the whole paper is doubled up, rubbing it down every turn; this done, bend it backwards and forwards about 2½ inches at a time, as oft as the paper will allow; then hold all theſe folds flat and cloſe, and with a ſmall pinching cord give one turn round the middle of the cracker, and pinch it cloſe: then bind it with a packthread as tight as poſſible; and in the part where it was pinched, prime one end of it, and cap it with touch-paper. When theſe crackers are fired, they will give a report at every turn of the paper: if you wiſh to have a great number of bounces, you muſt cut the paper longer, or join them after they are made; but if they are made very long before they are pinched, you muſt provide a piece of wood, with a groove in it, deep enough to let in half the cracker; this will hold it ſtraight while it is pinching. A cracker is repreſented complete in *Plate* I. *Pyrotechny*, *fig.* 1.

CRACKOWES, in *Britiſh Antiquity*, a ſort of long-pointed ſhoes that were uſed in the 14th century and afterwards, and in which it was impoſſible to walk till they were faſtened to the knees with chains. The upper parts of theſe ſhoes were cut in the form of a church-window; accordingly Chaucer's ſpruce pariſh clerk Abſalom,

> "Had Paul's windowes corven on his ſhoſe."

This faſhion was condemned by the papal bulls, the decrees of councils, and the declamations of the clergy: and yet it prevailed, in ſome degree, for almoſt three centuries. At length the parliament of England interpoſed, by an act, A. D. 1463, prohibiting the uſe of ſhoes or boots with pikes exceeding two inches in length, and forbidding all ſhoemakers to make ſhoes or boots with longer pikes, under ſevere penalties. (3 Edw. IV. c. 1.) But even this was not ſufficient to put an end to this ridiculous and inconvenient faſhion. The civil power called in the aid of the church; and a proclamation was publiſhed in all parts of England, denouncing the dreaded ſentence of excommunication, beſides all other penalties, againſt all who uſed ſhoes or boots with pikes longer than two inches.

CRACKS, in *the Hoofs of Horſes*, or as they are uſually cantly termed *ſand cracks*, are clefts or fiſſures happening to every part of the hoof; though the toe, or the ſides of the hoof, are the parts moſt ſubject to this malady.

Splits in the hoofs are frequently, eſpecially at their commencement, ſuperficial, not penetrating through the ſolid thickneſs of the hoof, in which caſe, as they do not produce lameneſs, they are rarely regarded; at other times, the fiſſure paſſing entirely through the hoof, and communicating with the quick, dirt and gravel get into them, and by the contact and friction of theſe extraneous matters upon the living parts, they produce exceſſive irritation, pain, and lameneſs; hence they have been called by ſmiths and ſtablemen *ſand cracks*, which convey a falſe notion, becauſe the ſand is in no reſpect the cauſe of the crack, as the name would imply, but caſually occupies it after it has been formed by other means.

Some affect to call thoſe ſand-cracks only which happen at the toe or front of the hoof, not extending that appellation to the cracks which happen to the ſides or quarters. As however the diſtinction appears to be frivolous and without uſe, we ſhall conſider all cracks of the hoof as of the ſame nature, producing the ſame effects, and requiring the ſame treatment, and not deſerving a ſeparate deſignation, which would only create confuſed ideas of them, and retard and obſcure the progreſs of the ſcience.

When theſe cracks have been cut out, and proper precautions have not been uſed to prevent their recurrence, they return with aggravated effects each time, with greater weakneſs of the part, and increaſed difficulty of cure: their depth becomes greater, and the powers of uniting the divided portions of the hoof leſs, and many conſider them almoſt or quite incurable. In cutting out the crack with the drawing knife, the quick is very ſubject to get injured by dips of the knife; in this caſe blood flows and obſcures the crack, and fungous riſings of the quick, pinched by the crack, become troubleſome to manage, and create exceſſive pain and lameneſs. There is, however, a method of treating theſe caſes that, without much riſk or trouble, enſures their cure, and the reſtoration of the hoof; and is alſo recommended by its ſimplicity, which we ſhall preſently deſcribe, after firſt making a few remarks on the nature, appearance, and origin of theſe cracks of the hoof.

It may be almoſt ever obſerved, that the nearer the crack is to the front of the hoof, the more direct and perpendicular its direction, following at the toe the exact direction of the grain or fibre of the hoof; at leaſt, such is their general appearance before they have been diſturbed by the operator. The two broken ſurfaces meet in equal union, whilſt thoſe on the quarters or ſides of the hoofs, which are generally about the middle or nearer to the heels than this, are irregular in their courſe, ſometimes oblique, tranſverſe, or waving; at other times ſhelving under in ſuch a way, as to meet the quick at a conſiderable diſtance from the external opening, as though the hoof was made of two tables, or laminæ, which had been ſeparated.

The cauſe appears to be this, that the horn at the quarters is more flexible than at the toe, and eſpecially when it approaches the heels: and again, theſe parts lie more immediately under the perpendicular weight of the body than the toe does. If the horn of this part therefore, from any cauſe, becomes too dry and brittle, it is ſubject to crack from mere dryneſs, or to be rent by the weight, &c.; hence we ſee theſe kinds of cracks moſt frequently in blood-horſes, whoſe hoofs are thin and hard, while the other kind of crack, that is, the front crack, is more often ſeen in cart and heavy draft-horſes; to which may alſo be added, that the fibre of the hoof towards the heels, is in the tranſverſe direction of the preſſure, which is not the caſe at the toe.

Such things occur, though rarely, as tranſverſe cracks, both in the front and the ſides of the hoof; the growth alone is, however, more apt to remove theſe, which makes them paſs unnoticed, whilſt the longitudinal crack will continue to extend itſelf in ſpite of the growth.

The ſtrongeſt hoofs of heavy draft-horſes are ſometimes ſplit in front, which one ſhould be at a loſs to account for from any natural cauſe. It always almoſt happens near the middle of the toe, as we have ſtated, and one ſhould apprehend either that the ſtraining or drawing did this; or that the foot unevenly pared, or the ſhoe unevenly fitted to the wall of the foot, occaſioned one-half of the foot to take only a partial bearing upon it, when the violence of the exertion rends the hoof aſunder, following the courſe of the fibre. One cannot ſo readily conceive, that the violence of the nailing and clenching up the nails could ſometimes be the cauſe of this accident. Drawing the two halves of the hoof in oppoſite directions, though the ſtrongeſt are ſometimes ſeen thus divided, yet the weaker, wrinkled, dry, thin, and as the ſmiths call them, *ſhelly hoofs*, are moſt commonly the ſufferers from this cauſe. A clip at the toe, ſuch as is uſual in draft-horſes, hammered down too violently upon the hoof in front, and this ordinarily is done without any meaſure or guide in reſpect to its preſſure, might preſs upon and ſplit the hoof in ſome caſes. We have ſeen the coffin-bone, after death, fairly impreſſed with a concave mark, the effect of this preſſure from the clip, and which could not but have been attended with more or leſs pain, according to the degree of violence that induced it.

A tread on the coronet from the caulkin of another horſe, or from another foot of the ſame horſe, by diſordering the coronet, would produce a weakneſs in the horn growing from that part, and induce a ſand-crack in any part whatever of the hoof, and is not a very unfrequent occurrence.

There is another and more ſimple cauſe of theſe cracks than any we have yet deſcribed, and perhaps it is the more frequent of any, *viz.* a natural want of moiſture or ſucculence in the hoof; or the ſame deficiency artificially induced will occaſion a ſmall cracking of the external ſhell or cuticle of the hoof. A minute and almoſt imperceptible fiſſure forms and admits air to the interior of the hoof. This being more ſucculent in its nature than the external covering, dries, conſequently contracts, and in contracting, extends the crack in both directions. The dryneſs of the ſtable, the ſummer heats, or the winds of March, eſpecially facilitate this proceſs. The cracks ſucceſſively extend, and, in more or leſs time, as they are favoured by theſe circumſtances, reach the quick, and the conſequences enſue that are above deſcribed. The weight and movements of the horſe, after a certain time, the hoof becoming too weak to ſuſtain them, compleat the fiſſure.

If the fiſſure at its commencement be low down the hoof, and be retarded in its enlargement by the oppoſite circumſtances to the above, it may be carried out by the growth, and no ill conſequence ariſe from it.

In reſpect to the cure it is at preſent uſual to cut out theſe cracks when they occur, and fire them afterwards with a red-hot iron; this certainly melts the hoof together and cloſes the crack for the time: it however renders the burnt horn more brittle afterwards, and diſpoſes it the more to return if uncovered. The inflammation alſo in the parts beneath cannot be attended with any beneficial conſequences; in ſuch a caſe they ſhrink afterwards, and render the cure, on a relapſe, much more tedious and difficult, it being for the moſt part according to the degree of heat employed, attended with a loſs of ſubſtance or abſorption proportionate.

The perfect excluſion of the air from the crack is, in incipient caſes, all that is neceſſary for a perfect reſtoration of the hoof; that is, the crack, unable under theſe circumſtances to extend itſelf, grows out therefrom: it is neceſſary to continue the means till it be near or quite at the bottom of the hoof, with no appearance of its extending upwards. The ointment that we have uſed with great ſucceſs in theſe caſes is made of tallow, wax, and tar; to equal parts of the two former ingredients, a ſufficiency of tar is added to give it a tenacious conſiſtence: this ſmeared over the hoof forms a good defence againſt the air, and is better than oils, which appear to ſink in and inflame the foot. The ointment well preſſed into the crack, or ſpread on leather or linen, or pledgets of tow, and tied on, is the mode of its application. In other caſes, where the application of ties would be inconvenient, or might not be deſirable on account of the appearance, a very adheſive, tenacious maſs to fill up any channel or vacuity in the hoof, is made of equal parts of common turpentine and wax, with a ſixth part of tar to colour it; and for dealers or others wiſhing to conceal defects it is particularly ſuited.

From the ſimpleſt occurrence of a crack, we proceed to the treatment of a worſe caſe, where the quick is expoſed to the irritation of foreign bodies. Here the crack muſt be fully expoſed with the drawing knife till theſe particles can be reached and waſhed out; this ſhould be preceded by waſhing the wound with tincture of myrrh, and applying a pledget of *turpentine*, or *rather reſinous digeſtive* over it for a few days, and continuing to exclude the air as above deſcribed till the hoof has grown out entire, or has formed a ſtrong ſhoot of horn from the coronet that ſhall remove any ſuſpicions about its future ſecurity.

In a very old crack it will be found, that an impreſſion or channel has been made in the coffin-bone itſelf, as may be obſerved by macerating the bone after death; and the crack therefore being deeper, is more difficultly got at without wounding the quick on either ſide. In ſuch caſe, after raſping the hoof under the coronary ring, as deep as poſſible without inducing a flow of blood, which in all operations of the hoof ſhould be carefully avoided, as it obſcures the parts to be cut, and makes the proceſs more difficult and uncertain; as the quick on either ſide is higher than the crack, the raſp can be uſed no longer, a fine ſmall drawing knife therefore beſt completes the exciſion of the cleft. If, however, as is ſometimes the caſe, it be ſo deep and ſo ſurrounded with living parts that it is next to impoſſible to entirely obliterate it without wounding them by dips of the knife, it is then beſt to caſe up the foot in the dreſſings, and wait a week or more, when it will be found that the growth has rendered the perfect exciſion of the fiſſure a matter of no great difficulty. A knob of horn from the coronet uſually follows this operation, which effectually prevents the return of the crack if kept moiſt or ſmeared with the unguent.

Where the crack, from being of very long ſtanding, has no powers left of union, or when united breaks up again, as when they perſiſt in uſing the horſe, it will be neceſſary to remove the hoof to a conſiderable diſtance from each ſide the crack, and render it as thin as poſſible; ſo that the play of the hoof, that is, the unequal movement of its two portions, ſhall not interrupt the regular growth of the crack, or break up the growth that is formed entire at the coronet.

In the worſt caſes that can well occur, as where by firing and other means the parts under the cracks have been much injured, and by bad operating numerous funguſes have ariſen in the crack, it is preferable to operate in the following way: Clear away the horn to a certain diſtance on each ſide of the crack after reducing it as thin as poſſible with the raſp and drawing knife, paſs a ſcalpel through to the elaſtic proceſſes, then with a pincers elevate the ſtrip and draw it off upwards, concluding at the coronet; this being done on either ſide the crack, the funguſes being no longer irritated by the contact of the horn are eaſily managed, and the growth ſoon fills up the ſpace with new horn. In leſſer caſes this, though a certain and ready way, is not adviſed, being not only extremely painful in itſelf, but the elaſtic proceſſes ſo diſturbed are never afterwards perfectly re-produced. We ſhould leave this account of ſand-crack very imperfect if we omitted to ſpeak particularly of thoſe fungous elevations of the quick, which to manage are often more troubleſome and difficult than the crack itſelf. Compreſſion in ſome caſes will do, but exciſion in general is neceſſary, with compreſſion afterwards; the edges of the horn too, irritating and ſurrounding them, being carefully removed.

If theſe funguſes are not well reduced and brought to a correſpondent ſtate to the horn growing over them, they do not kindly unite with it, and a diſeaſe of a moſt ſingular kind is produced, that has hitherto we apprehend been unnamed or deſcribed. It is a morbid kind of horn that is produced, and is of a yellower caſt than the natural horn, partaking of the ſtructure and appearance very much of the funguſes growing from trees or boletus; the natural horn grows over this, preſſing it againſt the quick, occaſioning great lameneſs. Pricks by the nails of the ſhoe injuring the coffin-bone will occaſion alſo formations of this ſort. This rib of baſtard horn grows out with the other, widening as it deſcends, forming a bone whoſe apex was the original diſeaſed point. The cure of this, which if not underſtood, as was the caſe in our earlier practice, is truly troubleſome; nothing leſs than the total removal of all the horn above and about the morbid rib, and plucking it out entirely will effect the cure, for it returns again and again if the ſmalleſt portion be left. The horn that firſt forms after a bad injury of the coffin bone will produce this ſort of baſtard growth if it is not removed, ſo that it is neceſſary to pare away the firſt growth and keep it from being too rapidly carried down by the growth from the coronet.

In concluding it may not be uſeleſs advice, alſo, to forbid the ſmith's raſping away the external covering or cuticle of the hoof after ſhoeing, which they are very apt to do to give a clean and new appearance to the hoof, thereby removing its natural coat and defence, and expoſing it to dry and crack. The groom ſhould often wet the feet, and if too dry keep them clothed with wet rags, or apply ſome ſebaceous unguent to prevent the atmoſphere from robbing them of their moiſture. The oil-caſe is commonly reſorted to by the grooms for this purpoſe, uſing the rancid oil they clean their bits and harneſs with; this may be better than nothing; but it is ſtill ſubject to the objection we formerly mentioned of ſinking in inſtead of remaining upon the ſurface, and producing heat and inflammation of the feet, which the animal fats are, we believe, not ſo ſubject to do.

As the well-being of the feet is of the firſt importance in horſes, and nothing can go on well if they are amiſs, ſo we ſhall hardly apologize for the length of narrative this diſeaſe has drawn us into; for theſe matters have never yet been very clearly ſtated, we believe, to the public, and length of narrative does not ever infer prolixity.

The perſpiration, we may alſo remark, is paſſing off with ſurpriſing rapidity through the dryeſt hoofs, as may be ſeen by letting a horſe place his foot on a cold metal plate, the perſpiration in extraordinary abundance is ſoon collected in drops upon the plate, ſo that its quantity in a given time can be readily aſcertained; and alſo whether theſe artificial coverings increaſe or diminiſh the quantity, and with what circumſtances this is attended in reſpect to the feet.

The ſhoeing alſo is vaſtly facilitated by the hoof being kept of a proper degree of flexibility and toughneſs, inſtead of that hard, dry, and brittle condition it is often found in, and which renders it more apt to ſplit with the nails, and produce other miſchiefs by turning them.

Going to graſs during the growing out of a ſand-crack has been much and juſtly extolled; it is only beneficial from the moiſture it brings to the hoof; wetting artificially, by plunging the foot with its dreſſing in a bucket of water will, with the above precautions, ſerve pretty much the ſame purpoſe; for it often happens the horſe cannot, without great inconvenience, be ſpared to go out, and the time of year may alſo forbid it.

CRACO, in *Geography*, a town of Naples, in the province of Baſilicata; 8 miles N.N.W. of Turſi.

CRACOVIA, a palatinate of Poland, bounded on the N. by Sinadia, on the N.E. by that of Sandomir, on the S. by Hungary, and on the W. by Sileſia. The principal towns are Cracow and Landſcron.

CRACOW, in Latin *Cracovia*, or *Carrodunum*, anciently the capital of Poland, where the kings were elected and crowned, is now the ſeat of the Auſtrian government of Weſt Gallicia in the kingdom of Gallicia and Lodomeria. This is the name given by the Houſe of Auſtria to the two extenſive portions of Poland which fell to its ſhare at the firſt partition in 1772, and on the final diviſion and extinction of the kingdom of Poland in 1795.

Cracow is ſituated in an extenſive plain watered by the Viſtula, which is broad and ſhallow, 135 miles S.W. of Warſaw, 216 miles N.E. of Vienna, and 870 N.W. of Conſtantinople. E. long. 20° 16'. N. lat. 50° 10'. The city and ſuburbs occupy a large tract of ground, but ſcarcely contain 16,000 inhabitants. Many of the ſtreets are broad and handſome; the great ſquare is very ſpacious and has ſeveral well built houſes, but moſtly either untenanted or in a ſtate of melancholy decay. Almoſt every building bears ſtriking marks of ruined grandeur; the churches alone ſeem to preſerve their original ſplendour. The devaſtation of this unfortunate city was begun by the Swedes in 1702, when it was beſieged and taken by Charles XII.; but the miſchiefs it ſuffered from that ravager of the North, were far leſs deſtructive than thoſe which it experienced during the dreadful commotions that agitated Poland in 1770 and 1794, when it underwent repeated ſieges, and was alternately in poſſeſſion of the Ruſſians and of the Confederates. Cracow ſtill exhibits the remains of a magnificent capital in ruins.

The town is ſurrounded with high walls of brick, ſtrengthened by round and ſquare towers of whimſical ſhapes in the ancient ſtyle of fortification, which were built by Venceſlaus, king of Bohemia, during the ſhort period in which he reigned over Poland.

Cracow is the ſee of a biſhop and an univerſity. The latter was founded upon the model of the univerſity of Paris, endowed by Caſimir the Great, and improved and completed by Ladiſlaus Jaghellon in 1400. The library is not remarkable either for the number or rarity of the volumes. Among the principal, however, is a Turkiſh book of no intrinſic value, but eſteemed a curioſity on account of its having been found in the ſpoils at the battle of Choczim, and preſented to the univerſity by the celebrated John Sobieſky, as a memorial of a victory which ſaved his country from deſolation and raiſed him to the throne of Poland. The moſt flouriſhing period of the univerſity of Cracow, was under Sigiſmund Auguſtus in the ſixteenth century, when ſeveral of the German reformers fled from the perſecutions of the emperor Charles V., and found an aſylum in this city. They gave to the world ſeveral verſions of the Sacred Writings and other theological publications which diffuſed the reformed religion over great part of Poland.

In the cathedral of Cracow all the Poliſh ſovereigns, from the time of Ladiſlaus Loketec, have been interred, except Louis and Ladiſlaus III. whoſe bodies were depoſited in Hungary; Alexander who was buried at Vilna; Henry of Valois; Auguſtus III., and the laſt king. The ſepulchres of the kings of Poland are not diſtinguiſhed by peculiar magnificence; their figures are carved in marble of no extraordinary workmanſhip, and ſome are without inſcriptions. When Charles XII. of Sweden was at Cracow he viſited theſe tombs, out of reſpect to the memory of John Sobieſky, over whoſe tomb he is reported to have exclaimed: "What a pity that ſo great a man ſhould ever die!"

The art of printing was firſt introduced into Poland at Cracow by Haller, and one of the earlieſt books that iſſued from his preſs was, the Conſtitutions and Statutes compiled by Caſimir the Great and augmented by his Succeſſors. The characters are Gothic, the ſame as were univerſally uſed at the invention of printing; the great initial letters are wanting. This publication muſt have been anterior to 1496, as it does not contain the ſtatutes paſſed by John Albert in that year.

Towards the ſouthern part of Cracow, near the Viſtula, the citadel, ſurrounded with brick walls and old turrets, forms a conſpicuous object on the ſummit of a rock. This citadel or palace owed its origin to Ladiſlaus Jaghellon, but the greater part was demoliſhed by Charles XII. in 1702, when he entered Cracow in triumph after the battle of Cliſſow; the remains conſiſt in a few apartments which are left in the ſame ſtate as they were in the ſeventeenth century. It was anciently the reſidence of the Poliſh monarchs, who from the time of Ladiſlaus Loketec were all crowned at Cracow, except the laſt king, whoſe coronation was ſolemnized at Warſaw.

On a ſandy plain near Cracow are two large barrows. One is by tradition called the burial place of Cracus, duke of Poland, who is ſuppoſed to have built the town in 700. The other is called the ſepulchre of his daughter Venda, who is reported to have drowned herſelf in the Viſtula to avoid marrying a man whom ſhe deteſted.

Near Cracow are alſo the remains of an old ſtructure called the palace of Caſimir the Great, and the famous ſalt-mines of Wieliczka. Coxe's Travels. See WIELICZKA.

CRACRA, in *Ornithology*, ſo called from its cry on the wing, by the French ſettlers at Martinico. It is the CANCROPHAGUS *Americanus* of Briſſon, and the ARDEA *Cracra* of Gmelin, and is found in Chili, and other parts of America, on the banks of ſea-rivers. F. Feuilleé deſcribes it as a bird of the ſize of a well-grown hen, with its plumage much variegated; the crown of the head is aſh-blue; the top of its back tawny, and the reſt of its upper ſurface has an agreeable mixture of aſh-blue, brown-green, and yellow; the coverts of the wing are partly of a dull-green, edged with yellowiſh, and partly black; the quills are black, fringed with white; the throat and breaſt are variegated with ſpots of filemot, on a white ground; the legs are of a fine yellow.

CRADA, in *Ancient Geography*, a town of Aſia Minor, in Caria. Steph. Byz.

CRADLE, a well-known machine, in which children are rocked to ſleep.

It alſo denotes that part of the ſtock of a croſs-bow, in which the bullet is put.

CRADLE, in *Engraving*, is the name of an inſtrument uſed in ſcraping mezzotintoes, and preparing the plate. It is formed of ſteel, reſembling a chiſſel, with one ſloping ſide, upon which are cut hollow lines very near each other, and at equal diſtances. The acting part of this tool is made circular, and the corners are rounded. After being properly tempered, it muſt be ſharpened on the whetſtone. There are various ſizes of this inſtrument.

CRADLE, in *Huſbandry*, a part often added to a ſcythe, in order to gather the corn into ſwaths, when it is mowed.

CRADLE, or *Coffer*, in *Engineering*, is the term uſed for a large wooden trunk, open at top, and with moveable ends, large enough to receive a barge or veſſel when floating on a canal, for the purpoſe of raiſing or lowering it to a higher or lower pound of the canal, by cranes or other means, without the uſe of a pound-lock. See CANAL.—This term is alſo applied to a ſegment of a hollow cylinder, formed of ribs and lattice, ſimilar to the centering uſed by bricklayers and maſons for turning culverts and arches upon, but made fair or ſmooth within ſide inſtead of without, for ſupporting and retaining the ſhape of the inverted arch or lower half of a culvert in ſoft ground, particularly in quick-ſands, and peaty places. A very ſlight cradle of this kind will ſometimes prevent the diſtortion, and ultimate fall, of a round or barrel culvert; and this precaution ſhould never be omitted, in laying culverts under canals or roads in ſoft ground, where the failing of a culvert may prove of the greateſt inconvenience. See CULVERT.

CRADLE, in *Ship-building*, a frame of timber raiſed along the outſide of a ſhip, by the bildge, for the more commodious and ſecure launching of the veſſel. The cradle is much uſed in Italy, Spain, and Turkey; where they alſo trim great veſſels in the cradle.

CRADLE, in *Surgery*, a caſe in which a broken leg is laid, after being ſet.

CRADOCK, SAMUEL, in *Biography*, a learned non-conformiſt of conſiderable celebrity in the 17th century. He was educated for the church at Emanuel college, Cambridge, where he took his ſeveral degrees, obtained a fellowſhip, and ſucceeded to a living in Somerſetſhire. The act of uniformity forced him to relinquiſh his preferment, and to retire to a ſmall eſtate in Suffolk, where he preached without any view to emolument, and employed himſelf in the arduous taſk of education. He afterwards ſettled with a congregation in the neighbourhood of Biſhop's Stortford, Herts, where he died in the year 1706, being about 86 years of age. He publiſhed many works, chiefly on theological ſubjects, of which the principal were, "A Harmony of the four Evangeliſts;" "The Apoſtolical Hiſtory till the Deſtruction of Jeruſalem;" and "The Hiſtory of the Old Teſtament." Theſe were in folio. "An Expoſition and Paraphraſe of the Revelation" was printed in 8vo. His ſeveral pieces were highly eſteemed in his day, and they exhibit much learning, an accurate acquaintance with the ſcriptures, and a rational and manly piety. Calamy.

CRAESBECK, Van Jost, a painter, a native of Bruſſels. He was originally a baker, but being upon terms of intimacy with Adria Brauwer, that maſter taught him the principles of his art, and he commenced painter. Like his maſter, Craeſbeck painted ſubjects in low life, as the quarrels of drunken men, and frequently repreſented both his friends and himſelf with a patch over one eye, making ſtrange diſtortions of countenance. Though not equal to Brauwer, he is juſtly conſidered the beſt imitator of the ſtyle of that extraordinary maſter. This eccentric artiſt died in 1641, aged 32. Deſcamps. Heinecken.

CRAFT, a ſea-term, ſignifying all manner of lines, nets, hooks, and the like, which ſerve for fiſhing. See Fishing.

Hence, as thoſe who uſe the fiſhing-trade, uſe ſmall veſſels, ſuch as ketches, hoys, ſmacks, &c. they call ſuch little veſſels *ſmall craft*.

It denotes, alſo, the boats and veſſels uſed in inland navigation.

CRAGUS, in *Ancient Geography*, a town of Aſia Minor, in Lycia, ſituated, according to Strabo, on mount Cragus, which was a craggy rock on the ſea-coaſt of Cilicia. Ptolemy.

Cragus, was alſo a promontory of Aſia Minor, at the extremity of Caria towards Lycia.

CRAIBURG, in *Geography*, a market-town of Upper Bavaria, on the river Ihn, with a caſtle, in the diſtrict of Craiburg.

CRAICH, a river of Germany, which runs into the Rhine, oppoſite to Spire.

CRAIERA, Crayer, a ſmall veſſel of lading; as a hoy, or ſmack. 2 Ric. II. Stat. 14 Car. II. c. 27.

CRAIG, John, in *Biography*, a learned mathematician, a native of Scotland, and well known for many papers recorded in the Philoſophical Tranſactions, and in the Acta Eruditorum. He had a controverſy with Bernoulli, in which Leibnitz took a part, eſpouſing the cauſe of Craig. The paper by which he is moſt diſtinguiſhed is entitled, "Theologiæ Chriſtianæ Principia Mathematica," printed in the Tranſactions for the year 1699. In this Mr. Craig undertakes to apply mathematical calculations to the credibility of the hiſtory of Jeſus Chriſt. His notions are whimſical, as the reader will eaſily imagine, when he is informed that he attempts to prove, 1. That the certainty of the hiſtory of Jeſus Chriſt would have totally ceaſed with the eighth century, had it not reſted on more than the oral teſtimony of one; 2. That the probability of this hiſtory, written by four hiſtorians, and propagated by a great many copies of their works, was as ſtrong at the time he compoſed his paper, (that is, in 1690,) as it would have been in the time of Chriſt, to a perſon who had heard it related by the diſciples; 3. That the probability of this hiſtory, at the end of 3150 years, reckoning from the birth of Chriſt, will entirely ceaſe, and conſequently that this will be the epoch when the Son of God will come to judge the world, becauſe then there will be no faith on the earth. This work has been republiſhed in Germany and France, but with a view principally of overturning his ſyſtem. Neither the time of the birth, nor that of the death, of Mr. Craig has been aſcertained. Gen. Biog.

Craig, William, was born at Glaſgow in the year 1709, where he was educated, and became a great proficient in claſſical learning and in moral philoſophy. He ſtudied alſo with much diligence theology, which he intended to make the buſineſs of his life. The firſt living into which he was inducted was in Clydeſdale: this he reſigned, on being appointed miniſter of a church in his native city; and on the death of Potter, the profeſſor of divinity, he was propoſed as his ſucceſſor; but Dr. Leechman being alſo a candidate, Mr. Craig ſolicited his own friends to transfer their votes to the doctor, whom he regarded as beſt qualified for the ſituation. Mr. Craig continued to exert his talents in the more private line of preacher. He publiſhed at different times ſome ſingle ſermons, "An Eſſay on the Life of Jeſus Chriſt," and "A Volume of Diſcourſes" in 1775. He lived to the age of 74, was twice married, and about the year 1764 the degree of doctor in divinity was conferred upon him. Biog. Brit.

CRAIG-ALVIE, in *Geography*, a mountain of Scotland, in the S.W. part of the county of Murray, a little N. of the river Spey.

CRAIGAN, a mountain of Scotland, in the county of Perth; 15 miles N.W. of Perth.

CRAIG-BENYON, a mountain of Scotland, in the county of Perth; 3 miles N.E. of Callender.

CRAIG-DARIE, a cape of Scotland, on the E. coaſt of the county of Kincardine.

CRAIGENDIVE, a ſmall iſland near the W. coaſt of Scotland; 4 miles E. from the iſland of Jura.

CRAIGGAG Point, a cape of Scotland, on the E. coaſt of the county of Sutherland; 16 miles N.E. of Dornach.

CRAIGILLACHY, a ſolitary mountain in the Highlands of Scotland, that overlooks the entrance to Strathpey, and has for ages paſt been conſidered as a kind of rallying point to the clan that inhabit it. On any ſudden invaſion of the Norwegians on the eaſtern coaſt, a fire kindled on ſome mountain near the ſea was inſtantly ſeen in Strathpey, and anſwered by another on Craigillachy, and that again by another on Craigow in Badenoch; ſo that the intelligence was in this manner often tranſmitted from the eaſt ſea to the weſt in three hours. By means of this ſimple telegraph, the whole country was up in an inſtant to reſiſt invaſion. Craigillachy is the war-cry of the clan "Grand;" and even within theſe few years, if one of them was borne down or injured in any popular tumult, at a fair or public concourſe out of his own country, he cried aloud "Craigillachy," and every perſon within hearing, allied by deſcent or marriage to the clan, flew to his reſcue. The motto of the clan is "Stand faſt, Craigillachy."

CRAIG-LEITH, a ſmall iſland of Scotland, in the Frith of Forth, about a mile N. of North Berwick.

CRAIG-LOGAN, a cape of Scotland, on the N.W. extremity of the county of Wigton; 9 miles N.N.W. of Strathrawer.

CRAIGNESS Loch, in Argyleſhire, is one of the lakes or inlets of the ſea, among the weſtern iſlands and peninſulas of Scotland. It communicates with Loch Crinan, not far from the weſtern end of the famous canal of that name. See Canal. It is navigable up to Barbrig, and has the town of Craigneſs on its N.W. bank.

CRAIGOW, a mountain of Scotland, in the county of Inverneſs; 18 miles E. of Fort Auguſtus.

CRAIL, an engine made uſe of for catching fiſh. See Crab.

Crail, in *Geography*, a royal borough in the county of Fife, Scotland. *Caryle*, or *Cair-raille*, as it was originally called, is deſcribed by ancient hiſtorians as a town of conſiderable importance in the middle of the 9th century. Robert Bruce honoured Crail with a royal charter, which, with ſeveral additional grants, was confirmed by Robert II., queen Mary, James VI., and Charles I. Sibbald aſſerts that David I. died at Crail; but at preſent there are no other veſtiges of antiquity than the ruins of a caſtle, where David is ſaid to have reſided, and the remains of a priory. The town "is ſituated on the coaſt of the Frith of Forth, near Fifeneſs," and has an inconſiderable unſafe harbour. This diſadvantage might, however, be eaſily obviated, by converting a neighbouring creek into an excellent receptacle for veſſels. The houſes form two parallel ſtreets, which extend along the ſhore; but the former exhibit ſtrong marks of decay, which may be attributed in great meaſure to the decline of the herring fiſhery. Population in 1798, 1624.

CRAINBURG, or Krainburg, or ſimply *Crain*, or *Krain*, in Latin *Cranioburgum*, a town of Auſtria, in Upper Carniola, ſeated on an eminence on the river Sau, 30 miles N.W. of Laubach, formerly the reſidence of the margraves of Crain or Crainburg. It has a citadel named the *Kieſelſtein*, gravel-ſtone.

Crainburg, a mountain of Carniola; 6 miles N.W. of Feldes.

CRAINFELD, a ſmall town of the grand duchy of Heſſe Darmſtadt, on the river Nidda, north of Hanau.

CRAK, a name given, in the time of the Croiſades, to *Petra*, the capital of the Second Arabia.

CRAKANTHORPE, Richard, in *Biography*, a learned Engliſh divine, born at Strickland in Weſtmoreland, and after having received the uſual elementary inſtructions, he was ſent to Queen's College, Oxford, in 1583, and became fellow in 1598. He obtained conſiderable celebrity for his ſkill in controverſial theology, and was greatly admired as a preacher. He went out, in 1603, as chaplain to an embaſſy to the emperor of Germany, of which lord Ewers was at the head. Here Mr. Crakanthorpe improved every opportunity which his ſituation afforded, of cultivating an acquaintance with the German literature and ſcholars. After his return to his native country, he was appointed chaplain to the biſhop of London, and alſo to his majeſty, and obtained the living of Black Notley, near Braintree in Eſſex. He died in 1624, leaving behind him ſeveral MSS., ſome of which were depoſited in Queen's College library. He was the author of many works in his own and in the Latin tongue: of theſe the chief are, "Juſtinian the Emperor defended againſt Cardinal Baronius;" and a "Defence of Conſtantine, with a Treatiſe on the Pope's Monarchy;" "Logicæ Libri Quinque," &c.; and "Tractatus de Providentia Dei."

CRAKE, or Land-rail, in *Ornithology*. See Rallus *Crax*.

Crake-*berry*, in *Botany*. See Empetrum *nigrum*.

CRAKENISH Point, in *Geography*, a cape of Scotland, on the W. coaſt of the iſland of Sky; 6 miles N.N.W. of Dunan point.

CRALIOVAVELIKA, a town of Sclavonia, on an iſland formed by a ſmall river near the Save; 52 miles E. of Carlſtadt, and 156 S. of Vienna. N. lat. 45° 44'. E. long. 16° 27'.

CRAMA, in *Metallurgy*, a name given by the ancients to braſs, made by the mixture of copper and the lapis calaminaris, as at this time. They had alſo a kind of white braſs, or mixt metal, made of copper, in uſe among them, which they eſteemed much above the yellow. We find mention of this in Virgil, under the name of *album orichalcum*; and the other old writers often call it *album crama*. We know of many ways of turning copper white: arſenic and many other minerals will do it; and the ſpoons, and other utenſils, which ſome years ago uſed to be made of a mixt metal, called alchymy metal, were a ſort of white braſs. But it does not appear that any of our methods have been the ſame with that of the ancients: the copper is rendered more brittle, and in ſome ſorts debaſed, in all our compoſitions of this kind; but in thoſe of the ancients, it ſeems to have been rendered more ductile than at firſt.

Crama, Croma, and Chrama, in *Medical Writers*, are uſed to ſignify a mixture of things, whether medicines or elements.

CRAMAUD, Simon de, in *Biography*, a diſtinguiſhed cardinal, born in Poitou, in France, towards the cloſe of the fourteenth century; of his education we know nothing; but it is certain, that by his induſtry, learning, and talents, together with the excellence of his character, he raiſed himſelf to public notice, and acquired the eſteem and confidence of men of the higheſt rank in life. He was elevated to the firſt offices both in church and ſtate, till at length he obtained the archbiſhopric of Rheims, and was created patriarch of Alexandria. In 1413 he was advanced to the dignity of cardinal, an honour conferred upon him for the great ſervices which he performed in bringing to an end the diſputes reſpecting the rival claims of the ſovereign pontiffs at Rome and Avignon. He took an active part in depoſing Benedict XIII. from the papal dignity; and, after he had attempted, in vain, to perſuade his holineſs to reſign his office, and renounce the character of ſovereign pontiff, he publiſhed a treatiſe to prove the neceſſity of withdrawing all obedience from that anti-pope, as he was pleaſed to ſtyle him. On the ſame ſubject, he was engaged in miſſions to England and Spain, in order to conciliate thoſe kingdoms to that plan for reſtoring the peace of the church. He lived to ſee the object on which he had laboured with ſo much aſſiduity, completely accompliſhed. Benedict was ſolemnly depoſed by the aſſemblies in France; and their decree was confirmed by the council of Piſa in 1409, in which cardinal Cramaud was appointed publicly to read their final decree. After this, he ſurvived but a very ſhort time. Moreri.

CRAMBA, in *Ancient Geography*, a town of Aſia, in the vicinity of a marſh, towards Lydia.

CRAMBE, in *Botany*, (κραμβη, a name given by Dioſcorides, Galen, and other Greek authors, to the *cabbage*, and borrowed from them by the Latins. Derivation uncertain.) Tourn. 100. Linn. gen. 825. Schreb. 1071. Willd. 1220. Gært. 830. Juſſ. 242. Vent. 3. 116. Claſs and order, *tetradynamia ſiliculoſa*. Nat. Ord. *Siliquoſæ*, Linn. *Cruciferæ*, Juſſ.

Gen. Ch. *Cal.* Perianth four-leaved; leaves egg-ſhaped, ſomewhat ſpreading, caducous. *Cor.* Petals four, cruciform, large, broad, obtuſe, ſpreading; claws a little ſhorter than the calyx. *Stam.* Filaments ſix; two the length of the calyx; two longer, forked; anthers ſimple, on the outward diviſion of the filaments; a melliferous gland between the longer ſtamens and the corolla on each ſide. *Piſt.* Germ ſuperior, oblong; ſtyle ſcarcely any; ſtigma thickiſh. *Peric.* Silicle coriaceous, two-jointed; upper joint with one or two ſeeds; lower one ſometimes ſolid, ſometimes one-celled, barren, or with one ſeed; joints without valves.

Eſſ. Ch. The four longer filaments forked, one of the tips bearing the anther. Silicle without valves.

Sp. 1. C. *maritima.* Sea Kale. Linn. Sp. Pl. 1. Mart. 1. Lam. 1. Willd. 1. Flor. Dan. 316. Eng. Bot. 924. (C. maritima, braſſicæ folio; Tourn 211. Rai. Syn. 307. Braſſica maritima monoſpermos; Bauh. pin. 112.) " Stem and leaves ſmooth; leaves ſinuated, undulated, glaucous." *Root* perennial, fleſhy. *Stems* ſeveral, proceeding from the crown of the root, ſpreading, a foot and half or two feet high. *Leaves* alternate, petioled, elliptic-oblong, or roundiſh, variouſly lobed and toothed. *Flowers* large, white, cluſtered in ſeveral corymbs, which form altogether a denſe terminal panicle. *Silicle* two-jointed; lower joint ſmaller, one-celled, one ſeeded; upper-joint very large, globular, two-celled, two-ſeeded. *Receptacles* in the upper cells filiform, free; in the lower one apparently none; but the ſeed ſeems to hang from the top of the cell. As the fruit advances towards maturity, all the ſeeds generally periſh, except one in the upper joint. Gært. A native of the ſea-ſhore in England, and other parts of Europe, flowering in May and June. This plant is now much cultivated for the ſake of its young ſhoots, which are blanched in the ſpring, and when boiled, are thought by many to be little inferior to aſparagus. See Kale. 2. C. *orientalis.* Linn. Sp. Pl. 2. Mart. 2. Lam. 2. Willd. 3. (Rapiſtrum orientale, acanthi folio; Tourn.) " Leaves oblong, pinnatifid, runcinate, ſcabrous; ſtem ſmooth." *Root* perennial; Lam. Willd. biennial; Mill. *Root*-leaves large, of a greyiſh colour. *Stems* three or four feet high, much branched. *Flowers* ſmall, white, very numerous, in a large looſe terminal panicle. A native of the Levant, flowering in May and June. 3. C. *laciniata.* Lam. 3. (C. tataria; Jacq. Miſc. 2. 274. tab. 25. Mart. 4. C. tatarica; Willd. 2.) " Leaves twice pinnated; pinnæ laciniated, toothed, ſcabrous underneath; ſtem even-ſurfaced, much branched." *Root* perennial. *Root-leaves* larger, and more divided, than thoſe of the preceding ſpecies. *Stems* three feet high. *Flowers* white, rather larger, in ſhort racemes, forming a leſs finely divided panicle. A native of Hungary. Jacquin ſuppoſes that this plant is the tataria ungarica of Cluſius, hiſt. 2. 191. which is alſo quoted by Willdenow as a ſynonym; but La Marck obſerves, that Cluſius's deſcription by no means correſponds with that given above; and probably belongs to his cachrys paſtinacea, C. panacifolia of this work. 4. C. *hiſpanica.* Linn. Sp. Pl. 3. Mart. 3. Lam. 4. Willd. 4. Gært. tab. 142. fig. 4. Lam. Ill. Pl. 553. (Rapiſtrum maximum; Corn. Canad. 147. tab. 148. Moriſ. hiſt. 2. 266. § 3. tab. 13. fig. 1. Barr. Ic. 387. Tourn. 211. Myagrum ſphærocarpum; Jac. Obſ. 2. 20. tab. 41.) " Whole plant ſcabrous, with ſhort hairs; leaves pinnate-lyrate; terminal lobe very large, kidney-ſhaped, obtuſe." *Root* annual, whitiſh, ſpindle-ſhaped and fibrous. *Stem* a foot and half high or more, ſtriated, branched in its upper part. *Leaves* alternate, petioled; terminal lobe toothed or crenate; with a ſingle pair of ſmall pinnæ underneath reſembling auricles, one of which is ſometimes wanting. *Flowers* white, in ſomewhat branched racemes. *Silicle* ſmall, two-jointed; lower joint oblong, ſolid, or one-celled, barren; drying as the fruit advances, and appearing like a peduncle to the upper one; upper joint much larger, ſpherical, coriaceous, ſmooth, one-celled, valveleſs, ſeparating ſpontaneouſly from the other. *Seed* ſolitary, nearly globular, much narrower than the cavity of the cell. A native of Spain. 5. C. *reniformis.* Willd. 5. Deſf. Atl. 2. 78. tab. 151. " Leaves pinnate-lyrate, hairy; terminal lobe kidney-ſhaped, acute, deeply toothed; ſtem filiform, branched." *Stem* furrowed towards the bottom, and ſcabrous, ſmooth above. *Flowers* white. A native of Mount Atlas, in the fiſſures of rocks. 6. C. *filiformis.* Willd. 8. Jacq. Ic. rar. 3. tab. 504. Collect. Supp. 120. " Leaves interruptedly pinnated, lyrate, hairy; terminal lobe roundiſh, toothed; ſtem ſmooth, filiform, branched, faſtigiate." *Root* perennial. *Stem* hairy below, ſmooth above. *Leaves* cloathed with white, rigid hairs. A native of Patagonia. 7. C. *fruticoſa.* Linn. jun. Supp. 299. Mart. 5. Lam. 6. Willd. 7. " Shrubby leaves egg-ſhaped, pinnatifid, ſerrated, hoary; racemes in a looſe dichotomous panicle." A ſtiff ſhrub, with leafy branches. *Leaves* alternate, petioled, deeply toothed or pinnatifid, or pinnated. *Racemes* ſhort. A native of Madeira, flowering moſt part of the year. Murray aſſerts that the filaments are not forked, and that it ought to be removed to Myagrum. 8. C. *ſtrigoſa.* Mart. 6. Willd. 8. L'Herit. Stirp. 1. 152. tab. 72. (C. ſcabra; Lam. 5. Myagrum arboreſcens; Jacq. Ic. rar. 1. tab. 120.? La Marck refers this to the preceding ſpecies.) " Leaves ſomewhat cordate-egg-ſhaped, unequal at the baſe, hiſpid, auricled; panicle looſe." A rugged ſhrub. *Stem* from four to ſix feet high, erect, looſely branched, cinereous. *Leaves* alternate, petioled, unequally toothed, wrinkled, nerved, bright green on both ſides, four times the ſize of thoſe of the preceding ſpecies; petioles round on one ſide, channelled on the other. The ſtiff hairs which cloath the under ſurface of the leaves, the petioles and the lower part of the common peduncles, reſemble ſmall ſpines; they are ſtronger, but not ſo cloſely ſet as in the preceding ſpecies. A native of the Canaries. Both theſe ſhrubby ſpecies were introduced into England by Maſſon.

Crambe *corvini*, Allion. See Bunias *cochlearioides.*

Crambe *foliis lanceolatis dentato-ſinuatis*; Hort. Clif. Roy. Gært. See Myagrum *perenne.*

Crambe *foliis pinnato-haſtatis*; Roy. See Bunias *orientalis.*

Crambe *ſpinoſiſſima arabica*; Shaw. Afr. See Bunias *ſpinoſa.*

Crambe *orientalis dentis leonis folio*; Tourn. See Bunias *orientalis.*

CRAMBUSA, in *Ancient Geography*, a place of Aſia Minor, on the coaſt of Cilicia, near the river Calycadnus, and the promontory Cerycum, according to Strabo, Ptolemy, &c. Ptolemy places it in Pamphylia; Pliny, on the coaſt of Lycia, over againſt Chimæra.—Alſo, a town of Lycia, placed by Strabo, between Olbia and the ſacred promontory.

CRAMER, in *Biography*. See Kramer.

Cramer, John Andrew, a celebrated German chemiſt, born in 1710, near Dreſden. To his countrymen has been juſtly given the honour of teaching the art of mining and metallurgy to all Europe: to effect this, Cramer contributed very important ſervices. As a writer, he is juſtly diſtinguiſhed by his " Elementa artis Docimaſticæ;" by a treatiſe on the management of foreſts and timber, and a work on metallurgy. On Aſſaying he gave public lectures in Holland and England. He invented a proceſs of making artificial gems, which were ſuch cloſe imitations of natural ſtones as to deceive almoſt the beſt judges. He had an excellent turn for natural philoſophy, natural hiſtory, mathematics, aſtronomy, and political economy as well as chemiſtry. Mr. Cramer died on the 6th day of December, 1777. The character of this able man deſerves notice on account of ſome ſingularities which have been recorded by his biographers. He was perfectly indifferent to dreſs, ſo that he has frequently been taken for a beggar. He would ſit down at the table with perſons of diſtinction, in a gold laced coat, but with hands and face covered with ſoot and duſt, juſt as he came from the laboratory. His own habitation conſiſted of a kitchen and two other apartments, in which were lying in the greateſt confuſion his books, models, crucibles, coals, &c. His meat and his ſleep he took, as he could find time, without any regard to ſet periods. Cramer was unqueſtionably a man of genius, poſſeſſed great preſence of mind, and a talent at diſcovering the road to truth in his experiments: his irritable temper joined to his ſuperior knowledge, of which his contemporaries were jealous, led him into many diſputes, which, on his part, were not always managed with that reſpect and decorum which the character and rank of his opponents ſeemed naturally to claim. His principal work, *viz.* the "Elements of the Art of Aſſaying," has been tranſlated into the German, Engliſh, and French languages, and is ſtill eſteemed for the deſcription of the different kinds of minerals, and for a minute but excellent account of almoſt all the chemical and mechanical proceſſes employed in aſſaying. The object of his treatiſe on foreſts and timber, was to ſhew how they may be preſerved in good condition; how the decayed parts may be reſtored, and how to derive the greateſt benefits from foreſts. His "Elements of Metallurgy," were left unfiniſhed. The firſt contains the natural hiſtory of minerals, with the theory of the art of aſſaying: in the ſecond is an account of the operations on a ſmall ſcale; and the third, which was never written, would have contained a deſcription of the proceſſes employed on a large ſcale. Gen. Biog.

Cramer, John Andrew, a German theologian, born at Jöſtadt, on the 29th of Jan. 1723, and when he had obtained under his father, and at a private ſchool, a virtuous, and, in ſome reſpects, a learned education, he was ſent to the univerſity at Leipſic; but his finances were ſo ſcanty, that he was obliged to inſtruct others while he himſelf took lectures, in order to obtain the accommodations of life. At this period he was alſo a tranſlator of Bayle's dictionary into the German language, and a corrector of the preſs; by which means he was enabled to ſupport himſelf with decency and comfort. In 1745, he read public lectures at Leipſic, and publiſhed a weekly paper, entitled "The Guardian Spirit." But he was afterwards better known as the tranſlator of St. Chryſoſtom's works. In 1750, he became acquainted with count Bernſtorff, the Daniſh miniſter, through whom he was, in 1754, invited to be chaplain to the court of Copenhagen. From this period he conſidered Denmark as his ſecond country, where he was diſtinguiſhed by the appellation of "the thoroughly good." In 1765, he was appointed profeſſor of theology in the univerſity of Copenhagen, in which, as well as in that of Kiel, a fund was eſtabliſhed through his means for the ſupport of the widows of the profeſſors. He was diſgraced by the part which he took in the revolution in Denmark, in which Struenſee took a lead; and having loſt his office as chaplain, he retired in 1771 to Lubec. Three years afterwards he again entered into the Daniſh ſervice, being appointed profeſſor of theology in the univerſity of Kiel. Cramer died on the 12th of June 1788, at the age of 66. He wrote many original works, and was indefatigable as a tranſlator. He is ſaid to have read with rapidity, and to have compoſed with readineſs and facility. He employed every moment of his time, and frequently read or ſtudied while travelling. His memory was ſuch that he ſcarcely ever forgot what he had heard, though in ever ſo curſory a manner. Gen. Biog.

Cramer, Gabriel, born at Geneva, the 24th of March 1641, was initiated into the practice of medicine by his father. To perfect him further, he went to Straſburg, where he was created doctor in 1664. He thence returned to Geneva, and roſe to be ſenior, or head of the faculty of medicine there, in which poſt he died in 1724. His ſon,

Cramer, John, Isaac, who had taken his degree of doctor in 1696, ſucceeded to his practice, and publiſhed an "Epitome of Anatomy," and a "Diſſertation on Diſeaſes of the Liver," left by his father. Alſo, "Theſaurus ſecretorum curioſorum, in quo curioſa, ad omnes corporis humani tum internos, tum externos morbos curandos, &c. continentur." lon. Aollb. 1709, 4to. He again was ſucceeded by his ſon, John Andrew Cramer, who rendered himſelf famed by his ſkill in mineralogy and chemiſtry; and publiſhed at Leyden, in 1739, in two volumes 8vo. Elementa Artis Docimaſticæ. It was reprinted in 1744, and again tranſlated into French, in 1755. See Cramer, *ſupra*. Haller. Bib. Med. Eloy. Dict. Hiſt.

CRAMLOW, in *Geography*, a town of Poland, in the palatinate of Cracow; 32 miles N.W. of Cracow.

CRAMP, in *Medicine*, a painful ſpaſm, or ſpaſmodic contraction of a muſcle, or muſcular part.

The word cramp is only applied to thoſe ſpaſms or tonic convulſions (ſee Convulsions) which are confined to one muſcle or organ, or to a ſmall number of muſcles; as to the muſcles forming the calf of the leg, or thoſe of the foot, &c.; or to a painful contraction of the muſcular coat of the ſtomach. The Tetanus might be denominated an univerſal cramp. Cramp in the leg is a frequent occurrence, when the bowels are greatly diſordered, as in Cholera; and it often attacks elderly people, eſpecially in bed, without any obvious cauſe. Friction often affords relief; and a moderately tight bandage put on the leg on going to bed, will frequently prevent the occurrence of the ſpaſm. It may be often overcome by a forcible exertion of the antagoniſt muſcles; that is, by attempting forcibly to move the member in the oppoſite direction to that in which it is ſpaſmodically contracted. Thus, if the muſcles of the calf of the leg are affected with cramp, dragging the heel upwards, and extending the toes; we ſhould attempt ſtrongly to bring the toes upward, which will tend to ſtretch the cramped muſcles, and thus remove the ſpaſm. Cramp, attacking the ſtomach, is to be combated by the internal and external employment of ſtimulants; internally, by the uſe of opium, æther, and other antiſpaſmodics; or, if theſe cannot be immediately procured, by a plentiful draught of hot water, or hot wine, or brandy and water: externally, at the ſame time, *heat* may be applied in various ways, as by fomentation, or by means of a hot brick, or of a bladder or bottle filled with hot water. But before theſe expedients are adopted, it ſhould be well aſcertained that the pain is in the ſtomach, and that it ariſes from ſpaſm, and not from inflammation; for, in the latter caſe, ſtimulants would prove highly injurious. That the pain is ſpaſmodic only, will be known by the abſence of fever, *i. e.* of a quick ſharp pulſe, dry tongue, hot ſkin, thirſt, &c. and by its occaſional intermiſſion, or change of place. See Stomach, *inflammation of;* alſo Gout.

Cramp, from *crampon*, Fr. a bar of iron or other metal bent at each extremity, which ſerves to unite and retain in their places blocks or courſes of ſtone in various parts of a building. Cramps are generally employed in works which require great ſolidity, ſuch as the piers and abutments of bridges, and the vouſſoirs of large arches. They are alſo uſed to unite the ſtones of copings and cornices, and generally any external ſtone-work which would be liable to injury from weather, if the joints were not firmly ſecured. The moſt ſecure manner of fixing cramps is to let them into the ſtone their whole thickneſs, and run them with lead; but in ſlight works, and thoſe which are not expoſed to the air, ſuch as chimney pieces, it is ſufficient to bed them in plaſter. The Romans, who were accuſtomed to uſe cramps with the greateſt profuſion in their ſolid conſtructions, generally made them of bronze, which is more durable than iron, as it is not ſubject to be deſtroyed by ruſt; modern builders however conſtantly employ the latter metal.

Cramp-*fiſh*, or *Numb fiſh*, in *Ichthyology*, the Engliſh name of the *Torpedo*. See Raja, and Torpedo.

Cramp-*iron*, a piece of iron, bent at each extreme, ſerving to bind together pieces of wood, ſtones, or other things. See Cramp, *ſupra*.

Cramp-*irons* were diſtributed to ſoldiers deſtined for an eſcalade. They were faſtened to their ſhoes with ſolid ſtraps of leather, in order to fix themſelves to the wall of the place. The name of *crampons* has alſo been given to pieces of iron faſtened to the extremities or ends of ſcaling ladders.

Cramp-*ray*, in *Ichthyology*, the Raja *Torpedo*; which ſee.

CRAMPONEE', in *Heraldry*. A *croſs cramponeé*, is that which at each end has a *cramp*, or ſquare piece, coming from it.

CRAMPONS, ſmall bars of iron, with four ſpikes faſtened to the ſhoes of thoſe who traverſe the glaciers of Chamouny in Swiſſerland.

CRAMPOONS, Crampons, pieces of iron hooked at the ends: for the drawing or pulling up of timber, ſtones, &c.

CRANA, in *Ancient Geography*, a town of the Peloponneſus, in Arcadia. Theophraſtus mentions this place, and ſays, that its environs abounded with fir-trees.

CRANACH, or Kranach, Lucas, in *Biography*, a painter and engraver, born in 1474 at Cranach, a town in the biſhopric of Bamberg, in the circle of Weſtphalia. His family name is ſaid by ſome to have been Sunder, by others Muller. Lucas was inſtructed by his father in the firſt principles of painting, and made ſuch progreſs in the art, that at an early age he was appointed painter to the elector of Saxony. He continued in the ſervice of three ſucceeding electors, but was particularly attached to John Frederic, ſurnamed the *Magnanimous*, who, whilſt in captivity, took great pleaſure in ſeeing him paint.

Towards the decline of life, Cranach retired from the court of Saxony, and took up his abode near his friend Luther, at Wittenberg, where he was made burgomaſter. His magiſterial functions, however, did not prevent his frequently reſiding at Weimar, in which town he died in the year 1553, leaving a ſon of the ſame name, who ſucceeded him in the ſituation of burgomaſter. Lucas Cranach, the younger, was likewiſe a painter; but he was ſtill more diſtinguiſhed as a literary character. He died in 1586, aged 71.

The pictures of Cranach conſiſt of hiſtorical repreſentations, allegories, and portraits; but his works of the two former kinds, though they evince fertility of invention, and a conſiderable ſhare of expreſſion, loſe much of their eſteem by the very Gothic and dry ſtyle in which they are drawn and executed. His portraits are admired for their great truth of character, and the freſhneſs and beauty of their carnations, notwithſtanding the incorrectneſs with which they are drawn, and the entire want of economy in the management of the lights and ſhadows. In theſe countries, however, he is beſt known by his numerous engravings; the greater part of which are executed on wood, though there exiſt a few by him, very rare, on copper. We ſhall only mention the following:

On wood.

1. The Paſſion of our Saviour, 13 pieces, ſmall folio, 1509.
2. Three prints of Tournaments, folio, 1509.
3. Martyrdoms of the Twelve Apoſtles, 12 ſpirited compoſitions, 4to. 1549.
4. Portrait of Luther, a whole figure, folio.
5. Ditto, Melancthon, ditto, ditto.

On Copper.

Adam and Eve in the deſert. She is ſitting at the foot of a rock, the child aſleep on her knee. At a diſtance Adam is repreſented tilling the earth; in folio, 1509. Very rare.

This artiſt generally marked his plates with a cypher, compoſed of the initials of his name, to which he not unfrequently added a dragon, and the arms of Saxony. Huber. Heinecken.

Cranach, or *Cronach*, and *Gold Cronach*, in *Geography*, anciently called *Crana*, a ſmall town of Franconia in the late biſhopric of Bramberg, on the river Cranach, 27 miles E. of Culmbach. It is remarkable for being the place where they held, in ancient times, a bee tribunal, *judicium mellicidorum*.—Alſo, a river of Franconia, which runs into the Rotach, near Cranach.

CRANAE, in *Ancient Geography*, a ſmall iſland, in the Laconic gulf, oppoſite to Gythium. Here it is pretended that Helen gave to Paris the firſt proofs of affection; and to her raviſher was aſcribed the foundations of a temple, built on this continent, and dedicated to Venus Migonitis: whence the adjacent plain has been called Migonium. To the weſt was mount Lariſſus, conſecrated to Bacchus.

CRANAGE, a liberty to uſe a crane, for drawing up wares out of a ſhip, or hoy, &c. at a wharf; and to make profit thereof.

The word alſo ſignifies the money taken, or paid for the ſame.

CRANAOS, in *Ancient Geography*, a town of Aſia Minor, in Caria.

CRANBERRY, in *Botany*. See Vaccinium *oxycoccos*.

Cranberry, in *Geography*, a thriving town of America, in the ſtate of New Jerſey and county of Middleſex; 9 miles E. of Princeton, and 16 S.S.W. of Brunſwick. It contains a handſome Preſbyterian church, and a variety of manufactures is carried on by its induſtrious inhabitants. The ſtage from New York to Philadelphia paſſes through Ambry, this town, and thence to Borderſtown.

Cranberry *iſlands* lie on the coaſt of the diſtrict of Maine. See Mount Desert *Iſland*.

CRANBORNE, a ſmall market-town near the north-eaſt confines of Dorſetſhire, England, was famous in the Saxon and Norman times for "its monaſtery, chace, and lords." About the middle of the tenth century, the manor belonged to a noble ſoldier, named Hayward de Meau, from his pale or fair complexion. "His grandſon, Brictricus, was ſent ambaſſador into Norway, where, refuſing to marry Matilda, afterwards queen to William the Conqueror, ſhe was ſo provoked at this affront, that when her huſband came to the crown of England, ſhe procured an order to ſeize Brictricus at his manſion or caſtle, at Stanley in Worceſterſhire."

ceſterſhire." After the conqueſt, this manor was granted to Matilda, and on its reverſion to the crown at her death, was given by William Rufus to his couſin Robert Fitz-Hamon. On this ſpot a benedictine monaſtery was founded about the year 980. The priory church is now the pariſh church, and one of the oldeſt in the county. It contains ſeveral monuments of the Hooper family. The priory-houſe was pulled down in 1703. "Cranbourne," ſays Leland, "is a praty thorough fair, and hath one ſtreet meetly welle builded. There renneth a fleting bek thorough it, and paſſed down thorough the ſtreet ſelf, on the right hond." The pariſh of Cranborne is the largeſt in the county, being about thirty miles in circumference, and twelve in length. It contains 337 houſes; and 1402 inhabitants: moſt of the lower claſs are employed in huſbandry. The diſtance from London is 93 miles S.W. The market is held on Friday.

At a ſmall eſtate, half a mile ſouth of Cranborne, was born the eminent Edward Stillingfleet, biſhop of Worceſter, who died in 1699.

The Roman road, called the Via Icenia, enters Dorſetſhire, in the vicinity of Cranbourn, and may be traced to Badbury. Near Woodyate's inn, to the north-eaſt, it is croſſed by a high vallum, and ditch, called Ghrimes's ditch, which begins a little weſt of Grovely in Wiltſhire; and paſſing near Chickbury, Broad-chalk, and Woodyates, goes thence in a ſouth-eaſt direction to the Stour, not far from Chriſt-church in Hampſhire. Hutchins's Hiſtory of Dorſetſhire, 2 vols. fol. Maton's Weſtern Counties, 2 vols. 8vo.

CRANBROOK, a vicarage in Kent, in the lathe of Scray. The ſituation of its ſteeple was aſcertained in the government trigonometrical ſurvey in 1796, by an obſervation from Goudhurſt ſteeple, diſtant 18,239 feet, and bearing 71° 8′ 27″ N.W. from the parallel to the meridian of Greenwich; and another from Hartridge, diſtant 9439 feet: whence was calculated its latitude 51° 5′ 50″ N., and its longitude 0° 32′ 10″, or 2′ 8″.7 E. of Greenwich.

CRANDORF, a ſmall town of Saxony, in the circle of the Ertzgebirge, the inhabitants of which are chiefly miners in the iron mines at Rothenberg.

CRANE, in *Aſtronomy*, the name of a ſouthern conſtellation. See Grus.

Crane, in *Hydraulics*, a popular name for a *Siphon*; which ſee.

Crane, in *Mechanics*, a machine uſed in *Building* and in *Commerce*, for raiſing large ſtones, and other weights, to certain heights, or lowering them to certain depths.

M. Perrault, in his notes on Vitruvius, makes the crane the ſame with the *corvus*, or raven, of the ancients.

The modern crane conſiſts of ſeveral members, or pieces, the principal being a ſtrong perpendicular beam, or arbor, firmly fixed in the ground, and ſuſtained by eight arms, coming from the extremities of four pieces of wood laid acroſs, through the middle of which the foot of the beam paſſes. About the middle of the arbor the arms meet, and are mortiſed into it: its top ends in an iron pivot, on which is borne a tranſverſe piece, advancing out to a good diſtance in manner of a crane's neck; whence its name. The middle and extremity of this are again ſuſtained by arms from the middle of the arbor: and over it comes a rope, or cable, to one end of which the weight is fixed; the other is wound round the ſpindle of a wheel, which turned, draws the rope, and that heaves up the weight; to be afterwards applied to any ſide or quarter, by the mobility of the tranſverſe piece on the pivot.

There are ſeveral improvements of this uſeful machine mentioned in Deſaguliers's Experim. Philoſ. p. 178, *ſeq.* particularly how to prevent the inconveniences ariſing from ſudden jerks, as well as to increaſe its force by uſing a double axis *in peritrochio*, and two handles.

The crane is of two kinds; in the firſt kind, called the *rat-tailed crane*, the whole machine, with the load, turns upon a ſtrong axis: in the ſecond kind, the gibbet alone moves on its axis. We ſhall refer to Deſaguliers, *ubi ſupra*, for a particular account of different cranes, and recite improvements in the conſtruction of them: beginning with a deſcription of one, in which moſt of them are combined, invented by the late Mr. Padmore of Briſtol. This conſiſts of wheels, axles, pulleys, ropes, and a gib or gibbet. *Plate* XVIII. *Mechanics*, *fig.* 2. When the rope, H, is hooked to the weight K, a man turns the winch A, on the axis of which is the trundle B, which turns the wheel C, on whoſe axis, D, is the trundle E, which turns the wheel F, with its upright axis G, on which the great rope, H H, winds as the wheel turns; and going over a pulley, I, at the end of the arm, *d*, of the gib *c c d e*, it draws up the heavy burden K; which, being raiſed to a proper height, as from a ſhip to the quay, is then brought over the quay by pulling the wheel, Z, round by the handles *z*, *z*, which turns the gib by means of the half wheel, *b*, fixed on the gib-poſt *c c*, and the ſtrong pinion, *a*, fixed on the axis of the wheel Z. This wheel gives the man that turns it an abſolute command over the gib, ſo as to prevent it from taking any unlucky ſwing, ſuch as often happens when it is only guided by a rope tied to its arm *d*; and people are frequently hurt, ſometimes killed, by ſuch accidents.

The great rope goes between two upright rollers *i* and *k*, which turn upon gudgeons in the fixed beams *f* and *g*; and as the gib is turned towards either ſide, the rope bends upon the roller next that ſide. Were it not for theſe rollers, the gib would be quite unmanageable; for the moment it were turned ever ſo little towards any ſide, the weight, K, would begin to deſcend, becauſe the rope would be ſhortened between the pulley I, and axis G; and ſo the gib would be pulled violently to that ſide, and either be broke to pieces, or break every thing that came in its way. Theſe rollers muſt be placed ſo, that the ſides of them, round which the rope bends, may keep the middle of the bended part directly even with the centre of the hole in which the upper gudgeon of the gib turns in the beam *f*. The truer theſe rollers are placed, the eaſier the gib is managed, and the leſs apt to ſwing either way by the force of the weight K.

A ratchet-wheel, Q, is fixed upon the axis D, near the trundle E; and into this wheel falls the catch or click R. This hinders the machine from running back by the weight of the burden K, if the man who raiſes it ſhould happen to be careleſs, and ſo leave off working at the winch, A, ſooner than he ought to do.

When the burden, K, is raiſed to its proper height from the ſhip, and brought over the quay by turning the gib about, it is let down gently upon the quay, or into a cart ſtanding thereon, in the following manner. A man takes hold of the rope *t t*, (which goes over the pulley *v*, and is tied to a hook at S, in the catch R,) and ſo diſengages the catch from the ratchet-wheel Q; and then, the man at the winch, A, turns it backward, and lets down the weight K. But if the weight pulls too hard againſt this man, another lays hold of the handle V, and by pulling it downward, draws the gripe, U, cloſe to the wheel Y, which, by rubbing hard againſt the gripe, hinders the too quick deſcent of the weight; and not only ſo, but even ſtops it at any time, if required. By this means, heavy goods may be either raiſed or let down at pleaſure, without any danger of hurting the men who work the engine.

When part of the goods is craned up, and the rope is to be let down for more, the catch, R, is firſt diſengaged from the ratchet-wheel Q, by pulling the cord *t*; then the handle, *q*, is turned half round backward, which, by the crank, *n n*, in the piece *o*, pulls down the frame, *h*, between the guides *m* and *m*, (in which it ſlides in a groove,) and ſo diſengages the trundle, B, from the wheel C: and then, the heavy hook, β, at the end of the rope, H, deſcends by its own weight, and turns back the great wheel, F, with its trundle, E, and the wheel C; and this laſt wheel acts like a fly againſt the wheel, F, and hook β; and ſo hinders it from going down too quick; whilſt the weight, X, keeps up the gripe, U, from rubbing againſt the wheel Y, by means of a cord going from the weight, over the pulley, *w*, to the hook, W, in the gripe; ſo that the gripe never touches the wheel, unleſs it be pulled down by the handle V.

When the crane is to be ſet at work again, for drawing up another burden, the handle, *q*, is turned half round forwards; which, by the crank *n n*, raiſes up the frame *h*, and cauſes the trundle, B, to lay hold of the wheel C; and then, by turning the winch A, the burden of goods, K, is drawn up as before.

The crank, *n n*, turns pretty ſtiff in the mortiſe near *o*, and ſtops againſt the farther end of it when it has got juſt a little beyond the perpendicular; ſo that it can never come back of itſelf: and therefore, the trundle, B, can never come away from the wheel C, until the handle, *q*, be turned half round backward.

The great rope runs upon rollers in the lever L M, which keep it from bending between the axle at G and the pulley I. This lever turns upon the axis, N, by means of the weight O, which is juſt ſufficient to keep its end, L, up to the rope; ſo that, as the great axle turns, and the rope coils round it, the lever riſes with the rope, and prevents the coilings from going over one another.

The power of this crane may be eſtimated thus: ſuppoſe the trundle, B, to have 13 ſtaves or rounds, and the wheel, C, to have 78 ſpur cogs; the trundle, E, to have 14 ſtaves, and the wheel, F, 56 cogs. Then, by multiplying the ſtaves of the trundles, 13 and 14, into one another, their product will be 182; and by multiplying the cogs of the wheels, 78 and 56, into one another, their product will be 4368, and dividing 4368 by 182, the quotient will be 24; which ſhews that the winch, A, makes 24 turns for one turn of the wheel, F, and its axle, G, on which the great rope or chain, H I H, winds. So that, if the length or radius of the winch, A, were only equal to half the diameter of the great axle G, added to half the thickneſs of the rope H, the power of the crane would be as 24 to 1: but the radius of the winch being double the above length, it doubles the ſaid power, and ſo makes it as 48 to 1: in which caſe, a man may raiſe 48 times as much weight by this engine as he could do by his natural ſtrength without it, making proper allowance for the friction of the working parts. Two men may work at once, by having another winch on the oppoſite end of the axis of the trundle under B; and this would make the power double.

If this power be thought greater than what may be generally wanted, the wheels may be made with fewer cogs in proportion to the ſtaves in the trundles; and ſo the power may be of any degree that is judged to be requiſite. But if the weight be ſo great as will require yet more power to raiſe it (ſuppoſe a double quantity), then the rope, H, may be put under a moveable pulley, as δ, and the end of it tied to a hook in the gib at ε; which will give a double power to the machine, and ſo raiſe a double weight hooked to the block of the moveable pulley.

When only ſmall burdens are to be raiſed, this may be quickly done by men puſhing the axle, G, round by the handſpikes *y*, *y*, *y*, *y*; having firſt diſengaged the trundle, B, from the wheel C: and then, this wheel will only act as a fly upon the wheel F; and the catch, R, will prevent its running back, if the men ſhould inadvertently leave off puſhing before the burden be unhooked from β.

Laſtly, when very heavy burdens are to be raiſed, which might endanger the breaking of the cogs in the wheel F; their force againſt theſe cogs may be much abated by men puſhing round the handſpokes *y*, *y*, *y*, *y*, whilſt the man at A turns the winch. Ferguſon's Lectures on Select Subjects, 4to. p. 52, &c.

If the axis, G G, be placed horizontally, and inſtead of the wheel, F, a larger wheel be fixed to it, which may be turned by men walking in it, we ſhall have another kind of crane; the rope will coil round the axle as the wheel turns, and the gib-work is the ſame as in the other ſort of crane. Mr. Padmore contrived to prevent the danger attending the uſe of this conſtruction, by putting cogs all round the outſide of the wheel, and applying a trundle to turn it; by which addition the power is increaſed in the proportion of the number of cogs to the number of ſtaves in the trundle: and in order to hinder its running back by the force of the weight, ſhould the men within it ſlip, or leave off walking, he added a ratchet-wheel to the axis of the trundle, like that already deſcribed. Two winches may alſo be fixed to the ends of the axle, by working which the men in the wheel would be much aſſiſted. On the axle of the trundle he likewiſe fixed a gripe-wheel, ſuch as has been already deſcribed, by means of which heavy burdens may be let down without the leaſt danger.

Mr. Ferguſon has contrived and deſcribed a new and ſafe crane, with four different powers adapted to different weights; for which he received a reward of 50*l.* from the Society for the encouragement of arts, &c. In this crane (ſee *Plate* XVIII. *Mechanics*, *fig.* 3.) A repreſents the great wheel, and B its axle, on which the rope, C, winds. This rope goes over a pulley, D, in the end of the arm of the gib E, and draws up the weight F, as the winch, G, is turned round. H is the largeſt trundle, I the next, and K is the axis of the ſmalleſt trundle, which is ſuppoſed to be hid from view by the upright ſupporter L. A trundle, M, is turned by the great wheel, and on the axis of this trundle is fixed the ratchet-wheel N, into the teeth of which the catch, O, falls. P is the lever, from which goes a rope, Q Q, over a pulley, R, to the catch; one end of the rope being fixed to the lever, and the other end to the catch. S is an elaſtic bar of wood, one end of which is ſcrewed to the floor: and, from the other end goes a rope (out of ſight in the figure) to the farther end of the lever, beyond the pin or axis on which it turns in the upright ſupporter T. The uſe of this bar is to keep up the lever from rubbing againſt the edge of the wheel U, and to let the catch keep in the teeth of the ratchet-wheel: but a weight hung to the farther end of the lever, would do full as well as the elaſtic bar and rope.

When the lever is pulled down, it liſts the catch out of the ratchet-wheel, by means of the rope Q Q, and gives the weight, F, liberty to deſcend: but if the lever, P, be pulled a little farther down than what is ſufficient to lift the catch, O, out of the ratchet-wheel N, it will rub againſt the edge of the wheel, U, and thereby hinder the too quick deſcent of the weight; and will quite ſtop the weight, if pulled hard. And if the man who pulls the lever ſhould happen inadvertently to let it go; the elaſtic bar will ſuddenly pull it up, and the catch will fall down and ſtop the machine.

W, W, are two upright rollers, above the axis or upper gudgeon of the gib E: their uſe is to let the rope, C, bend upon them, as the gib is turned to either ſide, in order to bring the weight over the place where it is intended to be let down: which rollers ought to be ſo placed, that if the rope, C, be ſtretched cloſe by their outmoſt ſides, the half thickneſs of the rope may be perpendicularly over the centre of the upper gudgeon of the gib; for then the length of the rope between the pulley in the gib and the axle of the great wheel, will be always the ſame, in all poſitions of the gib, and the gib will remain in any poſition to which it is turned.

The powers of this machine may be eaſily calculated: the horizontal-wheel has ninety-ſix cogs, the largeſt trundle twenty-four ſtaves, the next largeſt has twelve, and the ſmalleſt has ſix. So that the largeſt trundle makes four revolutions for one revolution of the wheel; the next makes eight; and the ſmalleſt makes ſixteen. When a winch is occaſionally put upon the axis of either of theſe trundles for turning it, the handle of the winch deſcribes a circle in every revolution equal to twice the circumference of the axle of the wheel; and therefore the length of the winch doubles the power gained by each trundle. So that if the winch be applied to the axle of the largeſt trundle and turned four times round, the wheel and axle will be turned once round, and the power will move through eight times as much ſpace as the weight riſes through: in which caſe the power will be to the weight as eight to one; *i. e.* a man may raiſe (allowing for friction) eight times as much weight by the crane, as he might by his natural ſtrength without it. If the ſecond trundle be uſed, the proportion of the power to the weight will be as ſixteen to one; and with the ſmalleſt trundle, as thirty-two to one. The power may again be doubled by drawing up the weight by one of the parts of a double rope, going under a pulley in the moveable block, which is hooked to the weight below the arm of the gib; for then the power will be as ſixty-four to one: and by increaſing the number of pullies, the power will be proportionably increaſed. See Supplement to Ferguſon's Lectures, p. 3, &c. or Phil. Tranſ. vol. liv. art. 3. p. 24.

An improved crane for wharfs has lately been invented by Mr. Robert Hall of Basford, near Nottingham, who was rewarded with 40 guineas by the Society of Arts. The invention chiefly conſiſts in expanding a ſet of bars parallel to the axis of a crane, by means of which the velocity of the ropes in raiſing weights may be diminiſhed or increaſed, in proportion to the load which is to be raiſed. An engraving and deſcription of this crane may be ſeen in the 12th volume of the Tranſactions of the Society, p. 283, &c. We have already obſerved under the article CAPSTAN, that the capſtan with a compound barrel, conſiſting of two cylinders of different radii, may be converted into a crane or windlas for raiſing weights. Such a crane is evidently ſuperior to thoſe in common uſe, with the additional advantage of allowing the weight to ſtop in any part of its progreſs, without the aid of a ratchet-wheel and catch, as the two parts of the rope pull on contrary ſides of the barrel. The rope, indeed, which coils round the larger part of the barrel, acts with a longer lever, and conſequently with greater force than the other; but as this exceſs of force is not ſufficient to overcome the friction of the gudgeons, the weight remains ſtationary in any part of its path. A crane of this kind was erected, in 1797, at Bordenton in New Jerſey, by Mr. M'Kean, for the purpoſe of raiſing logs of wood to the frame of a ſaw-mill, 10 feet diſtant from the ground.

We are happy here to lay before the public a deſign for a crane, by the late Mr. John Smeaton, through the liberality of ſir Joſeph Banks, who kindly permitted our draughtſman to make a reduced copy of the original drawing, which he purchaſed, with many others, ſince the demiſe of Mr. Smeaton. The machine was erected at the wool quay cuſtom-houſe, London, in 1789. *Fig.* 2, (*Plate* XIX. *Mechanics*) is a plan of it; *fig.* 3, an elevation; and *fig.* 1, a ſection of the barrel: the ſame letters of reference are uſed in each figure. A is the barrel upon which the chain is wound; it has ſeven turns of a ſpiral groove cut upon it, to receive the lower half of the links of the chain, as will be clearly underſtood from *fig.* 3; *a, a, fig.* 2, are two of four handles (the others not being ſhewn) ſcrewed to the end of the barrel by long bolts going through its whole length, as ſhewn in *fig.* 1; the other ends of the ſame bolts attach to the barrel, a wheel, B, with hooked teeth. The barrel, with its wheel, B, and handles, has a metal buſh driven into its centre, and well fitted to a nicely turned arbor, *b*, in the ſection, *fig.* 1, ſo as to turn upon it freely without ſhake. This arbor has a ſhoulder, C, upon it truly turned, againſt which the great wheel, D, fits, and is held faſt to it by four ſcrews (*fig.* 2.); the great wheel, D, and barrel are connected together by means of two clicks, *d, d,* (*fig.* 3.) turning on pins made faſt to the wheel, and preſſed by ſprings into the teeth of the ratchet-wheel B. The great wheel, D, has 96 teeth, and is turned by a lantern, E, of 11 ſtaves, on the arbor *f.* F is a fly-wheel fitted on the ſame arbor by a ſhoulder, in the ſame manner as the great wheel. G is a broad wooden wheel on the arbor, *f*, encompaſſed half round by a brake, *g*, formed of four pieces; it is brought to touch the wheel by a foot lever, H, *fig.* 3. and a weight at the oppoſite end of the lever lifts it off the wheel when not in uſe. I is a ratchet-wheel, and *i* the click to prevent the crane running back; K, K, are the winches by which it is turned. The ratchet and click on the barrel are uſed when the crane is lowering goods, and the chain is to be drawn up with any work; the workmen then turn the barrel by the four handſpikes, *a, a,* the ſloping ſides of the ratchet-wheel lifting up the clicks, *d, d,* and paſſing by, without the labour and loſs of time of turning the wheels; and likewiſe, when the crane is uſed for raiſing goods, and the chain is to be let down without any load, the barrel muſt be turned back a ſmall ſpace, and the clicks diſengaged, by puſhing one of their tails, *n* or *n*, for which purpoſe they are connected to move together by a ſmall rod *o*; the barrel then runs down by the weight of the chain, and if that is not ſufficient, the workman aſſiſts it by the handſpikes, *a, a.* The contrivance of the grooved barrel is of very great uſe, as without it the chain lies in ſuch a manner that the action of the load tends to twiſt open the links laterally. Mr. Gilbert Gilpin of Shifnal was rewarded by the Society of Arts, in 1803, for the ſame invention, without perhaps knowing Mr. Smeaton had applied it before him. As he has very well explained the advantages of this conſtruction, we ſhall make uſe of his own words from the Tranſactions of the Society, vol. ii. p. 3.

Every chain formed of oval links has a twiſt in itſelf, ariſing from a depreſſion given by the hammer to each link in the welding: the twiſt may be ſeen by holding the piece of the chain by one end, and viewing the links edgeways as it hangs down; and this circumſtance, ſo trifling in appearance, is not ſo in its effects; and it has in conſequence a perpetual tendency (even when reefed perfectly ſtraight in pullies, and on the barrels of cranes) to aſſume a ſpiral form, which a plain cylindrical barrel, and the common pullies with ſemicircular grooves, are not in the leaſt calculated to prevent. Hence the alternate links of the chain, in coiling round a barrel, or working over pullies, form obtuſe angles in aſſuming the ſpiral form, bearing upon the lower parts of their circumferences, and forming as it were two levers, which wrench open and cruſh each other in proportion to the weight ſuſpended, as well as prevent the freedom of motion in the links themſelves, and thereby load the chain with additional friction.

A ſtill greater obſtruction to the uniformity of its motion, is the tendency which the chain has to make a double coil, as it approaches the middle of the barrel, and croſſes its centre, and that of the pullies at right angles, by means of which the chain is frequently broken by the ſudden jerk, cauſed by the upper coil ſlipping off the undermoſt.

It is to theſe cauſes that all the accidents that occur to workmen and machinery, from the failure of chains, may be attributed, (bad iron excepted,) and which form the ſole objection to their becoming a general ſubſtitute for ropes.

As a preventive to theſe evils, ſays this writer, I have grooves caſt in iron pullies, of ſufficient dimenſions to receive the lower circumferences of the links of the chain, which work vertically: thoſe which work horizontally and form the gudgeon part of the chain (if we may be allowed the expreſſion,) bearing up on each ſide of the grooves.

The barrels are alſo of caſt iron, with ſpiral grooves of the ſame dimenſions, at ſuch diſtance from each other as to admit the chain to bed without the danger of a double coil; by theſe means the links are retained at right angles with each other, the only poſition for free and uniform motion.

The links of the chains are made as ſhort as poſſible, for the purpoſe of increaſing their flexibility, and they are reefed perfectly free from twiſt in the pullies and on the barrels, for the ſame reaſon.

When applied in block, the grooves in the pullies prevent the different falls of the chain from coming in contact, and render plates betwem them (as in the common way) totally unneceſſary; the pullies are in conſequence brought cloſer together, the angle of the fall from block to block conſiderably diminiſhed, and the friction againſt the plates entirely avoided. Braſs guards, with grooves oppoſite to thoſe in the pullies, are rivetted to the blocks, to prevent the chain getting out of its birth from any accidental circumſtance. This method of working chains I firſt put in practice for Meſſrs. T. W. and B. Botfield, at their works, in July 1803; and it is applied in the working of cranes capable of purchaſing from ten to fifteen tons; in the working of the governor balls of ſteam engines conſtructed by Meſſrs. Boulton and Watt, and in the raiſing of coal and ore from the mines, for which purpoſes ropes had before been ſolely uſed at this manufactory. In all caſes it has performed with the utmoſt ſafety, uniformity, and flexibility; ſo much ſo, that the prejudices of our workmen againſt chains are entirely done away, and they hoiſt the heavieſt articles with more eaſe, and as great confidence of ſafety, as they would with the beſt ropes.

The ſame method is applicable, at a trifling expence, to all machines at preſent worked by ropes, or by chains, in the uſual way: and all the common chains now in uſe, may be applied to it with equal facility.

With a view of aſcertaining the relative flexibility of ropes and chains, I wedged an iron pulley, thirty-one and a half inches in diameter, on the ſpindle of the pinion of a crane of the following deſcription, *viz.*

Barrel, 30 inches diameter.
Wheel, 64 teeth.
Pinion, 8 ditto.
Top block, with three pullies of 12 inches diameter.
Bottom block, with 2 ditto. ditto.

To the large pulley I attached a ſmall rope, for the purpoſe of ſuſpending the weights in the hoiſting of the different loads, and the reſults were as follow:

The crane was loaded with,		Took to hoiſt the loads when reefed with the chain in grooved pullies. All the experiments were tried with the ſame grooved pullies.	Ditto, when reefed with a half-worn tarred ſtrand-laid rope 3½ inches in circumference.	Ditto, when reefed with the chain promiſcuouſly, as in the common way.
	lbs.	lbs.	lbs.	lbs.
Firſt, - -	2000	63	74	80
Second, - -	1000	32	39	41
Third, - -	500	17	21	22
Total	3500	112	134	143

The flexibility is inverſely as theſe momenta, and proves the ſuperiority of chains; for (on the average of the trials with the chain in the grooves;

One pound raiſed - - - -	31.25 lbs.
With a half-worn ſtrand-laid tarred rope, three inches and a half in circumference - - - - - -	26.11 ditto.
And with the chain in the uſual way, only - - - - - -	24.47 ditto.

It alſo appears (contrary to the general opinion,) that chains are ſafer than ropes; for it is an eſtabliſhed axiom, that thoſe bodies whoſe fibres are moſt in the direction of the ſtrain, are the leaſt liable to be pulled aſunder; and in our examination of the properties of a rope, we find that the ſtrands croſs the direction of the ſtrain in undulated lines, and conſequently prevent its uniform action thereon. A rope is ſubject to this inconvenience even when ſtretched in a direct line, but more particularly ſo when bent over a pulley, as in that poſition the upper ſection moving through a greater ſpace than the under one, is acted upon by the whole ſtrain; and hence the frequent breaking of ropes in bending over pullies, from the double ſtrain overloading the ſtrands of which the upper ſection is formed.

The links of a chain are ſubject to the tranſverſe ſtrain, where they move in contact; but as ſuch ſtrain is in proportion to the length of the bearings, it muſt be very trifling. All the links having axles of their own, the chain moves ſimultaneouſly with the ſtrain, and both are in conſequence retained in continual equilibrio. A chain in grooves will therefore ſuſtain as great a weight when bent over a pulley, as it will in a direct line, and conſequently is ſafer than a rope.

The Society for the encouragement of arts, manufactures, and commerce, having for many years paſt offered premiums for improvements in cranes, have therefore a large collection of models of different ſorts. We have ſelected 3 of theſe, and have appropriated *Plate* XX. *Mechanics*, to the explanation of them. *Figs.* 1 and 2, are two elevations of a walking wheel crane laid before them by Mr. James White of Chevening, Kent, and for which he received a premium of 40 guineas in the year 1796. We have found it neceſſary to have new drawings made of this machine, as thoſe publiſhed by the learned ſociety are taken from the model left with them, and do not explain the manner in which the machine ſhould be conſtructed.

Figs. 1 and 2, are two elevations of it at right angles to each other. A A is a large wheel, about 16 feet diameter, ſtrongly framed and ſecured to its axis E, which is mounted upon pivots at its ends and inclined to the horizon in an angle of about 70 degrees, and conſequently the plane of the wheel inclines 20 degrees. The rope of the crane is coiled round the axle and paſſes over a pulley *a*, (*fig.* 1.) to the gib of the crane, which is conſtructed in the uſual method; F is a lever extending acroſs the wheel and fixed at one end into an upright axis; G H is a ſhort lever connected with an iron rod *e*, with a gripe *g*, which embraces part of the circumference of the wheel and prevents its turning, unleſs removed by puſhing the lever F; *h* (*fig.* 1.) is a cord faſtened to the gripe lever, and going over a pulley in the floor, having a weight ſuſpended from it; this always gives the gripe a tendency to ſtop the wheel, and by the weight coming up to the pulley ſtops the gripe lever from going too far, when preſſed by a man walking on the wheel. The wheel is turned by a man walking on the wheel and puſhing the gripe lever F, ſo as to releaſe the wheel which then turns (if the load be not too great) both by his weight and muſcular exertion applied againſt the gripe lever.

The wheel is ſuppoſed to be erected in a warehouſe, and an opening is made in the floor to allow the wheel to paſs through. The man walks from the floor at *k*, up the wheel, which will always be at reſt, unleſs he relieves it by puſhing the lever F. The end, *l*, of the gripe is jointed to a ſtout upright beam going from the floor to the ceiling of the room where the crane is erected, and the reſt of the gripe ſhould be hung by ſmall cords from the ceiling to prevent its falling down and getting from its work.

The properties of this crane are as follow: its ſimplicity conſiſting of a mere wheel and axle. Secondly, its only friction, excluſive of the pullies, is that on the two gudgeons of the ſhaft; and one of theſe ſupports the weight of the wheel, and of the man that works it, nearly in the direction of its point. Thirdly, it is durable, as is evident from the two properties above-mentioned. Fourthly, it is ſafe, for it cannot move but during the pleaſure of the man, and while he is actually preſſing on the gripe-lever. Fifthly, this crane admits of an almoſt infinite variety of different powers; and this variation is obtained without the leaſt alteration of any part of the machine. If, in unloading a veſſel, there ſhould be found goods of every weight, from a few hundreds to a ton and upwards, the man that does the work will be able ſo to adapt his ſtrength to each as to raiſe it in a ſpace of time proportionate to its weight, he walking always with the ſame velocity as nature and his greateſt eaſe may teach him. It is a great diſadvantage in ſome cranes, that the ſmalleſt weight muſt be as long in riſing as the largeſt, unleſs the man turn or walk with a greate velocity, which tires him in ſtill greater proportion.

In other cranes, perhaps, two or three different powers may be procured; to obtain which, ſome pinion muſt be ſhifted, or freſh handle, applied or reſorted to. In this crane, on the contrary, if the labourer find his load ſo heavy as to permit him to aſcend the wheel without its turning, let him only move a ſtep or two toward the circumference, and he will be fully equal to the taſk. Again, if the load be ſo light, as ſcarcely to reſiſt the action of his feet, and thus oblige him to run through ſo much ſpace, as to tire him beyond neceſſity, let him move laterally towards the centre, and he will ſoon feel the place where his ſtrength will ſuffer the leaſt fatigue, by raiſing the load in queſtion.

It has been before obſerved, that, if left alone, this crane will naturally reduce itſelf to a ſtate of reſt, even though a weight were ſuſpended to it. The means will appear to be the gripe, or brake at the top, and its lever, which ſtretches acroſs the diameter of the wheel, at the height of a man's breaſt, when in an attitude of treading the wheel to the beſt advantage.

The next crane of the Society's which we ſhall deſcribe, is one for which Mr. John Braithwaite received their gold medal. The deſcription publiſhed in the *third volume* of their Tranſactions, is as follows:

The frame, which is wholly of caſt-iron, is formed of two circles, held together by three ſcrewed bars, and ſtanding on four feet; the crane wheel, which is incloſed within the frame, conſiſts of three concentric toothed face-wheels, joined together by ſtrong bars, whoſe axle is the barrel, on which the rope is coiled; in the front of the face-wheels runs a ſhifting arbor; on this arbor is a pinion, which may be brought to work in the teeth of either of the face-wheels, and thereby the power employed at the winch may be applied to raiſe a greater or leſſer weight occaſionally. ABCDE, *figs.* 3 and 4, is a frame of caſt iron; F, G, H, three concentric face-wheels, united together by the eight ſtraight bars, *a, a, a;* I K a ſliding arbor, on which is fixed a pinion L; M the winch or handle; N a ſtop, which, when lifted up, permits the ſliding arbor to be moved backward or forward; but, when down, retains it in its proper place; O a pall, or ſtop, which prevents the crane running back, but may be diſcharged at pleaſure; P the barrel on which the rope is coiled.

We think a great improvement might be made in this machine, by putting on the arbor, I K, three pinions, one for each wheel; they ſhould all be put looſe upon the arbor, but either of them may be eaſily fixed to turn with it by a ſliding coupling iron; which will only admit of one being engaged at a time. The wheels might then be beviled, which are found, by experience, to work better than the face-wheels; and the ſliding of the arbor obliges it to be of greater length than neceſſary, and more liable to be ſtrained or bent; we have ſeen ſuch a contrivance in other machines which acted very well.

Fig. 5, is a contrivance of Mr. Joſeph Dixon, for which the Society preſented him with 15 guineas in 1793, which he calls a preſervative-wheel; it is intended to be applied within-ſide of an ordinary vertical wheel, where the men walk in the inſide, to prevent the danger to which they are continually expoſed, by the load being too great for them; the wheel then runs back, and throws them about in the wheel, and frequently kills them. A E is the axis, or ſpindle of the walking-wheel; the arms are mortiſed into it at *aa;* E is the part where the crane rope winds; B, B, are two wheels fixed on the axis, and having at their peripheries ſix pullies, over which ropes run, that are faſtened at their extremities to two ſegments of circles C, C; theſe are united together by a wooden bar D, which the men are to lay hold of and ſuſpend themſelves by in caſe of danger.

This machine would completely obviate the danger to which the men who work in theſe wheels are expoſed, but it would, at the ſame time, increaſe the danger to thoſe employed in other parts, as the men within the wheel would, by hanging themſelves to the bar D, remove all obſtructions to the wheel's motion, and, without ſome other contrivance of a brake-lever, the wheel would run down ſo rapidly by the action of the load as to expoſe thoſe at the gib, and other parts, to great danger.

Mr. Ferguſon contrived a crane (already deſcribed) to remove the ſame defect, where the walking-wheel had a ring of cogs round its outſide, working into a pinion, on whoſe axis was a brake and racket-wheel, with a winch at the end for the man who managed the brake to aſſiſt occaſionally in raiſing the load. But the rapid motion of the circumference of theſe large wheels, in moſt caſes, renders this contrivance inapplicable, unleſs a ſmaller cog-wheel was fixed upon the ſame axis with the walking-wheel.

Fig. 1, of *Plate* XXI. is a gib for a crane invented by Mr. Bramah, and deſcribed by him in Nicholſon's Journal, 8vo. vol. viii. p. 99. The ſupport for the gib is a hollow pipe or column, A, firmly fixed by a ſquare flanch, bolted to beams in the ground, and the rope for the crane paſſes through this pillar. The gib of the crane has two ſockets, *a, a,* fitting to the pillar, ſo that it can turn all round. A pulley, *b,* is fixed on the back of the gib and its edge hangs juſt over the centre of the column: *d* is the pulley at the end of the gib. The crane rope, after going over the pullies *b, d,* paſſes down the column, and goes round another pulley, to convey it to the crane-work, which may be of any of the kinds we have deſcribed.

Fig. 2, is a very good kind of crane, as it requires no framing over it; it turns round upon a ſtrong vertical beam, A B, moving between rollers fixed in the floor of the wharf at B, and going down below that 12 or 14 feet, where it works on a pivot. The beams of the gib are mortiſed into the beam A B; the wheels are mounted in a frame formed by two caſt iron croſſes bolted to the beam, one on each ſide; the barrel is one foot diameter; the great wheel has 100 teeth, and is four feet diameter; the ſecond wheel has 31 teeth; and the laſt pinion ſeven leaves. The winches can be applied to any of the wheels for different powers, when it is uſed on the barrel, or ſecond wheel; the others are put out of geer by ſliding their ſpindles endways. The barrel and pullies ſhould always be grooved, as in Mr. Smeaton's crane, where chains are uſed, though this is not ſufficiently attended to by Mechanics.

Fig. 3, repreſents the tongs by which logs of timber are taken up with a crane, and the greater weight they bear the better they hold. *Figs.* 4 and 5, are two elevations of a crane by Mr. Valentine Gotlieb of Lambeth Marſh, London. The barrel, A, has a wheel fixed to it at each end; one, *a,* has 96 teeth, the other 90; *b* is an arbor with two pinions on it of eight teeth for the wheel 96, and another of 14 for the wheel 90; theſe pinions are at a ſmaller diſtance apart on their arbor than the two wheels, ſo that they cannot be both engaged to the wheel at once, and by ſliding it an end either wheel and pinion may be uſed for different work; *e, f,* are two ſtops to hold it in either one; *h* is a fly on the ſame arbor *b,* and *e* the handle. The original part of the crane is the gib; it is a large beam, H, placed horizontally, and running upon a roller at *k,* and its other end kept down by another at *l;* it has a pulley at its outer end, over which the rope paſſes. The underſide of the beam is cut into teeth, forming a rack, and a pinion of eight leaves, on the ſame arbor as the wheel *m,* moves the beam, ſo as to bring the goods ſuſpended from its end into the houſe. H is the wall of the warehouſe, and the wheels are ſuppoſed to be placed in the roof. The wheel *m,* and the fly wheel, have endleſs ropes going round them to work the crane by, in the room below, if neceſſary.

CRANE, in *Ornithology*, the ARDEA *grus* of Linnæus and Gmelin. For an account of the birds that are referred to this claſs or diviſion in the arrangement of Gmelin; ſee GRUES. For other ſpecies of the Ardea, ſee CICONIA and STORK, CRISTATÆ, and HERONS.

CRANE'*s bill*, a kind of forceps uſed by ſurgeons, and ſo named from its figure.

CRANE'*s-bill*, in *Botany*. See ERODIUM, GERANIUM, PELARGONIUM.

CRANE-*fly*, a name given by ſome to the creature we commonly call *father long-legs;* and the authors of hiſtories of inſects, TIPULA *terreſtris*. This creature affords the microſcopic obſervers many curious particulars; but the moſt remarkable is, the ſurpriſing contraction of the muſcular fibres in the legs. Theſe being diſſected in a drop of water, and placed before the microſcope, the fleſhy fibres contract and diſtend themſelves in a manner not to be imagined, and continue this motion for ſeveral minutes; and this is conſtantly to be obſerved in this inſect, and never in any other, ſo far as has been yet obſerved. Leewenhoeck, Arcan. Nat. tom. iii. p. 109.

The inteſtines of this creature are alſo very wonderful, conſiſting of numberleſs veſſels and organs, which may be ſeen as plainly by the microſcope, as the bowels of larger animals can by the naked eye. The tails both of the male and female are alſo of an amazing ſtructure; the female's ends in a ſharp point, with which ſhe perforates the ground, and depoſits her eggs under the graſs in meadows.

CRANE *lines*, in a ſhip, are lines going from the upper end of the ſprit-ſail-top-maſt, to the middle of the fore-ſtays; ſerving to keep the ſprit-ſail-top-maſt upright and ſteady.

CRANE-*neck* of a carriage. See COACH.

CRANENBOURG, in *Geography*, a ſmall town of France, in the department of the Roer, chief place of a canton in the diſtrict of Cleves. It has only 955 inhabitants. The canton itſelf contains fifteen communes, with a population of 4641 individuals. The town formerly belonged to the Pruſſian duchy of Cleves in Weſtphalia, which at preſent forms part of the department of the Roer.

CRANEQUINIERS, or CRANEQUIERS, in *Military Language*. Before the invention of gunpowder this name was given to ſoldiers who were armed with bows, and made uſe of an inſtrument called *Cranequin* for bending them. The dukes de Bourgoyne had uſually ſix hundred cranequiniers in their ſuite.

CRANEY, in *Geography*, a ſmall iſland on the S. ſide of James river, in Virginia, at the mouth of Elizabeth river, and 5 miles S.W. of Fort George, on Point Comfort. It commands the entrance of both rivers.

CRANFIELD, a rectory in Bedfordſhire, in the hundred of Redbornſtoke: this village is ſituate upon ſtrong clay land, and is remarkable for the deep and miry ſtate of its roads, although its ſituation is very high: the ſpire on its ſteeple is a very commanding object, whoſe place was determined by the government trigonometrical ſurvey in 1799, by an obſervation from Bowbrich-hill ſtation, diſtant 29,599 feet, and bearing 30° 44′ 22″ S.W. from the parallel to the meridian of Greenwich, and another from Lidlington-park ſtation, diſtant 19,526 feet, whence is deduced its latitude 52° 4′ 3″.1 N. and its longitude 0° 36′ 11″.1, or 2′ 24″.7 W. of Greenwich

Cranfield *point* is the N. point of the entrance into Carlingford bay on the eaſt coaſt of Ireland. N. lat. 54° W. long. 6° 0′ 30″.

CRANGANORE, a town of India, in the country of Cochin, on the coaſt of Malabar, with an irregular fortreſs built by the Portugueſe, from whom it was taken by the Dutch in 1662; the Dutch ſold it in 1789 to the rajah of Travancore; which cauſed a war between the Engliſh and Tippoo Sultan, king of the Myſore, who diſputed the right of the Dutch to diſpoſe of it. It was taken by Hyder Ali, and retaken by the Engliſh in 1790. N. lat. 10° 23′. E. long. 75° 58′.

CRANGEN, a ſmall town of Pruſſia, in Ulterior Pomerania, with a caſtle, ſituated on the river Grabow.

CRANGON, in *Entomology*. See Cancer *Aſtacus*.

CRANIA, in *Ancient Geography*, a mountain of Greece, in Etolia, near the city of Ambracia, according to Pliny. This mountain gave name to a country. Steph. Byz.

CRANICHIS, in *Botany*. Schreb. 1374. Swartz. Prod. 120. Swed. Tranſ. 1800. p. 113. Claſs and order, *gynandria monandria*. Nat. Ord. *Orchidiæ*, Linn. Juſſ.

Gen. Ch. *Cal.* Spathes vague. Perianth none. *Cor.* reſupinate, ſomewhat ringent. Petals five; *three* exterior; *two* of them lateral, ſuperior; *one* anterior, inferior; nearly equal, erect, ſpreading; *two* lateral, interior, ſcarcely leſs: lip of the nectary (uppermoſt in ſituation) between the lateral ſuperior petals, vaulted, egg-ſhaped, ſomewhat keeled, often bifid at the baſe, tender, covering the parts of fructification. *Stam.* Anther parallel to the ſtyle, affixed behind, erect, acuminate, two-celled; pollen maſſes oblong, nearly ſeſſile, pulverulent. *Piſt.* Germ inferior, egg-ſhaped, oblique; ſtyle erect, dilated in the middle, membranous at the tip, acuminate; ſtigma before (towards the lip) ſomewhat concave. *Peric.* Capſule oblong or inverſely egg-ſhaped, attenuated at the baſe, trigonous, three-keeled, one-celled, opening under the ribs, cohering at the tip and baſe. *Seeds* numerous, very ſmall, like ſawduſt, affixed to a columnar receptacle.

Eſſ. Ch. Corolla reſupinate, ſomewhat ringent. Lip of the nectary vaulted. Anther parallel to the ſtyle, affixed behind, erect, acuminate, two-celled.

Sp. 1. C. *aphylla*. Swartz, fl. ind. occid. 3. 1421. "Without leaves; roots faſcicled, cylindrical, acute; ſtem roundiſh; petals connivent." 2. C. *diphylla*. "Roots faſcicled, filiform, naked; leaves in a pair, petioled, heart-ſhaped, acute; ſtem almoſt naked." 3. C. *oligantha*. "Roots faſcicled, club-ſhaped; leaves petioled, oblong, acuminate, ſhining; ſtem nearly naked; ſpike filiform; petals connivent." 4. C. *ſtachyodes*. "Roots faſcicled, cylindrical, obtuſe; leaves petioled, egg-ſhaped, acuminate; ſtem ſheathed; petals revolute." 5. C. *muſcoſa*. "Roots faſcicled, filiform, tomentous; root-leaves petioled, egg-ſhaped; ſtem ones ſheathing; lip dotted within. 6. C. *pauciflora*. "Roots faſcicled, cylindrical, villous; leaves nearly ſeſſile, oblong, acute; ſtem few-flowered, pubeſcent at the top. All the ſpecies are natives of Jamaica.

CRANII, in *Ancient Geography*, a town of the iſland of Cephallenia, ſituated towards the weſt in a ſmall gulf.

CRANIOLARIA, in *Botany*, Linn. See Martynia and Gesneria.

CRANIOLARIS, in *Natural Hiſtory*, a ſpecies of Amonia, with an orbiculated ſhell, found very rarely in the Mediterranean ſea, and near the Philippine iſles; more frequently foſſile. Alſo a ſpecies of Echinus found in India.

CRANIOLOGY is one of the terms uſed by Dr. Gall of Vienna, and his followers, in order to denote their doctrine concerning the form of the cranium as connected with the different faculties of the mind, and with the paſſions and propenſities that characteriſe different individuals.

The ſcience of craniology, in the above-mentioned ſenſe, is of very recent origin; but it has ſo ſtrongly attracted the attention of the public, particularly on the continent, where it was firſt promulgated, that we think it neceſſary to exhibit, in the preſent work, a view of the real or pretended diſcoveries which have been made on this ſubject.

Concerning Dr. Gall, the author of this ſyſtem, who is ſaid to be a phyſician of conſiderable practice, and generally eſteemed in Vienna, we are informed, that from his earlieſt infancy, natural hiſtory was his favourite ſtudy; and his greateſt delight conſiſted in collecting plants and animals of every kind, and claſſing them, not according to the method pointed out in books of ſcience, but according to their obvious and ſenſible differences. As he grew up, he fixed upon medicine to be his profeſſion, and was led by an impulſe, which he conſiders as the reſult of his peculiar organization, to the habit of obſervation and compariſon.

He was very early induced to remark the various ſhapes of the heads of his companions and fellow ſtudents, and to connect theſe peculiarities with their moral and intellectual character. Having remarked in ſome caſes a ſtriking conformity between the general form of the heads of thoſe who alſo reſembled each other in mind and temper, he inferred the general character from the general ſhape of the ſkull; but unfortunately he found, on further examination, as ſtriking a diſagreement as he before remarked a certain correſpondence in theſe obſervations. This forced him to retract his former general inferences, and to be more preciſe in his remarks. He then began to direct his attention to the individual parts of the ſkull, and here he found leſs inconſiſtency in his particular deductions; but he was frequently forced to ſhift his ground in aſſigning the local organ he aſſumed. At the ſame time he called to his aid the obſervations of comparative anatomy and profeſſional experience; and after many years of long and conſtant obſervation, he thinks himſelf juſtified in giving the reſult to the public, as facts proved by experiment, not as principles or rules ſuſceptible of demonſtration.

As ſoon as the firſt vague notions were formed by him, he very laboriouſly employed himſelf in collecting ſkulls of every deſcription, which is much more eaſy in Germany than in England. He cauſed models to be taken in gypſum of living characters of eminence. He made great collections alſo of ſkulls of animals, and founded a cabinet of great extent and worth. As his ideas became more exact, he gradually made them known, and delivered lectures on the ſubject. At length his fame reached the court, and the Auſtrian government, under that fatal adminiſtration of bigotted and weak prieſts, which has at length brought down deſtruction on it, and threatens to involve the ruin of all civilized Europe, thought it right to interfere. Gall was interdicted lecturing, becauſe his doctrine was ſaid to lead to materialiſm and atheiſm. However, he had already a numerous party of adherents who had intereſt at court; ſome foreign ambaſſadors, it is ſaid, intereſted themſelves in his favour, and he was allowed to read before foreigners only; that is, Auſtrian ſubjects were forbidden to attend his lectures.

At length, various unauthorized publications having been ſpread about the northern ſtates of proteſtant Germany, and the public curioſity being excited, Gall reſolved to deliver his lectures at the principal univerſities and large cities in the north of Germany. In his tour he delivered lectures at Dreſden, Berlin, Halle, Jena, Weimar, Gottingen, Hamburgh, &c. He was every where received with the diſtinction men of letters enjoy in Germany, and was invited to table at the little courts where he remained; a ſort of criterion in that country, determining the rank and reſpectability of an individual. Thus he fulfilled the double purpoſe of enlarging the field of his own obſervation, and of conferring with profeſſional men concerning his doctrines. That theſe latter gentlemen were in general not forward to oppoſe or confirm his theory in his preſence, may be readily conceived. The conteſt generally began when the profeſſor was departed. Every where a conteſt aroſe; but, I believe, ſays one of his auditors, in moſt places the majority were againſt our lecturer.

In preſenting to the public a view of this ſyſtem, we labour under the diſadvantage of having no delineation of the ſubject from the author's own hand. Gall has declared his reſolution not to write till he ſhall have completed a ſeries of expenſive and laborious engravings which are now preparing, when he purpoſes to give to the world a voluminous, ſplendid, and, as he thinks, deciſive work. We muſt be contented, in the mean time, with the accounts publiſhed by ſome of his auditors. The moſt authentic of theſe are the following: "Lettre de C. Villers a G. Cuvier, ſur une Nouvelle Theorie du Cerveau," Metz. 1802, of which the reader will find a very good analyſis in the Edinburgh Review, No. III. art. 15. "Repreſentation of Gall's Theory of the Brain and Cranium, by C. H. Biſchoff, profeſſor of Anatomy at Berlin; with Remarks by Dr. C. W. Hufeland, director of the Medico-Chirurgical College," Berlin, 1805, 8vo. in German. It is chiefly from the latter work that an Engliſh account of the ſubject, entitled, "Some Account of Dr. Gall's New Theory of Phyſiognomy, founded upon the Anatomy and Phyſiology of the Brain, and the form of the Skull," London, 8vo. 1807; is derived; the author of which ſtates, likewiſe, that he has attended Gall's lectures, on whom he makes the following remark; "he ſeems to poſſeſs the faculty of obſervation in a much higher degree than that of reaſoning. He has acuteneſs in obſerving the individual appearances of nature, but is not always happy in the formation of general notions; and I fear, too, that he is obnoxious to the poet's couplet;

> "To obſervations which ourſelves we make,
> We grow more partial for the obſerver's ſake."

He forms his premiſes readily, but he makes his deductions incorrectly." Two pamphlets in oppoſition to the new doctrine have been publiſhed by profeſſor Walter of Berlin; of which, as well as of Biſchoff's work, an analyſis may be ſeen in the Edinburgh Medical and Surgical Journal for July 1806. Theſe are the ſources from which the following ſtatement of Gall's doctrines is derived.

Gall thinks that he has made ſome important diſcoveries reſpecting the ſtructure of the brain, which, as they are not at all intereſting to the general reader, and do not affect the craniologic part of the ſyſtem, we ſhall paſs over very ſlightly. He was led to conſider the brain as a membrane, and not as a pulpy ſubſtance, as it has hitherto been ſuppoſed, from obſerving that the intellectual faculties remained unimpaired in caſes of hydro-cephalus internus, where a quantity of water is collected in the ventricles, and the whole ſubſtance of the brain ſometimes becomes diſtended to a membrane, ſcarcely a line in thickneſs. Other pathological facts, ſuch as the paralyſis of the extremities, in conſequence of injuries done to the hemiſpheres of the brain, induced him to remark, that an uninterrupted connection muſt exiſt between theſe parts and the ſpinal marrow. With the view of tracing this connection, and at the ſame time to demonſtrate the membranous ſtructure of the brain, he engaged in a ſeries of anatomical reſearches for many years, till at laſt he had the ſatisfaction of finding his conjectures verified by anatomical diſcoveries. He attributes his ſucceſs to his manner of diſſecting the brain from the lower parts, beginning with the cerebellum and ſpinal marrow, and going upwards, inſtead of following the uſual cuſtom of beginning the demonſtration at the external ſuperior parts, and ſlicing downwards; and, inſtead of a knife, which cuts and deſtroys the relative ſituation of the ſeveral parts, he employs the handle of a diſſecting knife, or ſome blunt inſtrument, and unravels, as it were, the different circumvolutions of which the cerebrum and cerebellum are compoſed. The chief reſults of his anatomical inveſtigations are, that the whole of the medullary ſubſtance of the cerebrum and cerebellum conſiſts of nervous fibres, and the whole of the cortical ſubſtance of ganglions, by means of which the nervous fibres are nouriſhed, ſtrengthened, and more intimately connected. That the nerves which conſtitute the eſſential part of the cerebrum and cerebellum, as well as of the ſpinal marrow, are, like the blood-veſſels, of two kinds; the excurrent or diverging, and the recurrent or converging, which all ariſe from the ſpinal marrow, or terminate in it, conſequently, that the origin of the medullary ſubſtance of the cerebrum and cerebellum is derived from the ſpinal marrow. That the cortical ſubſtance is the ſuperficial ganglion of the cerebrum and cerebellum; and that all the excurrent nerves terminate in the outer ſurface of the cortical ſubſtance, on which the pia mater reſts, and all the recurrent nerves take their origin at this place.

Anatomiſts have uſually thought that the medulla oblongata, the medulla ſpinalis, and pons varolii, are formed by elongations of the ſubſtance compoſing the cerebrum and cerebellum. Gall aſſerts directly the reverſe; it is true, he goes the very oppoſite way to work, to demonſtrate this intricate ſtructure. Walter declares that there is no truth in what Gall pretends to have found out; the preparations diſplayed, and the ſtructure deſcribed, are only the fictions of his fancy, and he proteſts that he ſaw nothing of what was ſaid to be ſo clearly proved. Other perſons, equally capable of judging, and perhaps more quick-ſighted, not only ſaw what Gall propoſed to ſhew, but do juſtice to the accuracy of his obſervations, by acknowledging their firm conviction of their truth. In Biſchoff's work, the names of Loder and Reil, two very eminent men in the univerſity of Halle, are brought forward to ſupport the claims of Gall. Loder writes in terms of great praiſe, and communicates a caſe illuſtrating a part of Gall's new obſervations, at the ſame time acknowledging the want of a ſufficient number of facts to confirm the theory of the different organs, and declaring himſelf a champion in the purſuit of truth. The controverſy is now in the hands of thoſe beſt qualified to judge its merits; by the obſervations of diſtinguiſhed anatomiſts, the whole fabric of fame and future utility muſt ſtand or fall, and the reputation of Dr. Gall will be eſtimated accordingly.

The brain is in general univerſally underſtood to be the organ of thinking. But thinking is only a general term, including a vaſt variety of intellectual phenomena, and the brain is a very complicated organ. Shall we then, ſays Gall, reſt contented with the general aſſertion, that the brain is the organ of mind? or ſhall we not rather, looking more narrowly into the ſtructure of the brain, conſider apart, in their relation to mind, thoſe of its parts, which are anatomically ſhewn to be diſtinct, in the ſame manner as the brain, conſidered as one ſimple ſubſtance, has formerly been contemplated? We ſhall perhaps find that this more minute reſearch is but a reaſonable purſuit of the enquiry ſuggeſted by the firſt general obſervation Gall profeſſes to have made this inquiry, and to have found that we ought not to content ourſelves with conſidering the brain as the organ of thought, but as a congeries of diſtinct organs, the exiſtence of which alone renders that great variety and diverſity of talents poſſible, which diſtinguiſh the different individuals of the ſame ſpecies hardly leſs ſtrikingly from each other, than man himſelf is diſtinguiſhed from every other ſpecies of beings we know.

Every one of thoſe nervous ſtreaks perceived in the great ganglion of the brain, makes a particular circumvolution of the hemiſpheres, and is to be conſidered as the organ of a particular function of the mind; that is, each ſtreak may be looked upon as a part on which the mind operates according to a determined degree of force, and its ſtructure is ſo organized as to receive the impreſſions communicated to it. The phyſiologiſt has obſerved in the animal creation, that the nerves of thoſe animals which are diſtinguiſhed for ſmelling, ſeeing, hearing, &c. are marked by being numerous and large, evincing a more elaborate developement. And having been accuſtomed to ſee the olfactory, optic, and auditory nerves in animals proportionally large to the perfection of the ſenſes they ſeverally furniſh the individual with, he will draw the general inference, that wherever any organ is met with in a higher ſtate of developement, there we may expect to find the power dependent on it, in correſponding energy. But the living brain can never be expoſed to obſervation; and from the nature of its ſubſtance, loſes much of its form and texture ſoon after the death of the ſubject.

The inference of the phyſiologiſt concerning the organs of the brain, would therefore avail him but little, unleſs ſome certain connexion were aſcertained between the brain, and its permanent covering, the ſkull. This connexion is aſſerted in the following fundamental poſition; "that the internal lamina of the ſkull is, during the life of man, perpetually formed by the brain itſelf; and that, therefore, where the internal and external plates of the ſkull run parallel, we may infer the form of the brain from the outward ſhape of the ſkull."

On this fact, and on that before ſtated, that each of the circumvolutions of the cerebrum conſiſts of an organ of ſome intellectual or ſenſible power, the greater ſize or developement of which would of courſe give the ſkull its peculiar ſhape, reſt the ſciences of *craniology* and *cranioſcopy*; the one of which aſſerts, that the ſhape of the ſkull indicates the law, by which, not the actual character, but the tendencies and diſpoſitions towards character in men, are determined; and the other aſſerts, that that law can be diſcerned and aſcertained by contemplating the ſhape of the ſkull. We are not to expect to perceive the already developed faculty of the mind, by mere obſervations made on the ſkull; it is the tendency only, or aptitude, or poſſibility of any particular intellectual quality in any individual, that can be diſcovered; and beſides, all the prediſpoſitions cannot be ſelected by looking at the ſkull, becauſe many of the ſuppoſed organs cannot influence the ſhape of the bones, in conſequence of their remote ſituation.

All the organs, hence all the prediſpoſitions, both in men and animals, are ſaid to be innate.

The functions of the brain are threefold: 1ſt, organic life; 2dly, ſenſitive life; and 3dly, intellectual life. A particular part of the brain is aſſigned to each of theſe functions; it is only in conſequence of the ſize of the hemiſpheres (the part appropriated for the laſt of theſe functions) that man has the largeſt brain, and not becauſe the ſize of the human brain is greater in proportion to the reſt of the body, as hitherto generally ſuppoſed, nor on account of the comparative thickneſs of the nerves, as Soemmerring has obſerved. To prove that the organs of thought are placed in the hemiſpheres of the brain, theſe parts are ſaid to be larger, and more completely developed, in different claſſes of animals, in proportion to their intellectual faculties; and they are moſt perfect in man.

The arguments brought forward by Gall in proof of the plurality of organs in the brain, are, 1ſt, the ſenſe of fatigue, ariſing from the mind being long employed in one ſubject of contemplation; and the relief and delight we experience in variety; 2dly, the various degrees in which the different faculties are poſſeſſed by the ſame individuals; 3dly, the loſs of certain faculties and powers of the mind from wounds, diſeaſes, &c. affecting certain parts of the brain.

It may be uſeful to ſtate more preciſely the rules of obſervation, by which Gall challenges the public, and particularly profeſſional men, to try his ſtatements: having faith in the uniformity of nature, truſting that what he has long uniformly ſeen, others will alſo invariably remark. 1. By a cloſe obſervation of living perſons in a ſtate of health, carefully feeling, and correctly noting, the eminences on the ſkull, each of which he conſiders as an organ, uſing that term in expreſſing the *continens pro contento*; and conſidering that only as ſkull which immediately covers the brain.

This obſervation has taught Gall, that perſons eminent for certain talents have certain eminences on the ſkull, the ſeats of which are capable of being aſcertained and pointed out: while thoſe who are altogether deſtitute of ſuch talents, have a ſinking or depreſſion of the ſkull at this part. In order to make this experiment with ſucceſs, Gall recommends it to be tried, not on common every day perſons, but on thoſe who are marked by ſtrong peculiarities of mind and character: for perhaps every man has every kind of talent and tendency, though in ſo ſlight a degree as to be unproductive of any effects, from the ſtronger influence of other powers: hence the difficulty of determining the peculiarities of thoſe who manifeſt mediocrity in all things, eminence in none. He alſo prefers ſubjects uneducated and uncultivated, as the natural tendencies of their character have been left more to themſelves, while the poliſh of ſocial life tends to rub off the prominent peculiarities of individual formation. In feeling for the organ, he recommends the uſe, not of the fingers, but of the middle of the palm of the hand: and declares that habit, as well as a certain natural delicacy of touch, is neceſſary to qualify a perſon to make theſe obſervations with certainty of ſucceſs. 2. But ſome of the organs lie at the baſis of the ſkull, and on its lower ſurface; theſe muſt be ſought for after the death of the ſubject. 3. The obſervation of perſons during a ſtate of diſeaſe. This is particularly applicable to diſeaſes of the intellect.

Inſanity is, in the opinion of Dr. Gall, a diſeaſe of the brain; and as we obſerve a ſort of partial inſanity, ſo he is of opinion that parts of the brain may ſuffer a peculiar affection, while the other parts are left comparatively in a healthy ſtate; but that the whole brain muſt be in a very dangerous condition, is as obvious as the want of confidence in a perſon lunatic, or partially inſane. Suppoſing there is in the brain generally a tendency to diſeaſe, Gall is of opinion that the prominent and eminently developed organ would be peculiarly liable to be affected. Hence Gall aſſerts an ability at all times to determine, upon an examination of the ſkull of a lunatic, in what way his inſanity betrays itſelf, even if ſuch lunatic ſhou'd have avoided every actual expreſſion of it. In mad perſons, who have fancied themſelves to be God, or Jeſus Chriſt, or at leaſt inſpired prophets, as well as in thoſe who ſuffer the agonies of religious deſpair, he has uniformly found the organ of theoſophy. Thus it is that the fixed ideas of the inſane are determined by their organ: and wherever any organ is found in a very high degree, there is always danger leſt a diſeaſe of the brain ſhould produce a correſponding madneſs: at the ſame time, it is poſſible, that where the profeſſion and habits of men lead them to exerciſe a particular organ, and ſet it in a condition of great activity, though by nature there may be no peculiarly marked organ, yet that the diſeaſe may fix upon the organ ſo put into activity. And as the influence of life and habit upon the organ is as ſure as that of the organ upon life, Gall adviſes that in many caſes perſons ſhould try to reſiſt the tendency of their minds, by following purſuits altogether the reverſe: for inſtance, if he knew a young man of a melancholy turn of mind, full of nervous ſenſibility, conſcientious and ſcrupulous, in whom alſo the organ of theoſophy ſhould be found in a high degree, inſtead of allowing him to follow what would probably be the bent of his inclination, the profeſſion of divinity, he would urge him, on the contrary, to purſue an active life. This obſervation has led Gall to the application of cooling remedies on that part of the ſkull where the organ lies, from the diſeaſed activity of which, the diſorder proceeds: it being the ſame thing whether we affect the habits of thought and ideas, by diminiſhing the activity of the phyſical organ producing them, or whether we diminiſh the activity of the organ, by forcing the mind to other purſuits; that is, by rouſing other powers, and ſetting other organs in motion.

4. By obſerving the influence which wounds and injuries of the brain have upon the intellectual powers and inclinations of men. 5. The compariſon of the ſkulls of animals with their powers and qualities; and alſo of both theſe with the ſkulls and powers of men. 6. Impreſſions in gypſum of heads and ſkulls.

The organs of which Gall ſuppoſes that he has diſcovered the ſeat in the human cranium are twenty-ſix in number; and are divided by him into three claſſes.

I. Thoſe by which man is immediately enabled to enter into connection with the external world.

1. The organ of ſexual love, at the lower and back part of the head. 2. The organ of parental and filial love, and the animal *ſtorge*, at the upper portion of the occiput. 3. The organ of friendſhip or fidelity, between the ear and back of the head. 4. The organ of fighting, a little above and behind the ear. 5. The organ of ſlaughter lies before and above the preceding organ of fighting, occupying the ſquamous edge of the parietal bone. 6. That of addreſs or cunning, is before and above the latter, and is ſeated in the ſphenoid angle of the parietal bone. 7. That of cupidity is the organ of addreſs, continued almoſt to the eyes. 8. Of good-nature, in the centre of the upper part of the forehead. 9. Of mimickry or imitation, at the ſide of the organ of good-nature. 10. Of vain-glory or vanity, at the back of the parietal bone, and at the ſide of the organ of loftineſs. 11. Of conſtancy or firmneſs, in the middle of the top of the ſkull, where the frontal angles of the parietal bones meet.

II. The ſecond claſs of organs includes thoſe by which we are enabled to acquire a more familiar acquaintance with objects, which are known to us by means of the external ſenſes.

12. Organ of aptneſs to learn and retain things, lies immediately over the root of the noſe, betwixt the two eyebrows, upon and above the glabella. 13. Of aptneſs to learn and retain places, fills that half of the eyebrow which is towards the noſe. 14. Of aptneſs to recollect perſons, (doubtful) at the upper part of the inner ſide of the orbit. 15. Of the ſenſe of colour, lies in the ſuperciliary arch, on the outſide of the organ of taſte. 16. Of aptneſs to learn and retain muſic, above and behind the exterior angle of the eye, where it adjoins the organ of cupidity. 17. Of aptneſs to learn and retain numbers, is placed on the outſide of the organ of muſic, at the extreme end of the arch of the eyebrow, and at the exterior upper angle of the orbit of the eye. 18. Of aptneſs to learn and retain words, at the upper and back part of the orbit, producing in the living ſubject a prominent or goggle eye. 19. Of aptneſs to learn and retain languages, on the upper and anterior part of the orbit, ſo as to depreſs the eye, and make it appear rather hanging than prominent. 20. Of mechanic art, behind the organ of number, and below the point where the organs of muſic and cupidity meet. 21. Of prudence or circumſpection, about the middle of the ſide of the head, or nearly in the centre of the parietal bone. 22. Of loftineſs, at the back of the top of the head; *i. e.* at the poſterior part of the ſagittal ſuture.

III. The third and laſt claſs of organs, are thoſe which conſtitute the peculiar prerogatives and glory of the human race, and which more eminently raiſe man above the brute creation. They all lie on the crown of the head, or on the forehead, that auguſt feature which the poet conſiders as the glorious characteriſtic of humanity. The forehead riſes in animals as they are advanced in the ſcale of intellect, but it is in man alone that the front aſſumes that graceful ſwell which is no leſs beautiful to the eye of taſte, than ſignificant to the phyſiognomiſt.

23. The organ of rhetorical acuteneſs lies on the middle of the forehead, above the organ of things, and beneath that of good nature. Theſe three organs follow each other therefore in a ſtraight line drawn from the glabella to the ſagittal ſuture. 24. Of metaphyſical ſubtlety; on each ſide of that of rhetorical acuteneſs; ſo that when ſtrongly marked with the laſt organ, a prominent round ſwelling is formed. 25. Of wit: at the outſide of the laſt mentioned organ. 26. Of theoſophy, in the centre of the top of the forehead.

To enter into a detailed conſideration of all theſe organs, would extend the preſent article beyond its juſt limits; we ſhall therefore tranſcribe the account of one or two of the organs in order to give the reader a general notion of the kind of proof and illuſtration on which the theory of cranioſcopy is founded.

"The organ of ſexual love (ſays Gall) is placed in the cerebellum. It compriſes that part of the *os occipitis*, which lies below the *linea ſemicircularis inferior*, towards the great occipital hole, and in living ſubjects, therefore, is to be judged of only by the thickneſs and breadth of the throat and neck. It appears double on the ſkull; though the two organs and eminences of the cerebellum join, yet each produces a ſwelling apart on the ſkull, occaſioned by the *criſta occipitalis interna*, which lies between them.

"As the ſexual paſſion ariſes, this part of the brain grows in diſproportion to the other parts; and when, by caſtration, the purpoſes of nature in the formation of this organ are defeated, we find that it ceaſes to develope and perfect itſelf. It is obſervable in all who have ſuffered this operation when young, that the back part of the ſkull, as it were, ceaſes to grow; the neck is narrow, and the voice, whoſe ſeat is in the throat, loſes its manly vigour.

" This remark is equally made in many ſpecies of animals. In the more ſimply framed animals, as in certain inſects which generate in the uſual way, the whole maſs of brain conſiſts of mere knots, which are, as it were, the commencement of the cerebellum: while in thoſe other animals, which do not procreate in this way, theſe knots are wanting. The ſtallion and the bull have a more perfectly developed cerebellum, and conſequently have a thicker neck and broader head behind, than the gelding and ox. This is known to the common people, who are concerned in the breed of horſes, who give the preference to thoſe ſtallions whoſe ears ſtand the wideſt apart. The male mule, which has no power of procreation, generally ſpeaking, has a very narrow neck, and the ears ſtand cloſe together. It is further obſerved, that the horns of the ox are much larger than thoſe of the bull, for the reaſon before ſtated, that the proceſs of oſſification increaſes as the brain diminiſhes; from the ſame principle are the phenomena attending the growth of the horns in the ſtag. If at the time of rutting, the horns are cut off, the animal loſes its power of procreation, in the effort of nature to reproduce this ſubſtance. The channel in which its ſtrength ſhould run is turned aſide, and it does not recover its generative faculty till the horns are grown again.

" Throughout the whole claſs of quadrupeds, the neck of the male is thicker than that of the female. Gall attributes this to the longer duration of the ſexual appetite in the male.

" There are may phenomena, in caſes of diſeaſe, tending to the ſame concluſion. In the nymphomania, Gall has found the neck very hot, ſwoln, and painfully inflamed. He related the caſe of a woman of rank and character in Vienna, ſubject to the moſt violent attacks. She was frequently ſeized with convulſive affections in the neck; and in a ſort of madneſs would violently knock the back of her head againſt her back and ſhoulders, till ſhe obtained relief by means of a ſeminal diſcharge.

Wounds in the neck and back of the head will produce inflammation of the parts of generation, and even impotence.

" In nervous fevers, ſatyriaſis is not merely a local diſeaſe, but a general evil of the whole nervous ſyſtem; and to be removed only by ſome general remedy applied to the nerves. This ſeems to intimate the participation of the brain in generation.

" The caſes of hydrops cerebri are alſo in favour of the ſame doctrine. It is found that of all the general functions of the brain, that of generation is often the only one which remains undiſturbed; and for a very natural cauſe, that the cerebellum ſuffers leaſt of all parts of the brain.

" Cretins are notorious for their laſciviouſneſs, while they are without the common intellectual powers, and their cerebellum is unuſually large. The known effects of ſleeping on the back, Gall alſo attributes to the preſſure and warming of the cerebellum.

" Among other caſes of inſanity, he related one of a man, from whom the fixed idea could not be removed that he had ſix wives. The cerebellum was found monſtrouſly large after his death. Once, on entering an hoſpital, in which he never had been before, he heard a mad woman uttering the groſſeſt obſcenities; he deſired the attendants to go and examine her head, declaring that if they did not find the ſkull remarkably large behind, he would renounce all his opinions. He was not deceived.

" The buſt of Raphael, which was made from an impreſſion taken in gypſum, exhibits a ſort of bag behind, announcing that tendency of his conſtitution, to which he unhappily fell an early victim."

On the organ of aptneſs to learn and retain places, we have the following remarks.

The function which this organ is deſtined to fill in the inferior animals, is, that it gives the power of ſeeking out diſtant places, and of finding them again, when long deſerted and left at a great diſtance. Birds of paſſage, ſuch as ſwallows, ſtorks, &c. are all marked by this organ; and it is known of ſuch birds that they have a perfect recollection of their ancient places of reſidence. Swallows will return, year after year, to the ſame neſt. Pigeons, which are uſed as letter-carriers, have alſo this organ. The capacity which animals (dogs for inſtance) have of following their maſters, as well as of returning to their home, has generally been attributed, and often truly, to the acuteneſs of their ſcent; but many facts are known, which do not admit of this explanation. Gall related an inſtance of a dog taken to England from Vienna, which ſoon eſcaped from its new owner, went alone to the port, contrived to get on board a ſhip, and accompanied a gentleman to Mentz, whom he there deſerted, and then took his courſe alone to Vienna. Whence can this uniform and otherwiſe inexplicable inſtinct ariſe, in a certain ſpecies of animals? And why ſhould not this inſtinct be attached to a peculiar ſtructure of the nerves and brain?

" In men, this organ ſeems to operate variouſly; but in every caſe it is connected with a diſpoſition to obſerve the relations of ſpace, and produces a delight and a peculiar ability in thoſe occupations which depend upon ſuch relations. For inſtance, both marſhal Laudon and general Mack are diſtinguiſhed by this organ; and theſe generals are both ſaid to poſſeſs, in an eminent degree, that important part of the duty of a commander in chief, which lies in a ſkilful diſpoſition of troops in the field; what may be called the geometry of war.

" It generates the love of travelling. After Gall had formed his opinion concerning this organ, he was ſtruck by meeting a woman of low rank in the ſtreets of Vienna, on whoſe forehead the organ was ſo ſtrikingly marked, that he took an impreſſion of her head for his cabinet. On inquiring of her concerning her life, he found ſhe was poſſeſſed by a very mania for wandering. At ſixteen ſhe ran away from Munich to Vienna, where ſhe lived, not as a ſervant at one place, for ſhe could not poſſibly ſtay long in any family, but went from inn to inn, where her reſtleſs love of change was beſt gratified. She, as well as all perſons thus organized, had a ſurpriſing ſkill in finding her way in ſtrange places. We all know how very different this ability is in different perſons, and that it ſtands in no general relation to the intellects in general. The portraits and buſts of moſt eminent travellers and navigators are marked by this organ. If I miſtake not, the biographer of captain Cook mentions his countenance being diſtinguiſhed by overhanging eyebrows."

Having thus given a general view of Gall's doctrine, we proceed to ſtate the objections which may be made to it. Theſe, indeed, occur to us in ſuch number, and of ſuch ſtrong weight, that we cannot help feeling ſurpriſed that Gall ſhould have made ſo many proſelytes, as we underſtand him to have met with, and that his ſyſtem ſhould have attracted ſo much of the public attention.

The foundations on which the whole doctrine reſts, ſeem to us to be completely falſe; and the ſtructure which Gall has raiſed on them, is ſupported by nothing but fanciful analogies, and the moſt looſe and inapplicable kind of reaſoning.

The firſt principle of the ſyſtem, that the different faculties of the mind have each their ſeparate and independent organ, offers to our conſideration a moſt queſtionable poſition. At leaſt, Gall's arguments in favour of the ſeparate localities of thought are not at all convincing. The ſenſe of relief, from a change of ſubject, after long ſtudy, is urged as a proof, that the part employed is different. But does not this argument almoſt beg the queſtion? At leaſt, does it not make too great uſe of the ſenſe of muſcular fatigue, which can be applied, only by a very looſe analogy, to the brain? It is evident, that the brain, if it have any laws ſimilar to thoſe of muſcular motion, has a much greater number peculiar to itſelf; and by what obſervation has it been ſhewn, that the peculiar affection of the brain, which we call, only by analogy, the ſenſe of fatigue, may not wholly give place to a different ſeries of affections of the ſame part? Even if the queſtion were to be decided by analogies, thoſe which juſtify this opinion are more numerous, and certainly more cloſe, than thoſe which are taken from the contractions of the voluntary muſcles, ſince they are drawn from parts more immediately contiguous with the brain. The ſame eye which has been gazing on one ſpecies of light, finds relief from a mere change of colours; and, throughout the ſyſtem, when one ſtimulus, from too frequent repetition, has ceaſed to produce effect, an effect is produced by a new ſtimulus, even of leſs abſolute power; though we cannot ſuppoſe that the former parts are unaffected, and that each ſtimulus has its peculiar ſeat of action. We may remark alſo, that the relief takes place only in a certain degree, and is not enough to juſtify the ſuppoſed analogy; for, if one faculty be greatly fatigued, all the other faculties are reduced to a ſtate nearly ſimilar. Yet we know that one arm may be bent, in one continued attitude, till it be almoſt palſied with fatigue, when the other extremities are ſtill in all their vigour, or, at leaſt, have their vigour but ſlightly impaired.

The ſecond argument adduced, is the partial loſs of power, from external injuries of the brain, and from madneſs, and other diſeaſes. The fact is certainly one of the moſt curious in the whole phyſiology of mind. But, unfortunately for Dr. Gall, it is found more frequently in the ſame faculty than in different faculties; and the health and diſeaſe are, conſequently, according to him, in the ſame part. Such are the caſes of perſons, who have loſt the memory of one language, and retained that of another; of this partial forgetfulneſs, there are many varieties, in kind, and in degree. One intereſting caſe is related by Mr. Villers, from his own knowledge. It is that of a young lady, of very good underſtanding, at Frankfort, who, after much oppoſition from her relations, had, at laſt, obtained their conſent to her marriage with a perſon whom ſhe paſſionately loved. After recovering from a long illneſs, which ſucceeded her firſt delivery, ſhe completely loſt the memory of all the time that had elapſed ſince her marriage, though remembering every other period with as much accuracy as before. From the ſight of her child, preſented to her, as her own, ſhe turned with amazement and horror; and though ſhe now, on the faith of the aſſurance of all her friends, conſents to conſider herſelf as a wife and a mother; ſhe ſtill looks on her huſband and child, without being able to conceive, by what magic ſhe has acquired the one, and given birth to the other. Unleſs, therefore, Dr. Gall call in the aid of the infinite diviſibility of matter, and allot a different ſeat to each idea, ſuch caſes, it is evident, are more in oppoſition to his ſyſtem than in its favour; ſince they ſhew, that what is confeſſedly the ſame part, may have loſt its power in one reſpect, yet retain it completely in every other.

A third argument is drawn from the various degrees, in which the different faculties are poſſeſſed by the ſame perſon in perfect health. But, unleſs the queſtion be aſſumed, we do not ſee how this is more in proof of one opinion, than of its oppoſite. A mathematician, for inſtance, may have no poetic taſte. The perception of the relations of mathematical ideas forms one ſeries of affections, the perception of the beauties of poetry includes another ſeries; and the two ſeries are different, whether they be affections of the ſame organ, or of different organs: nor is there more reaſon, *a priori*, in the one caſe than in the other, that becauſe one ſeries exiſts, the other ſhould exiſt alſo. We know, that in parts, which are confeſſedly the ſame, and originally even capable alike of either ſeries, as in the muſcular motions neceſſary in two mechanical arts, there may be produced the utmoſt facility of one ſeries, while in the other there is all the awkward ſlowneſs of the moſt unexerciſed organs.

If however there were no other arguments on this ſubject, the records of morbid anatomy alone would ſuffice to overturn the unſtable ſtructure of Gall's ſyſtem. Theſe will ſhew us that there is not a ſingle part of the encephalon, which has not been impaired or deſtroyed, without any apparent change of the intellectual and moral faculties. In the great work of Haller there is a very full collection of caſes of this kind (Element. Phyſiol. tom. iv. p. 338.); and there is a ſimilar catalogue in the fourth volume of the Mancheſter Tranſactions, where Dr. Ferriar has ſelected many of Haller's caſes, with conſiderable additions from other authors. Againſt Dr. Gall, however, in particular, it may be of conſequence to ſtate, that, among the caſes to which we refer, are ſome, in which the whole cortical part was waſted or corrupted, while the ſenſes remained entire. Nothing can be more evident than that, if many organs be ſcattered over the ſurface of the brain, the entire and excluſive loſs of one faculty ſhould be, in ſo many caſes of local injury, not a rare, but a common occurrence; and that, with the loſs of the whole cineritious part of the brain; the whole of thoſe powers, which have their ſeat in that part, muſt neceſſarily periſh.

If the organs of many of the faculties be, as Dr. Gall affirms, double, ſince a diſeaſe of one ſide of the head does not neceſſarily imply a diſeaſe of the other ſide, each organ, even in health, muſt have its ſeparate affections, which may correſpond, but which may alſo be diſſimilar: and the two may thus be exerciſed, at the ſame moment, on different ſubjects, or from the ſame ſubjects give oppoſite reſults. Thus, ſays an ingenious critic, the mind ſhould be capable of completely believing, and, at the ſame moment completely diſbelieving the ſame propoſition. One of the organs of imagination, in a virtuous patriot, may thus be mourning over the probable ruin of his country, while the other is feeding on the profits of an offered place: and, perhaps, in this way, are to be explained many of the inſtances of timid irreſolution in miniſters of ſtate; ſince the ſyſtem of Dr. Gall fairly gives them the double head of Janus, and allows one organ to be eager for war, while the other is equally eager for the continuance of peace. Nor is it merely to ſimilar organs, that this remark is applicable. The faculties, having all organs that are completely diſtinct, cannot interrupt each other, but may all be exerciſed at the ſame moment: and ſermons and ſyſtems, puns and poetry, be thus one general and ſimultaneous product. It is certain, at leaſt, that all the organic affections may co-exiſt; and if it be thought that the mental affection muſt, notwithſtanding, be ſingle, becauſe the mind is not capable of influencing, or being influenced by more than one organ at a time, we muſt attend to the analogies of the organs of ſenſe and muſcular motion, which, unleſs we beg the queſtion as to the ſeparate intellectual organs, are the only analogies afforded us. In theſe however we find a multitude, if not of ſimultaneous, at leaſt of rapidly ſucceeding affections of different parts, very unlike the unity of thought. We can walk, and liſten to a converſation, and remark the objects around us, without being conſcious of an interruption of the exerciſe of the different organs employed. But there is no one, who, without being ſenſible of a very difficult tranſition, can write ſtanzas to the eyebrows of his miſtreſs, while he is ſolving a queſtion of geometry or metaphyſics.

Even though we were to concede to Dr. Gall, the truth of his general and more important doctrine of the localities of thought and paſſion, we ſhould certainly be little inclined to aſcribe with him, the difference of power merely to the quantity of the parts of the brain, and ſhould therefore have little truſt in the appearance of the cranium, as indicative of character; nor indeed, though it were certain that the difference of each power aroſe from a difference of quantity, would our reliance be much increaſed. That the general ſtrength of the vital, moral, and intellectual powers is great in each individual, in proportion to the quantity of the encephalon, in an aſſertion, to which the experience of every one muſt have furniſhed him with a reply. Every perſon muſt have known large crania connected with very great dulneſs of theſe powers, and others in which they have all been condenſed into a very ſmall compaſs.

Dr. Gall himſelf is ſaid to proteſt ſtrongly againſt the attempts which have been made, to reduce his ſcience to a ſpecies of phyſiognomy; yet, unleſs he himſelf conſider the phyſiognomical application of it as allowable, we do not ſee how he is juſtified in drawing any inference from the inſpection of a ſkull; and, if he do conſider it in this light, he is not juſtified by the principles of his own theory. For, as the faculties are not all to be found in different points of one circumference, but lie under each other, in what may be called concentric circles of the encephalon, the elevation or depreſſion of the ſkull may be produced by the uncommon largeneſs or ſmallneſs of a deeply ſeated organ, the ſuperficial one remaining the ſame; or the ſuperficial one may be greatly increaſed or diminiſhed, and the increaſe or diminution be compenſated by the oppoſite ſtate of ſome deeper organ. The appearance of the ſkull therefore, even where we have an opportunity of examining the inner plate, is not indicative of the nature of any one power, and can be depended on, only as marking the ſuperficial ſhape of the brain, and its meninges.

For what reaſon, except for the ſake of this cranioſcopical phyſiognomy, Dr. Gall has choſen to aſcribe a difference of power to a difference of quantity alone, it is not eaſy to diſcover. It is at leaſt equally probable, that the peculiar affections of the brain depend, in a great meaſure, on the minute differences of compoſition and texture; ſince in this way only, unleſs we admit an original difference in the mind itſelf, which Dr. Gall never takes into account, can we explain the poſſibility of great powers in a ſmall cranium—what is that ſenſe of fatigue, on which he himſelf has laid ſo much ſtreſs? The organ of the faculty employed is aſſuredly not diminiſhed, or not diminiſhed in any meaſurable degree: yet its power is now completely different. This ſtate of the brain is a certain ſtate of it; and we can conceive that of two brains, of dimenſions exactly ſimilar, one ſhould be naturally in this ſtate of dulneſs, as well as in any other ſtate, in the ſame manner as we can conceive a portion of the brain to exiſt in one degree of quantity, as much as in another. The *quantity* is therefore not the meaſure of the *power;* ſince, confeſſedly, the quantity may be the ſame, while the power is different. The great changes produced in the livelineſs or lethargy of the faculties, by wine or opium, and in general by every ſtimulant or ſedative, are reducible only to that law of the ſenſorium, by which the power is as the ſtate of the part in *quality*, not in *quantity*. If Dr. Gall's theory were juſt, all moral education would be uſeleſs; for he has not attempted to convince us by any obſervation or experiment, that we have it in our power to reduce or amplify the organs of the affections. As, where there has been no external nor internal injury, the organ of ſight muſt always afford its peculiar ſenſations, when colours are preſented to it, the organ of the inclination to theft muſt always be affected in its peculiar manner, on the ſight of an agreeable object. It is vain for us to preſent motives of bodily fear or of infamy; for theſe act only on the organ of courage, or of pride, or of judgment, which may be of greater or leſs ſize, but do not, by any of their affections, diminiſh the ſize of the organ of theft; and hence, if with the organ of this inclination, that of voluntary motion be in good underſtanding, an inceſſant ſeries of thefts muſt enſue. In like manner, if there be any young man, of diſpoſitions as yet uncorrupted, in whoſe fate we take an intereſt, our anxiety for the preſervation of his virtue is ſuperfluous. Let all his companions be profane, and ſelfiſh, and diſſolute; what have we to dread? They cannot diminiſh the ſize of his organs of benevolence, temperance, and religion; and, till that diminution be poſſible, there is no influence in reaſon, or in ridicule, and no contagion in example.

Such are the reaſons which prevent us from acceding to the fundamental poſitions of Gall's theory; that the different mental faculties, the paſſions, &c. are ſeated in ſo many ſeparate organs of the brain, and that the ſtrength or vigour of theſe is in a direct ratio with the ſize of the organ. But if theſe difficulties were ſurmounted, if the author had ſucceeded in proving theſe points ſatisfactorily, objections no leſs weighty ſtill remain to the other points of the ſyſtem, which would, in our opinion, be ſufficient to overturn it. On contemplating the ſurface of the hemiſpheres, in the ſituations pointed out by Gall, we meet with no prominences, where he deſcribes the various organs to exiſt; but find the brain to preſent an uniform and general convexity. We ought, however, to find the organs moſt eaſily and clearly on the ſurface of the brain, even if they are not very apparent in the living head; where the covering of membrane, ſkull, and integuments, may obſcure their ſituation. In the baſis of the brain, where the ſurface is much more diſtinguiſhed by convexities and inequalities; and in the interior of the organ, where there are ſeveral very decided and conſtant eminences, and much curious ſtructure, where, of courſe, we ſhould naturally expect to find the ſeat of ſeveral organs, none have been pointed out.

The *cranioſcopical* part of Gall's doctrine, or the examination of the cranium, with a view to diſcover the character and prevailing propenſities of individuals, reſts on an aſſumption, which we pronounce to be not merely queſtionable, but moſt clearly falſe: *viz.* that protuberances of the brain influence the cranium, ſo as to be attended with correſponding convexities of its ſurface; that the inner plate of the ſkull bears a moſt accurate impreſſion of the ſurface of the brain; that the various convolutions of this organ mark it with the moſt obvious ſinuoſities; and that the veſſels of the dura mater imprint very deep channels on the bone; are facts which could not eſcape the moſt ſuperficial obſerver. But it is equally clear that the external ſurface of the bone has none of theſe marks, that they affect, therefore, the *internal lamina only*, and that all the front, upper, and back parts and ſides of the cranium preſent a nearly level ſurface. Hence, if there be a prominence of the brain or its meninges, in any ſituation, it excavates the ſkull and renders it thin, inſtead of elevating the ſurface into a tumour. Thus the glandulæ pacchioni of the dura mater render the ſubſtance of the cranium ſo thin, as to make it appear ſemi-tranſparent, when held againſt the light; and the writer of this article lately obſerved in the head of a man hanged for murder, a remarkable and unuſual prominence of two or three convolutions, in the ſituation pointed out by Gall, as the organ of metaphyſical ſubtlety and wit; inſtead, however, of cauſing a correſponding external protuberance, they had only reduced the frontal bone to a ſtate of unuſual thinneſs.

In many parts, the external ſurface of the cranium, ſo far from any poſſibility of being modified by the form of the brain, is moſt clearly influenced by other cauſes. The root of the noſe and eye-brows will aſſume a ſhape of greater or leſs prominence, according to the ſize of the frontal ſinuſes, which are well known to vary greatly in different individuals: yet, over theſe very cavities, Gall places the organs of the memory of places and colours. His organ of aptneſs to learn things lies over the ſpine of the os frontis, and that of muſic on the external angular proceſs of the ſame bone, neither of which parts can poſſibly denote any protuberance of the brain. The ſide of the cranium is flattened by the temporal muſcle, which acts with at leaſt as much power on the outer plate of the ſkull, as the brain can on the internal ſurface. Hence, the deviation of this part of the ſkull from the general globular form of other parts of the bony caſe. Yet, in this very ſituation, where the action of the muſcle thus depreſſes the ſkull, we meet with a whole hoſt of organs; *viz.* thoſe of fighting, ſlaughter, cupidity or theft, addreſs or cunning, muſic, mechanic art, and a conſiderable portion of that of prudence or circumſpection. In carnivorous animals, where the ſize of the temporal muſcle is immenſe, and the whole cranium ſeems, as it were, compreſſed between the two oppoſite muſcles, we are gravely told that there is a remarkable prominence in the ſituation of the organ of ſlaughter.

The objection, which we have been juſt illuſtrating, applies with ſtill greater force to ſeveral of the examples which are drawn from comparative anatomy. The two tables of the ſkull are ſeparated by numerous air-cells throughout their whole extent in many birds, which Gall ſtill does not heſitate to adduce, in proof of particular organs. In the elephant, which is alſo preſſed into the ſervice, the ſkull is in the ſame manner hollowed out into numerous and large cavities containing air. The brain of the crocodile does not nearly fill the cranium, and cannot therefore influence its form; ſo that this animal might have eſcaped the author's cenſure for the want of parental affection. We may, indeed, enter a general objection to the introduction of comparative anatomy, with any weight of evidence, in a queſtion of this kind. If any fact be certain of the nervous ſyſtem, it is, that the different parts of the encephalon and its great appendage are in the different claſſes of animals, of very different degrees of importance to the exerciſe of the powers of life. When, after the amputation of that part, in which, according to Dr. Gall, the whole powers of life are included, birds can ſtill perform many of the moſt important functions, inſects continue to live and procreate, and cold-blooded animals ſeem for a while to exerciſe almoſt every faculty, which they before were known to poſſeſs, we cannot allow, in circumſtances ſo different, any great degree of force to obſervations which proceed on the faith of complete ſimilarity.

As we have already accuſed Gall of deſcribing prominences, &c. where there really are none; ſo we may, on the other hand, complain that he has neglected a point of conſideration, in which numerous ſtriking differences are obſervable in the cranium. We allude to the national differences in the form of the head, which muſt, according to his theory, be attended with correſponding variations of the mental faculties, and ought, therefore, to afford the moſt important reſults. (For an account of theſe, ſee Cranium.)

In the preceding examination of the ſyſtem of Gall, we have attended to thoſe fundamental poſitions on which the whole doctrine reſts, and the deſtruction of which muſt involve the annihilation of the entire ſyſtem. This will relieve us from the neceſſity of a detailed conſideration of the author's obſervations on the different organs, which are univerſally expoſed to the moſt well-grounded cenſure; and which leave on the mind of the reader, the general impreſſion, that their author is very ill-acquainted with the juſt principles of reaſoning and induction. We ſhould, indeed, be diſpoſed to queſtion many of his facts. Is it poſſible that he ſhould have found one-half of a man's brain "entirely mouldy?" Some of his obſervations on the mechanical excitations of the organs, are too ludicrous for any ſerious conſideration, and would certainly juſtify the ridicule which the whole ſyſtem has not unfrequently excited. When a perſon is unable to recollect any thing, and rubs his forehead backwards and forwards, we are informed that he is ſtimulating his organs of memory. Proud men raiſe themſelves frequently on their toes; they hold their heads backwards, that the organ of loftineſs may itſelf become more elevated. The timid man ſcratches his head on the organ of courage behind his ear, as if he tried to ſtimulate his feeble organ to activity.

CRANIOSCOPY, the examination of the ſkull, from κρανειον, *the ſkull*, and σκοπεω, *I examine*. This is a newly invented term, denoting that ſcience which profeſſes to inveſtigate the influence which the form of the brain exerts on that of the cranium; and to draw from ſuch obſervations, inferences as to the general character of individuals, their moral and intellectual qualities, their paſſions, propenſities, &c. See Craniology.

CRANIUM, in *Oſteology*, that diviſion of the head which forms the bony cavity for containing the brain. The correſponding term in Engliſh is the *ſkull;* that, however, is not limited like the word *cranium*, to the bones which form the brain-caſe, but is applied to the whole head. It is derived from κρανος, *a helmet;* as it covers and protects the brain, like a helmet does the head. *Calvaria*, in Latin, is uſed in the ſame ſenſe with cranium; but is applied, perhaps, with more propriety to the ſuperior arched portion of the cavity; to that part which, in Engliſh, is called the *ſkull-cap*. The following ſynonyma will alſo be found in different writers; κογχος, κυτος, σκαφιον: *calva*, *cerebri galea*, *teſta*, or *ſcutella capitis*.

The bones of the head are uſually diſtributed into two diviſions; thoſe of the *cranium* forming an oval vaulted cavity, which holds the encephalon; and thoſe of the *face*, containing the parts concerned in maſtication and deglutition, with the organs of ſight, ſmelling, and taſte. The cloſe connection of theſe parts, and the neceſſity of conſidering them both together in the view which we ſhall give of the characteriſtic differences of the heads of various nations, would render it extremely inconvenient to adopt ſuch an artificial diviſion in the preſent work. We ſhall, therefore, deſcribe the bones of the face, as well as thoſe of the head, in the preſent article; and ſhall conſider alſo the ſtructure of the teeth, that the reader may poſſeſs, in one view, a connected and ſyſtematic account of the oſteology of the head.

The arrangement of the ſubject, which appears to us the moſt eligible, and which will, therefore, be adopted in the preſent article, is that of making, in the firſt inſtance, a few general obſervations on the formation of the bones, their peculiar mode of connection, &c.; then, of proceeding to deſcribe the individual pieces; and, laſtly, of reſerving the conſideration of the head, as a whole, to the end; where its form, together with the relations of the cranium and face, and the deviations from the general ſtandard, which it exhibits in the different varieties of the human ſpecies, will be more eaſily explained and underſtood.

The external ſurface of the cranium is every where covered by a thin, firm, and cloſely adhering membrane, called the *pericranium;* which is juſt the ſame as the *perioſteum* of other bones. The cavity is lined by another membrane, the dura mater, connected to its ſurface with equal cloſeneſs. This may be conſidered as the perioſteum of the internal table; for it ſends at all parts numerous veſſels to the ſubſtance of the bone. Hence, it cannot be ſeparated from the ſkull without conſiderable force; and the nature of the adheſion is demonſtrated, after ſuch ſeparation, by the numerous bloody points on its ſurface, ariſing from the torn orifices of veſſels, which went to the bone. This membrane performs ſo important a part in the nutrition of the ſkull, that its ſeparation from the internal table, in conſequence of ſuppuration, cauſes the death of the bone, although the pericranium ſhould be ſtill adherent.

The thickneſs of the cranium varies conſiderably in different parts of the cavity. It may be ſtated, as a general obſervation, that the upper vaulted portion, which forms the ſkull-cap, and is liable to accidental injury and violence, is the thickeſt; and the baſis or lower portion of the cavity, which is not expoſed to theſe dangers, is the thinneſt. The frontal bone, juſt above its external angular proceſs, and the poſterior triangular portion of the occiput, particularly at the tranſverſe ridge, are thicker than other parts of the ſkull. With the exception of the ethmoid bone and orbit, the lower portion of the occiput and the temporal region are the thinneſt; but theſe parts are protected by the inſertion of ſtrong muſcles. Several pits and furrows, which are formed on the inner ſurface of the cavity, render its denſity very unequal, even in different parts of the ſame bone: hence, if a ſkull-cap be held againſt the light, it is almoſt tranſparent in ſome places. The thickneſs of the bone varies in the ſame head from about the fifth of an inch to a mere line. Great variety is alſo obſerved in the denſity of the ſkull of different individuals; ſo that we cannot conclude, becauſe a perſon has a large head, that the bulk of his brain is proportionate. It is generally obſerved, that a large brain is covered with a thinner ſkull than a ſmaller one. Where the ſkull is thickeſt, it is found to conſiſt, as the other *flat* bones of the body do, of two plates of compact ſubſtance, called the *external* and *internal* or *vitreous* tables, and of a more looſe intervening bony texture, termed the *diploë*. The diſtinction of theſe parts cannot be traced in many ſituations; nor does it exiſt in very young ſubjects.

The ſubſtance of the cranium does not vary much in ſtructure in the different parts of the ſame individual; if we except the petrous portion of the temporal bone, which is compoſed of the hardeſt and moſt compact oſſeous ſubſtance in the body. In different ſubjects, the cranium, as well as the reſt of the ſkeleton, may vary in firmneſs, ſolidity, and ſmoothneſs.

The outer ſurface of the ſkull is tolerably ſmooth and uniform on its upper and back part and ſides; and, with the exception of two or three very ſmall foramina, is entire and imperforate. The baſis, on the contrary, is very irregular, and preſents numerous openings for tranſmitting blood-veſſels and nerves.

The inner ſurface of the ſkull preſents every where an exact impreſſion of the brain; ſo that a caſt of the cavity, taken in plaſter of Paris, would repreſent moſt accurately the form of the encephalon. It is a curious fact, that the bones always adapt themſelves to the form of the ſoft parts, inſtead of influencing the figure of theſe, as we ſhould, *a priori*, have been diſpoſed to expect: the circumſtance is very ſtrikingly exemplified in the cranium. The glandulæ pacchioni of the dura mater form numerous pits along the middle and upper part of the bony vault; the ſides of the cranium are marked with deep ramified channels, in which the blood-veſſels of the membrane are ſituated. The convolutions of the brain leave broad ſuperficial impreſſions over the whole vitreous table; (the grooves are the *impreſſiones digitatæ*, and their riſing margins the *juga cerebralia* of authors;) theſe are moſt diſtinct in the baſis cranii, and particularly on the orbital plates of the os frontis, and the ſurface of the temporal bone. They are, however, manifeſt over the whole upper part of the cavity; which ſhews ſufficiently that it is not the mere weight of the parts that gives riſe to them.

The individual bones of the head, with the exception of the lower jaw, oſſicula auditus, and teeth, are connected to each other by an immoveable ſpecies of articulations peculiar to themſelves, called *ſutures;* ſo that when all the ſoft parts have been removed by maceration, theſe bones are ſtill held firmly together. This mode of union aſſumes different appearances under various circumſtances. Moſt frequently the margins of the bones are furniſhed with numerous ſmall proceſſes or denticuli, which are received into correſponding cavities of the oppoſed edges: hence the line of junction preſents a very irregular ſerrated edge. This is the true ſuture (*ſutura vera, ſerrata,* or *dentata*); and the other modes of union are called falſe or ſpurious ſutures. When the bones are joined in a ſtraight line, as it ſhould ſeem from mere contact with each other, it is called *harmonia* (*ſutura harmonica*). Laſtly, there is the *ſutura ſquamoſa,* when the edges of the bones, extenuated to a very thin margin, overlap each other like the ſcales of a fiſh. Yet neither the harmonia nor ſquamous ſuture are formed by the mere contact of the bony ſurfaces; for there are in both caſes ſmall prominences and depreſſions, which, being adapted to each other, render the union firmer than a mere appoſition would make it.

The mode in which the teeth are implanted in their ſockets is diſtinguiſhed by the term *gomphoſis,* from γομφος, *a nail;* and the union of the lower jaw with the azygous proceſs of the ſphenoid bone on the one part, and the middle palatine ſuture on the other, is called *ſchyndyleſis.*

Where the bones are thin at their line of junction, the ſutures connect them in a perpendicular line: they are joined obliquely where the bony ſubſtance is thicker; and each bone overlaps the neighbouring ones at ſome points, while at others it is overlapped by them; ſo that the whole compages gains additional ſtrength and ſecurity, and it is impoſſible that any bone ſhould be driven in upon the brain without a fracture. In every inſtance, the ſutures, which may be very ſerrated on the external ſurface of the ſkull, are much more ſimple on the internal table; where, indeed, they preſent the appearance of harmonia. This difference in the appearance of the external and internal ſurfaces ſhews the futility of the common mechanical explanation of the formation of ſutures, by the fibres of the oppoſed margins ſhooting into each other.

The cranium of the fœtus does not poſſeſs ſutures: its bones have very thin margins, and are ſeparated by membranous intervals, ſo that they can overlap each other conſiderably, and thereby admit of that compreſſion and alteration of form, which the head experiences in paſſing through the cavity of the pelvis. As the oſſification of the body proceeds, the edges of the bones come in contact, and form the ſutures. The bony margins leave larger intervals in two ſituations of the ſkull, than in other parts; and it is of courſe longer after birth that theſe openings, which are called *fontanells (bregmata)*, are cloſed. The *anterior*, or largeſt, is formed between the parietal and frontal bones; the *poſterior* between the former and the os occipitis. We cannot ſtate with accuracy the preciſe period at which the ſutures are formed in a young child. The three edges of the os parietis, which are joined by true ſutures to the neighbouring bones, begin to cloſe towards the end of the firſt year; and their edges are completely in contact, except at the anterior fontanell, towards the middle of the ſecond year. Theſe vacancies are, however, ſometimes not cloſed till a much later period of life. Thus, Caſpar Bauhin ſtates the fontanell to have been ſtill open in his own wife, at the age of 26 years. (Theat. Anatom. p. 280.) And other facts of the ſame nature are recorded.

When the ſutures are fully formed, the whole ſkull may be regarded, to all intents and purpoſes, as formed of a ſingle piece of bone. In the latter periods of life, the ſutures often diſappear by the coalition of the oppoſed bones; and they are loſt firſt in the internal table.

Separate pieces of bone, of various form and ſize, are often found in the courſe of the ſutures, connected to the margins of the contiguous parts by ſuture. Theſe are the *oſſa triquetra*, or *wormiana*; and are moſt frequently met with between the occipital and parietal bones, although occaſionally in other ſituations. As the preſence of theſe is very uncertain; as they cannot be conſidered to belong to the ordinary formation of the part; and as their poſition, number, form, and ſize, vary almoſt infinitely; they are not enumerated among the regular bones of the ſkull, but are conſidered as unuſual ſeparate parts of that bone, to which they would have belonged, if the ſtructure had been of the moſt natural kind. It is curious to obſerve the exact and ſymmetrical arrangement which theſe bones ſometimes exhibit. They may be found of preciſely the ſame form, and occupying exactly the ſame ſituation on both ſides of the cranium.

The ſeparation of the bones of the cranium, by membranous intervals, in the fœtus, is of obvious utility in facilitating the paſſage of the head through the pelvis. It is not ſo eaſy to prove ſatisfactorily, that any advantages are derived afterwards from this peculiar mode of connection; or that the cranium is at all differently circumſtanced, in conſequence of the ſutures, from what it would be, if it conſiſted of a ſingle piece of bone. The old opinions, which ſtate that there is a tranſpiration of ſteams from the brain; that there is a more free communication between the external and internal veſſels here, than in other parts; or that the ſutures open under circumſtances of diſeaſe, ſo as to relieve the brain; are completely unfounded. Nor is there any better ground for ſuppoſing that they are formed in order to give a firmer attachment to the dura mater; or that they ſtop the courſe of fractures. A more rational explanation of the ſubject appears to be this: that the ſutures connect together the individual bones with a firmneſs ſufficient for the ſecurity of the brain; yet in ſuch a manner, that the ſeparate pieces admit, in the early periods of life, of being diſtended by the brain, and making room for its growth. It is ſaid, that if the bones of the cranium were not ſeparated by the ſutures, but formed one piece, they muſt ceaſe to grow ſoon after birth, unleſs the formation had been conducted on other principles; but that, on the preſent plan, the growth of a bone of the cranium proceeds like that of any other bone. The ſeparate pieces being joined by ſutures, or rather by lines of cartilage, are gently ſeparated by the growth of the brain; and hence the cartilage would become broader, if its former part were not at the ſame time converted into bone: thus the bones of the cranium are enlarged like the cylindrical ones, by the ſeparation of their epiphyſes, or, what is the ſame thing, they grow by their edges. This view of the ſubject is confirmed by obſerving that the adheſion of the dura mater is ſtrongeſt in the courſe of the ſutures, and that the number of veſſels entering the bone is greateſt in that part.

The bones which compoſe the cranium are eight in number: the *os frontis*, *os occipitis*, two *oſſa parietalia*, and *temporum*, *os ſphenoides*, and *ethmoides*. The ſix former are diſtinguiſhed as proper bones of the cranium; while the two latter are ſaid to be common to that cavity and the face. This diſtinction, however, ſeems very ill grounded; for the frontal bone has at leaſt as much concern with the face as either the ſphenoid or ethmoid bones.

The frontal bone forms the anterior portion of the bony cavity; the ſides and upper part of the arch are formed by the parietal bones; the back of the ſkull, and part of the baſis, by the occipital bone; the lower part of the ſides, and middle of the baſis, by the temporal bones; the ſphenoid and ethmoid bones lie towards the front of the baſis.

Soemmerring enumerates only ſeven bones of the cranium; as he joins the occipital and ſphenoid bones together, under the term of os ſpheno-occipitale. They are indeed conſolidated into one piece about the ſixteenth year.

The following ſutures join the different bony pieces, which form the cranium: the *coronal* ſuture, connecting the frontal bone to the two oſſa parietis, commences about an inch behind the external angle of the eye, and paſſes directly over the top of the head, to the ſame point on the oppoſite ſide. The *ſagittal* ſuture begins from the middle of this, and paſſes backwards in a ſtraight line for about four inches, joining the two parietal bones; which are connected to the ſides of the occiput by the *lambdoidal* ſuture. This has its origin from the termination of the ſagittal, and conſiſts of two diverging portions, compared to the λ of the Greek alphabet; whence the name of the ſuture has been derived. Theſe three are true ſutures; where the union is of the dentated or ſerrated kind. Laſtly, the ſquamous ſuture joins the upper portion of the temporal to the lower margin of the parietal bone.

The *additamentum ſuturæ ſquamoſæ*, is a ſmall portion of true ſerrated ſuture, extending from the ſquamous to the lambdoid; and uniting the poſterior inferior angle of the parietal to the maſtoid portion of the temporal bone, where the junction of the occiput and parietal bone terminates; the former is connected to the poſterior margin of the os temporis throughout the whole of its maſtoid and petrous portions, by a continuation of the lambdoid ſuture, called *additamentum ſuturæ lambdoidalis.*

The *frontal bone* (*os frontis, os coronale*) is ſo called from its compoſing that part which we term the forehead. Its form has often been compared to that of a cockle-ſhell, to which indeed it bears an obſcure reſemblance. It is a *ſymmetrical* bone: *i. e.* if it were divided into two halves, each portion would contain exactly the ſame parts; and the ſame remark holds good of the occipital, ſphenoidal, and ethmoidal bones.

It is connected with twelve contiguous bones; *viz.* 1, 2. The oſſa parietalia: 3. Os ſphenoides: 4. Os ethmoides: 5, 6. Maxillæ ſuperiores: 7, 8. Oſſa malæ: 9, 10. Oſſa naſi: 11, 12. Oſſa unguis.

It conſiſts in the fœtus of two equal halves, which are joined, in the firſt years of life, by a ſuture continued from the front of the *ſagittal,* but which uſually coaleſce at a ſubſequent period. It happens not unfrequently that this *frontal ſuture* continues through life, both in the male and female ſubject; and moſt commonly where the forehead is broad. A veſtige of the former ſuture often remains at the root of the noſe.

This bone contributes to the formation of three cavities of the head; *viz.* the cranium, orbit, and noſe. Hence it may be naturally divided into the frontal part; the two orbital portions; and the naſal part.

The *frontal* portion includes by far the largeſt part of the bone. Its outer ſurface is convex, and the inner concave. Towards its upper, or rather poſterior part, it forms a pretty regular ſemicircular margin, which being joined by the coronal ſuture to the oſſa parietis, may be called the coronal edge of the bone. The frontal portion is every where ſmooth and uniform: except that, towards the lower and lateral part, ſome ſlight furrows are occaſionally perceived from the courſe of blood-veſſels, which communicate with the cranium. Towards the middle of the bone, and above the orbits, two ſuperficial eminences may be obſerved, in the ſituation where the oſſification commenced in the fœtus (*eminentiæ frontales, tubera frontalia.*) The anterior extremities of the front lobes of the brain correſpond to theſe protuberances.

The frontal portion is bounded below by two ſemicircular prominent ridges, which lie immediately under the eye-brows, and are thence called the ſuperciliary ridges or arches. Theſe parts, as indeed the whole frontal bone, have a moſt important influence on the character and expreſſion of the countenance. They conſtitute about one-third of the margin of the orbits. The two extremities of each ſuperciliary arch form the angular proceſſes; to the internal, which lies juſt at the root of the noſe, the naſal proceſs of the ſuperior maxilla is connected. The external (*proceſſus orbitalis externus,* or *malaris*) forms a conſiderable prominence at the outer angle of the eye, terminated by a rough ſerrated ſurface, to which a correſponding part of the os malæ is firmly attached. Behind it the bone is flattened, and indeed rather excavated, as it contributes to the formation of the temporal foſſa. This temporal ſurface is bounded by a ſlightly prominent line, forming a part of that ridge to which the temporal faſcia is affixed.

A prominence begins at the root of the noſe, juſt within the ſuperciliary arch, and runs upwards and outwards with a curvature accommodated to that of the arch. Theſe elevations, which vary conſiderably in different perſons, but are always larger in the adult, than in younger ſubjects, ſometimes run into one prominence, but may be completely diſtinct. Their ſurface is uſually irregular, and often diſplays numerous minute apertures. They denote the ſituation of the frontal ſinuſes. The ſpace left between theſe is called by later writers the *glabella.*

The *orbital* portion of the bone, which is ſmooth and concave on its under ſurface, is continued backwards and inwards, nearly in a horizontal direction, from the ſuperciliary arch, and forms nearly the whole roof of the orbit. Towards its inner and anterior part, or rather perhaps on the ſuperciliary ridge, a ſmall and ſcarcely perceptible groove, or ſometimes a little bony eminence (*ſpina trochlearis,*) denotes the attachment of the cartilaginous pulley, in which the tendon of the trochlearis muſcle runs. The orbital plate forms towards its outer part, and juſt within the external angular or malar proceſs, a foſſicula or ſuperficial depreſſion, in which the lacrymal gland is lodged.

The *naſal portion* of the bone commences juſt below the glabella, by forming a very rough denticulated ſurface, ſituated between the inner extremities of the ſuperciliary arches, and ſometimes denominated the naſal proceſs. The oſſa naſi are moſt firmly implanted on this irregular ſurface. Directly behind this proceſs, a vacancy extends between the two orbital plates, which is occupied in the entire cranium by the cribriform lamella of the ethmoid bone, and is therefore diſtinguiſhed by the name of the ethmoidal fiſſure. The bony plates, which form the ſide of this fiſſure, contain a ſeries of ſmall cells, which fit to ſimilar cavities of the ethmoid bone. In front of theſe lies a pair of large irregular openings, which lead to the *frontal ſinuſes.* Theſe cavities, (which ſeem to have been firſt noticed by Berenger of Carpi, in his "Commentaria ſuper Anatomia Mundini," 1521,) are excavated in the lower and middle part of the frontal bone; and begin to be formed towards the end of the firſt year; but they are developed very ſlowly; as a ſlight veſtige only is perceptible even at the twelfth year. The two ſinuſes are ſeparated from each other by a bony partition, which ſeparates into two plates where there is a frontal ſuture, and is often imperfect. They vary almoſt infinitely in their form, magnitude, extent, and connection with the ethmoidal ſinuſes; but in general extend over about two-thirds of the ſuperciliary arch. The cavity communicates, by means of a funnel-ſhaped canal, formed of the os unguis, ſuperior maxillary and ethmoid bones, with the upper and anterior part of the noſe. Theſe ſinuſes are covered with a delicate vaſcular membrane, the numerous blood-veſſels of which ſecrete a watery fluid, that diſtils into the naſal cavity, moiſtens the Schneiderian membrane, and renders it more ſenſible to the odorous properties of bodies. That they are ſubſervient to the ſenſe of ſmelling, and not connected with the voice, is proved, according to Blumenbach, by various facts in pathology and comparative anatomy; for a further diſcuſſion of the queſtion, ſee Noſe.

We proceed to deſcribe the inner ſurface of the os frontis, according to the threefold diviſion already employed.

The frontal portion is divided throughout into two equal halves, by the attachment of the falx cerebri. In the ſituation of this attachment, there is a broad ſuperficial impreſſion (*ſulcus frontalis*) at the upper or poſterior part of the bone; this becomes narrower and more perceptible below: where its edges at laſt coaleſce into a ſharp edged bony ridge (*ſpina frontalis*) that runs down to the naſal proceſs. The reſt of the ſurface preſents ſeveral grooves and impreſſions; *viz.* there are ſome marks of the anterior branches of the ſpinous arteries on either ſide of the bone; the convolutions of the brain mark the whole ſurface; and there are ſometimes pits for the glandulæ pacchioni.

The convolutions of the brain leave the moſt conſpicuous impreſſions on the orbital plates: theſe proceſſes ſupport the anterior lobes; and as the bony ſubſtance riſes into conſiderable pointed proceſſes between the convolutions, while the ſubſtance of the bone is extremely thin, and almoſt tranſparent at other parts, its denſity is of courſe very various.

The following foramina are found in this bone, (*a*) *F. ſupra orbitale*, or *ſuperciliare*, (which indeed is more generally a mere fiſſure;) tranſmits the frontal branch of the ophthalmic nerve, with a ſuperficial artery from the orbit. There are ſometimes two, or even more of theſe openings, (*b*.) *F. orbitalia interna*, or *ethmoidea*, which are moſt commonly formed between the frontal and ethmoidal bones. The anterior, which is the largeſt, is occupied by the naſal branch of the ophthalmic nerve. The poſterior, which is a ſmaller one, tranſmits the ethmoid artery: (*c*.) *F. cæcum*; between the criſta galli, and the ſpine of the os frontis. It receives a ſmall proceſs of the falx: (*d*.) an opening occaſionally found in the lacrymal foſſicula, and tranſmitting an artery to the gland, from the dura mater.

The ſuperciliary arch of the frontal bone has the m. frontalis inſerted into it; the corrugator ſupercilii is alſo attached to the ſame part. The temporal muſcle ariſes from a ſmall portion of the ſide; and the cartilaginous pulley of the obliquus ſuperior oculi is fixed towards the inner part of the ridge.

The *parietal bones* derive their name from the great ſhare which they have in forming the ſides or parietes of the cranium, of which they chiefly conſtitute the upper and lateral portions. As their edges form the fontanells, they are very commonly called the oſſa bregmatis: and are ſometimes deſcribed under the term of o. verticis. They are very large bones, of an irregularly ſquare figure, and very ſimple formation.

They are connected together by a ſtraight line along the middle of the head (ſagittal ſuture;) to the os frontis by the coronal; to the occiput by the lambdoidal; to the oſſa temporum by the ſquamous ſutures; and laſtly, to the ſphenoid ala by a ſquamous union. Hence they enter into the compoſition, by their four ſides, of all the ſutures of the cranium, that are deſcribed under diſtinct appellations.

They are the only bones of the cranium formed from a ſingle point of oſſification, and reſemble in the fœtus a thin convex ſhell. Their rounded corners conſtitute the edges of the fontanells; and the oſſicula wormiana are found moſt frequently along the margins of theſe bones; particularly the poſterior one.

Each parietal bone has four ſides, and four angles. The former are named according to the ſutures which they form, the ſagittal, coronal, lambdoidal, and ſquamous edges; of which, the firſt is the longeſt, and the three others decreaſe in this reſpect in the order of their enumeration. The three firſt form nearly ſtraight lines, while the fourth is concave, and terminates in a thin ſcaly edge, overlapped by the ſquamous margin of the temporal bone.

The frontal, or anterior ſuperior angle, is formed by the junction of the ſagittal and coronal edges; the occipital, or poſterior ſuperior, by that of the ſagittal and lambdoidal; the maſtoid, or poſterior inferior, which is the moſt obtuſe, by the lambdoidal and ſquamous; the ſphenoid, or anterior inferior, which forms a ſharp-pointed projection, by the ſquamous and coronal.

The external ſurface of theſe bones is convex and ſmooth, like the frontal portion of the os frontis; from which the temporal ridge is continued in a gently curved line over the whole breadth of the parietal bone. Below this ridge, to which the temporal faſcia is affixed, the bone forms a large ſhare of that flattened ſurface, (*planum ſemicirculare*,) which affords origin to the fibres of the temporal muſcle: and hence in ſtrongly marked bones, the ſurface preſents occaſionally ſome converging impreſſions.

Their inner concave ſurface is marked by the convolutions of the brain; and has ſeveral conſiderable foveæ on each ſide of the ſagittal ſuture; filled by the glandulæ pacchioni. Ramified grooves, in which the arteria meningea media, and its branches are contained, cover the whole vitreous table. The origin of theſe impreſſions is at the ſphenoid angle, where they commence in a deep bony channel, which ſometimes forms a complete canal in the ſubſtance of the bone. A broad ſuperficial ſulcus, denoting the ſituation of the ſuperior longitudinal ſinus, and the attachment of the falx cerebri, is formed juſt under the ſagittal ſuture, and is therefore common to both bones. The maſtoid angle is juſt touched by the lateral ſinus.

The only openings are the two ſmall *foramina parietalia*; one of which is placed on either ſide of the ſagittal ſuture towards its poſterior part. A vein or artery paſſes through at this part to the dura mater. Frequently there is only one of theſe, and in many inſtances both are wanting.

The temporal is the only muſcle whoſe fibres are fixed to this bone.

The *occipital bone*, (*os occipitis*) is a large, broad, and flat bone, convex on its external ſurface, like moſt of the other pieces of the cranium; and compoſing the poſterior part of the cavity, together with a conſiderable ſhare of the baſis. It varies, more than any other part of the cavity, in ſize and form. Its articulation with the atlas connects the baſis cranii to the upper extremity of the vertebral column. On its inner ſurface the back of the cerebrum, the cerebellum, and the medulla oblongata reſt; and the medulla ſpinalis quits the ſkull through an immenſe opening in its centre. To the outer ſurface are affixed the muſcles, which move the head on the ſpine.

This bone, in its general form, reſembles two triangles joined together by their baſes: the poſterior or upper triangular portion is connected to the two oſſa parietis by the lambdoidal ſuture; the lower or anterior triangle is joined by the additamentum ſuturæ lambdoidalis to the maſtoid and petrous portions of the oſſa temporum. The front extremity of this part is firmly connected to the body of the ſphenoid bone. This union is effected by means of a layer of cartilage, till about the ſixteenth year; after which time the bones grow together, and are conſolidated by a bony union into one piece. Hence, Soemmering is juſtified in deſcribing the two bones as one, under the name of *os ſpheno-occipitale*.

The os occipitis of the fœtus conſiſts of four pieces, joined by cartilage; which at the end of the firſt year are very cloſely agglutinated; and ſoon after are conſolidated by a bony union. Theſe are; 1. The poſterior, or *occipital* portion; 2. The two lateral, or *condyloid*; and, 3. The anterior, or *baſilar* parts. The margins of theſe may be named, according to the bones with which they are connected; thus, the edge of the *occipital* portion will form the poſterior or *lambdoid* margin; that of the *condyloid* parts, the middle or *maſtoid*; and that of the *baſilar*, the anterior or *petrous* edge of the bone.

The ſubſtance of the bone varies greatly at different parts; it is thick, ſtrong, and compact, at the external tranſverſe ridge and upwards; where its ſurface, covered only by the ſcalp, is expoſed to the effects of accidental violence. Its lower portion, protected by the muſcles of the neck, is ſo thin as to be tranſparent in ſome parts. The baſilary proceſs again is very thick, but conſiſts chiefly of a cancellous ſtructure.

That part of the *occipital portion*, which forms the back of the head, and is only covered by the ſcalp, has an uniform ſmooth ſurface. It is bounded below by an arched and prominent line, beyond which the bone turns forwards in the baſis cranii. To this line, which varies in ſtrength and projection in different perſons, but is moſt diſtinctly marked in muſcular ſubjects, the name of external tranſverſe ridge is affixed. The muſcles of the back begin to be attached at this part, and occupy a ſeries of pits and eminences, which cover the ſurface as far as the occipital foramen. In the middle of the ridge, a more or leſs elevated prominence appears; and is called the occipital tubercle, *(protuberantia occipitis externa;)* from which a ſmall longitudinal elevation extends to the foramen magnum *(ſpina occipitalis)*. To this tubercle and ſpine the ligamentum nuchæ is attached.

Sometimes, but very rarely, a ſuture croſſes the bone at the external tranſverſe ridge; and in a very few inſtances the ſagittal ſuture is continued along the middle of the occipital portion.

The inner ſurface of this diviſion of the occiput preſents a broad and deep groove, continued from that which runs under the ſagittal ſuture, and lodging the termination of the ſuperior longitudinal ſinus. The back of the falx is fixed to the margins of this groove. The internal tranſverſe ridge, which croſſes the bone juſt oppoſite to the analogons external prominence, is hollowed into a ſimilar channel; in which the former groove terminates; the right and left lateral ſinuſes occupy the laſt mentioned impreſſions, and are found at the point where the tentorium is fixed to the bone. A ſharp-edged bony ſpine runs from the middle of the internal tranſverſe ridge to the foramen magnum, and has the falx cerebelli attached to it *(ſpina,* or *criſta occipitalis interna)*. A conſiderable groove is ſometimes found on one ſide of this ſpine, and denotes the courſe and ſituation of an occipital ſinus; but it is not found conſtantly.

The bony prominences, which we have now deſcribed, divide the ſurface of the bone into four large ſuperficial cavities. The upper, ſmaller, and ſhallower foſſæ, which are ſituated above the tentorium, hold the back lobes of the cerebrum. The lower, larger, and deeper hollows, contain the two lobes of the cerebellum, ſeparated from each other by the leſſer falx, and from the cerebrum by the tentorium.

The *condyloid* diviſions of the occiput are chiefly diſtinguiſhed by thoſe oblong articular eminences called the condyles, which connect this bone to the atlas. Theſe bodies are ſlightly convex on their articular ſurface, and placed juſt in front of the foramen magnum, with ſuch an obliquity, that their anterior extremities approach to each other, and the poſterior recede, or diverge. They are broadeſt in the middle, and have their external margin higher than the internal. An obſcure line of diviſion ſometimes ſeems to divide them into two parts. Their outer edge has a rough groove for the capſular ligament; and the inner and anterior part preſents a conſpicuous impreſſion from the attachment of the lateral ligaments of the vertebra dentata. A roughneſs near the ſtyloid proceſs of the temporal bone receives the attachment of the rectus lateralis.

The inner ſurface is excavated into a ſemilunar notch, which contributes to form the jugular foramen; and a conſiderable groove of the bone, leading from this notch, lodges the termination of the lateral ſinus.

The *baſilar portion* of the occiput conſiſts of a rough bony triangle, ſometimes called, from its figure, the cuneiform proceſs. Its outer, or rather under ſurface, preſents ſeveral aſperities from the attachment of the pharynx, and of the recti capitis interni or antici. On its inner or upper ſurface it is ſlightly concave; and has the pons varolii lying on it. On the line of union between this part and the petrous portion of the temporal bone, the inferior petroſal ſinus leaves an impreſſion varying in its diſtinctneſs in different ſubjects.

The foramina of the occipital bone are; 1. *Foramen magnum occipitale.* This, which is placed in the centre of the bone, and near the middle of the baſis cranii, is ſufficiently diſtinguiſhed by its ſuperior magnitude. Its figure is that of an oval, with the long axis running from before backwards, and the ſhort one placed tranſverſely. All the four diviſions of the fœtal occiput contribute to this opening. It tranſmits the medulla ſpinalis, ſurrounded by a ſheath of dura mater; the nervi acceſſorii, which are included in this ſheath; and the two vertebral arteries. 2. *Foramen lacerum in baſi cranii,* or *jugulare,* formed between the condyloid portion of the occiput, and the petrous part of the temporal bone. The internal jugular vein, and eighth pair of nerves, (conſiſting of its three portions; *viz.* the gloſſopharyngeal, nervus vagus, and acceſſorius,) paſs through this opening. A thin plate of bone generally ſeparates more or leſs completely the paſſage of the nerve from that of the vein. 3. *F. condyloideum anterius,* a round hole juſt in front of the condyle, giving paſſage to the 9th pair of nerves, or n. lingualis medius. 4. *F. condyloideum poſterius,* which may be wanting on one or both ſides of the bone. It is ſituated juſt behind the condyle, and ſends a vein to the lateral ſinus. 5. *F. maſtoidea,* which are very irregular in ſize and ſituation; and ſometimes entirely abſent. They are formed in that part of the bone which adjoins the maſtoid portion of the os temporis, or between the two bones, or in the temporal bone only. They are perforated by veins paſſing to the lateral ſinus.

The occipital portion of the fronto-occipitalis, the trapezius, ſplenius capitis, and ſterno cleidomaſtoideus are inſerted in the external tranſverſe ridge of the bone. The complexus fills a hollow juſt within the ridge. The two poſterior recti, and the obliquus ſuperior are fixed nearer to the occipital foramen. The rectus cap. lateralis; the recti anteriores, and the pharynx are alſo affixed to this bone.

The *ſphenoid bone,* (*os ſphenoideum,* from σφην, a *wedge,* and ειδος, *form; os cuneiforme, baſilare, polymorphon, multiforme, veſpiforme)* is placed towards the middle and front part of the baſis of the ſkull, and detaches ſeveral proceſſes, which give it a very irregular figure, and connect it in an intricate manner to all the other bones of the cranium, and ſeveral of the face: at ſome parts the contiguous bones overlap the edge of the ſphenoid; while in other ſituations that bone is overlapped by the neighbouring ones: hence it is conſidered to wedge, and hold firmly together, all the bones of the ſkull; from which circumſtance its moſt common appellation is derived, and not from its bearing any reſemblance in form to a wedge.

The Arabians called it *os colatorii,* or *os cribratum,* from the miſtaken notion which prevailed for ſo many centuries, that the mucus of the noſe flowed from the brain through its openings. The firſt phyſiologiſt who attempted to refute this long ſubſiſting prejudice, who ſubverted the ancient error, and thereby threw a new light on a moſt important part of phyſiology and anatomy, particularly by diſcloſing the true ſtructure of the ſphenoid bone; was

Conr. Vict. Schneider, profeſſor at Wittenberg, in his claſſical, but really ſomewhat prolix work, "De Catarrhis."

The irregular figure of this bone renders it difficult and almoſt impoſſible to illuſtrate or explain it by any compariſon: yet anatomiſts have likened it to a bird with the wings extended, and hence the names applied to ſome of its proceſſes. In the fœtus at full time, it conſiſts of three pieces; the *body* or central portion; and two large lateral productions, which include the *alæ* and *pterygoid proceſſes*.

On its anterior part, the ſphenoid bone is joined to the orbital plates of the os frontis, to the ethmoid bone, vomer, and os malæ. The extremity of its great ala touches the anterior inferior angle of the parietal bone in the temporal foſſa. The outer concave edge of the ala is extenſively connected to the ſquamous and petrous parts of the temporal bone. At the back part it joins the baſilary proceſs of the occiput. Laſtly, the pterygoid portions of the bone are connected with the ſuperior maxillary and palatine bones.

The *body*, which appears like a continuation of the baſilar proceſs of the occiput, is the thickeſt part, and joins the ethmoid bone. It forms on its lower and anterior part a ſharp lamina, which is connected above to the naſal lamella of the ethmoid bone, and paſſes below between the two layers of the vomer, under the name of the *azygous proceſs*.

A variety is very frequently obſerved in the formation of the body of this bone; which is the more remarkable, inaſmuch as deviations from the ordinary ſtructure in the brain, or in the baſis cranii, in other reſpects, are of very rare occurrence. In ſome ſkulls the baſilary proceſs of the occiput extends cloſe to the poſterior clinoid proceſſes. In others, on the contrary, it terminates far ſhort of this point; ſo that there is a peculiar oblique ſurface of the ſphenoid bone, extending from the end of the baſilary portion to the clinoid proceſſes. Blumenbach propoſes to diſtinguiſh this by the epithet of *clivus* (the declivity). This variation is ſo remarkable, that it changes completely the profile of the bone when viewed in a vertical ſection from behind forwards. Such a ſection repreſents a ſquare in the former inſtance, and a pentagon in the latter. The upper ſide of this pentagonal figure is a line running from the poſterior to the anterior clinoid proceſſes: the ſecond ſide forms the ſharp edge on the front of the bone for the attachment of the ſeptum naſi; the third is the part connected to the vomer; the fourth is the ſurface joined to the occiput; and the fifth is the above-mentioned clivus. When this formation exiſts, the ſella turcica is deeper and narrower; and the ſpace between the poſterior clinoid proceſſes and occiput is lengthened.

The upper ſurface of the bone is excavated for the reception of the pituitary gland; and the hollow thus formed is called the *ſella turcica*. This cavity is bounded in front by a ſmooth prominence or tubercle, interpoſed between the two optic foramina, and ſupporting the conjoined portion of the optic nerves: behind by a thin perpendicular layer, which forms two rounded knobs, called the *poſterior clinoid proceſſes;* and it is open at the ſides. The ſide of the body is excavated for the receptaculum, or cavernous ſinus of the dura mater: and it bears a ſuperficial impreſſion made by the internal carotid artery juſt after it quits the canal of the temporal bone. The anterior clinoid proceſs has ſometimes been continued backwards to the body of the bone, ſo as to form a complete foramen, through which the carotid artery paſſes: this continuation has been diſtinguiſhed by the name of the middle clinoid proceſs.

The body of this bone, with the exception of its clinoid proceſſes, is formed into the two *ſphenoidal ſinuſes*, which, in ſtructure and office, reſemble thoſe of the os frontis. Theſe are ſeparated by a vertical partition; and open by round holes into the ſuperior meatus of the noſe. They are occaſionally ſubdivided by bony laminæ into ſmaller cells. Their lining reſembles that of the frontal, ethmoidal, and maxillary ſinuſes; which has been deſcribed in the view of the os frontis: and, like all theſe cavities, they are not fully developed until many years after birth. Their openings appear ſmaller in the entire cranium than in the ſeparate bone; as they are contracted in the former caſe by the *cornua ſphenoidalia*. Theſe are thin triangular bony plates connected to the back of the ethmoid bone; and placed at the ſides of the azygous proceſs, ſo as to diminiſh the apertures of the ſphenoidal cells. Bertin calls them *cornets ſphenoidaux;* Böhmer has delineated them in his Inſtitutiones Oſteologicæ, tab. 4. figs. 5 and 7. And Sue, in his ſplendid edition of Monro's Oſteology, tab. 8. figs. 3 & 4.

Each lateral portion of the ſphenoid bone conſiſts of three parts: 1ſt. The leſſer ala; 2dly. The greater ala; and, 3dly. The pterygoid portion.

The *ſuperior* or *ſmaller ala* has a broad commencement from the front of the body of the bone: it runs outwards in an horizontal direction, and terminates in a ſharp point; from which circumſtance Monro has deſcribed it by the name of the tranſverſe ſpinous proceſs. Its anterior margin is joined by a ſuture to the ethmoidal and frontal bones, while the poſterior edge is juſt oppoſite to the commencement of the fiſſura ſylvii, by which the two lobes of the brain are divided. The origin of this ala forms a ſomewhat thick knob, called the anterior clinoid proceſs.

The *great* or *middle ala* of the ſphenoid bone is continued from the body in the lateral direction, and forms a conſiderable portion of the orbit, with part of the temporal foſſa; in which latter ſituation it terminates by a thin ſquamous edge connected to the frontal, parietal, and temporal bones. It may be ſtated, in ſhort, to fill up the vacancy left between theſe three portions of the cranium. The ſuperior orbital fiſſure ſeparates it from the leſſer ala. Beyond the termination of the latter proceſs it is joined to the os frontis by a broad ſurface; then towards its anterior and lower part to the os malæ; behind to the anterior inferior angle of the parietal bone, to the ſquamous portion of the os temporis by an extenſive concave or ſemi-lunar margin, and, laſtly, to the front edge of the petrous part of the temporal bone by its poſterior margin. This laſt-mentioned portion, which contains the foramen ovale and ſpinoſum, is called by Monro the ſpinous proceſs; it cannot however be conſidered as forming a proceſs diſtinct from the great ala, of which it is clearly a part. From its under ſurface a ſharp pointed proceſs is continued, which gives origin to the levator palati; this is the *ſtyliform proceſs*, and *apophyſis ſpinoſa* of different authors.

In its internal ſurface the great ala preſents a large hollow, containing the convex anterior portion of the back lobe of the brain (the middle lobe of ſome writers). The bone is marked by the courſe of the ſpinous artery, and by the cerebral convolutions. The outer or temporal ſurface is the moſt extenſive: it conſtitutes the lower portion of the temporal foſſa, and is ſlightly concave. The anterior or orbital part is a ſmooth level ſurface, nearly of a rhomboid figure; ſeparated from the former by a ſharp ridge, and conſtituting chiefly the outer and back part of the orbit.

Between this portion of the bone, which is often called its orbital proceſs, and the leſſer ala, the *ſuperior orbital fiſſure* (*foramen lacerum orbitale; fiſſura ſpheno-ſphenoidalis*) is left.

The *inferior orbital*, or *ſpheno-maxillary fiſſure*, ſeparates it from the os malæ.

Between the back of the great ala, and the adjoining petrous portion of the temporal bone, a rough and irregular groove is formed; which lodges the Euſtachian tube.

The inferior ala, or *pterygoid portion* of the ſphenoid bone, deſcends perpendicularly from the baſis and greater ala, towards the ſuperior maxillary and palatine bones. It conſiſts of two thin plates: an *external*, which is broader and ſhorter, (*lamina muſcularis*,) an *internal*, narrower, and longer one, (*lamina naſalis*,) forming the poſterior opening of the noſtrils, and terminating by a hook-like proceſs (*hamulus*), round which the tendon of the circumflexus palati takes its courſe. The cavity left between theſe pterygoid plates (*foſſa pterygoidea*) is occupied by the internal pterygoid muſcle; and the fiſſure, which divides them from each other, is filled, in the entire cranium, by a proceſs of the os palati, whence it has been denominated *fiſſura pterygo-palatina*.

Foramina of the ſphenoid Bone.

1. *Foramen opticum* in the baſe of the leſſer ala, and juſt in front of the anterior clinoid proceſs; for tranſmitting the optic nerve and ophthalmic artery. In very rare inſtances the artery has a diſtinct opening for its paſſage.

2. *Superior orbital fiſſure* (*f. lacerum*) between the leſſer and greater alæ: this is largeſt near the body of the bone, and grows gradually ſmaller. The third, fourth, ophthalmic branch of the fifth, and the ſixth pairs of nerves paſs through this opening; together with the ophthalmic vein, in its paſſage to the cavernous ſinus.

3. *Foramen rotundum*, behind the former, and near the body of the bone; for the paſſage of the ſuperior maxillary branch of the fifth pair of nerves.

4. *Foramen ovale*, near the back part of the great ala. It tranſmits the inferior maxillary branch of the fifth pair.

5. *Foramen ſpinoſum*, between the laſt-mentioned opening and the pointed termination of the great ala, tranſmits the artery of the dura mater. This aperture is ſometimes formed between the ſphenoid and temporal bones.

6. *Canalis pterygoideus*, or *Vidius*, formed at the root of the pterygoid proceſſes, for the paſſage of a reflected branch of the ſuperior maxillary nerve, of the ſame name. Its anterior opening is much larger than the poſterior, and cannot be ſeen in the entire cranium: the latter cannot be diſcovered without difficulty; but it may be ſeen juſt at the root of the internal pterygoid plate, opening towards the broken anterior termination of the carotid canal.

There are other foramina found between the ſphenoid and neighbouring bones, and which may therefore be called common holes.

1. A large irregular vacancy between the point of the petrous portion of the os temporis, and the ſide of the ſphenoid bone. A maſs of cartilage fills this in the recent ſubject. The carotid artery paſſes juſt over it within the cranium, and the Euſtachian tube under it, without the cavity. The Vidian nerve enters the cranium by this aperture. 2. *Inferior orbital*, or *ſpheno-maxillary fiſſure* between the orbital portions of the ſphenoid, ſuperior maxillary, and malar bones. The infra-orbital nerve goes through this opening. 3. An opening between the body of the ſphenoid, and the orbitar proceſs of the palate bone. See the deſcription of the latter bone. The following muſcles are attached to the ſphenoid bone: pterygoideus internus et externus; the latter of which ariſes from the root of the external plate. The circumflexus palati ariſes from a hollow at the commencement of the internal plate. The temporal muſcle and levator palati are alſo attached to the bone.

The *temporal bones* (oſſa temporum, κροταφοι,) conſtitute the inferior lateral portion of the cranium, and the outer middle part of the baſis cranii. They contain the articular cavities in which the condyles of the lower jaw are received, and contribute to the formation of the zygoma. The organ of hearing is formed in their interior.

This bone conſiſts of two pieces at the time of birth: the ſquamous portion, with the ring on which the membrana tympani is ſtretched; and the petrous portion. In a fœtus of five months, or more early periods, the auditory ring is not conſolidated with the ſquamous portion; ſo that the bone conſiſts then of three pieces. It is often divided into three parts, in deſcribing it in the adult: theſe are the *ſquamous*, the *maſtoid* (which is a part of the former diviſion in the fœtus), and the *petrous*.

The temporal bone is joined to five others: 1. To the lower edge of the parietal by the ſquamous ſuture, and to the poſterior inferior angle of the ſame bone by the additamentum ſuturæ ſquamoſæ; 2. To the occipital bone, along the poſterior margin of its maſtoid and ſquamous portions, by the additamentum ſuturæ lambdoidalis; 3. By the front edge of the petrous and ſquamous portions to the ſphenoid bone; 4. To the os malæ; and, 5. To the lower jaw, by means of a true joint.

The external ſurface will be deſcribed firſt, and then that which is placed towards the cavity of the cranium.

The ſquamous portion is a broad flat piece, terminating in a thin ſemicircular margin, which overlaps the correſponding edges of the parietal and ſphenoid bones. The zygomatic proceſs ariſes from its lower portion by a broad ſurface: this at firſt ſtands directly out from the bone; but becoming narrower, turns forwards, and is joined by a rough ſurface to the os malæ, to complete the bony arch, under which the tendon of the temporal muſcle paſſes. The temporal faſcia is affixed to the ſuperior or ſharp edge of the zygoma, and alſo to the prominent line, which, running backwards from the origin of this proceſs, divides the ſquamous from the maſtoid portion, and forms a continuation of the temporal ridge of the parietal bone. The fibres of the maſſeter muſcle are affixed to the under edge of the bone. An oblong cavity is placed at the root of this proceſs, (*cavitas articularis*, or *glenoidea*,) for the reception of the maxillary condyle. The poſition of this part is oblique; the outer end of the cavity being ſituated more forwards than the inner extremity: hence, if a line were drawn through the axis of the cavity on each ſide, the two lines would meet at an acute angle in the foramen magnum. In front of this glenoid cavity is placed an oblong convex ſurface, which is alſo included in the joint (*eminentia articularis*, *tuberculum articulare*). Behind is a thin plate of bone, forming the lower and anterior part of the meatus auditorius externus, and ſeparating that paſſage from the articular cavity: this is ſometimes called the proceſſus auditorius. It is diſtinguiſhed from the articular ſurface by the *fiſſura glaſeri*, through which the chorda tympani proceeds. The large round opening of the meatus auditorius externus is found juſt behind the glenoid cavity: this paſſage will be more fully deſcribed preſently, when we ſpeak of the organ of hearing.

The poſterior part of the bone, which is irregular on its ſurface, is diſtinguiſhed by a large prominence, called the maſtoid proceſs, from a ſuppoſed reſemblance to a nipple. This part is rounder or flatter, more pointed or obtuſe, and more or leſs ſolid, in different ſubjects. It is excavated internally by numerous cells communicating with each other, and opening into the upper and back part of the tympanum. Theſe cells are ſometimes ſmall and numerous; ſometimes larger and fewer. The maſtoid proceſs does not begin to be formed until long after birth. The inner ſurface of this proceſs exhibits a deep notch, which contains the origin of the poſterior portion of the biventer maxillæ inferioris.

Behind this proceſs there is occaſionally obſerved a large opening for the paſſage of a vein to the lateral ſinus (*foramen maſtoideum*, or *occipitale venoſum*).

From the broad plate of bone which forms the lower part of the meatus auditorius externus, the ſtyloid proceſs deſcends, ariſing as it were from a peculiar cavity, and ſurrounded at its root by the above-mentioned plate, as by an imperfect ſheath; whence the term of *proceſſus vaginalis* has ariſen. The ſtyloid proceſs itſelf varies conſiderably in length; ſeldom, however, exceeding an inch. Its form is nearly cylindrical, its extremity is pointed, and it is generally ſtraight; but varieties often occur in theſe points, as well as in the ſize of the proceſs. It is uſually connected by cartilage to the bone, even in the adult ſtate; but is conſolidated at a late period of life. Separate portions of bone are often connected to it by means of ligament; nay, the ligament which deſcends from it to the cornu minus of the os hyoides is ſometimes converted almoſt entirely into bone, and appears as a prolongation of the ſtyloid proceſs.

Between the ſtyloid and maſtoid proceſſes, but nearer to the former, is a round hole called the *foramen ſtylomaſtoideum*: this is the external opening of the aqueduct of Fallopius, through which the facial nerve paſſes.

A conſiderable excavation is formed in the bone near the root of the ſtyloid proceſs, for lodging a dilated portion of the internal jugular vein; and this contributes to the formation of the *foramen lacerum in baſi cranii*, or, *f. jugulare*, through which that vein, together with the par vagum quits the cavity of the cranium. The paſſage of the nerve is ſeparated from that of the vein by two projecting bony ſpines, which almoſt form a diſtinct opening.

The *foramen caroticum*, which is the entrance of the carotid canal, is a round hole placed towards the inner and anterior part of the laſt-mentioned opening. From this part the canal aſcends firſt perpendicularly, for a very ſhort ſpace, and then is reflected at an obtuſe angle forwards and inwards. Beſides the internal carotid artery, the filaments which form the origin of the great ſympathetic nerve paſs through this canal.

We proceed to ſpeak of the internal ſurface of the temporal bone. We obſerve here the extent to which this bone overlaps the parietal; which is often nearly half an inch in particular ſituations. The ſurface of the ſquamous portion is every where marked by the convolutions of the brain; and the bone is very thin between the eminences which riſe in the intervals of the convolutions.

The maſtoid portion is hollowed by a broad and deep channel containing the lateral ſinus (*foſſa ſigmoidea;*) and the maſtoid foramen, or foramina, open into this channel. The veins which occupy theſe holes are the emiſſaria of Santorini.

A ſharp ridge, to which the tentorium cerebelli is affixed, and on which a groove is diſcerned for lodging the ſuperior petroſal ſinus, divides the petrous part of the bone into two uneven ſurfaces; of which one is ſuperior and anterior, and the other inferior and poſterior.

A very conſpicuous convex eminence is placed on the former of theſe, and it denotes the ſituation of the ſuperior ſemicircular canal. Towards the front and inner part of this prominence is placed a ſmall hole, which enters the bone obliquely under a thin bony plate, and does not, therefore, come very readily into view, except in the ſeparate bone. A branch of the Vidian nerve enters this opening to join the facial nerve: hence, it is very ſtrange that Blumenbach ſtates the foramen in queſtion to be the internal opening of the Fallopian canal; which, on the contrary, is found in the meatus auditorius internus. (Beſchreibung der Knochen, p. 129.) The carotid canal terminates towards the apex of the petrous portion by an irregular opening, which is completed in the recent ſubject by the attachment of the dura mater.

Juſt in front of this canal is a ſmall opening, through which the Euſtachian tube enters the tympanum. This is placed in the angle of junction between the ſquamous and petrous portions, at the front of the bone. The cartilaginous part of the tube, previous to its entering this opening, lies in a kind of broken and irregular groove, between the under ſurface of the petrous bone, and the poſterior margin of the great ſphenoid ala.

On the poſterior ſurface of the petrous portion there is found, in front of the foſſa ſigmoidea, an oblique ſlit of various appearance in different ſubjects; through which the *aquæductus veſtibuli* paſſes. Juſt over this is a ſlight indication of the upper end of the inferior ſemicircular canal. Still farther forwards is found a large opening leading into the bone, and appearing to terminate, on a ſuperficial view, in a blind extremity. This, which is the *meatus auditorius internus*, receives the ſeventh pair of nerves, and will be more particularly deſcribed in the account of the bony organs of hearing. Juſt under this opening, and at the edge of the foramen lacerum, is a funnel-ſhaped cavity (*apertura conoides*, Soemmerring), at which the *aquæductus cochleæ* terminates.

Between the margin of the petrous portion, and the baſilary proceſs of the occiput, a groove is formed of various magnitudes in different ſubjects; in which the anterior petroſal ſinus lies.

The following muſcles are attached to the temporal bone. 1. Temporalis; 2. Maſſeter; 3. Sterno cleido-maſtoideus; 4. Trachelomaſtoideus; 5. Splenius capitis; 6. Biventer maxillæ inferioris; 7. Stylohyoideus; 8. Stylogloſſus; 9. Stylopharyngeus; 10. Conſtrictor pharyngis ſuperior; 11. Tenſor tympani; 12. Laxator tympani; 13. Externus mallei; 14. Stapedeus; 15. Retrahentes auriculam.

The foramina of the bone are, 1ſt. One in the fiſſura Glaſeri, for the paſſage of the chorda tympani; 2. A part of the *foramen lacerum in baſi cranii*; 3. *F. caroticum*; 4. *F. ſtylomaſtoideum*; 5. *Meatus auditorius externus*; 6. *F. maſtoideum*; 7. *Meatus auditorius internus*; 8. Entrance of the Vidian nerve; 9. Paſſage of the Euſtachian tube; 10, 11. Terminations of the aqueducts of the labyrinth; 12. A common hole between the point of the petrous portion and the body of the ſphenoid; deſcribed in the account of the latter bone.

Deſcription of the bony Part of the Organ of Hearing.

The petrous portion of the temporal bone contains the organ of hearing, which we ſhall deſcribe at preſent, ſince it is formed by the bone. As this ſeems to be the moſt natural arrangement, it has, conſequently, been adopted by the moſt approved modern anatomiſts.

Few parts of the animal body afford a more attractive object of minute inveſtigation than the organs of hearing; both on account of the admirable ſtructure of the parts, and from the great importance of their functions. Hence, they have been ſo minutely examined by ſeveral great anatomiſts for the laſt two hundred years, that we poſſeſs more accurate and detailed deſcriptions of them, than of any other part in the body.

The great and modeſt Fallopius was the firſt who opened the right path in this inveſtigation: he diſcovered moſt of the important points in the ſtructure of the internal ear; and has deſcribed them in his invaluable "Obſervationes Anatomicæ," Venet. 1561, 8vo. Of ſucceeding writers, who have illuſtrated this ſubject in particular works, we ſhall enumerate thoſe only who may be conſidered as claſſical authors. Euſtachius, who indulged, indeed, too much in a ſpirit of jealouſy towards his cotemporaries and rivals, but ſeems almoſt to have been born for the purpoſes of anatomical diſcoveries, will ſtand firſt on the liſt. His "Epiſtola de auditus Organis," is contained in the "Opuſcula Anatomica," Venet. 1564, 4to.; and the ſame ſubject is illuſtrated in ſome of his plates, which did not appear till the year 1714.

Great progreſs was made in developing the ſtructure of this organ by the cotemporary labours of ſeveral eminent anatomiſts about the end of the 16th and commencement of the 17th century. The firſt edition of Duverney's "Traité de l'Organe de l'Ouie," appeared in 1683; and it is contained in the "Œuvres Anatomiques" of that author, which were not publiſhed till 1761. Mery oppoſed to this his "Deſcription de l'Oreille," which came out with Lamy's "Explication Mechanique des Fonctions de l'Ame Senſitive."

Valſalva's "Tractatus de aure Humanâ," Bonon. 1704. 4to. is the produce of ſixteen years' labour; during which time the author examined more than a thouſand crania. Yet he met with a rival in Vieuſſens, whoſe "Traité Nouveau de la Structure de l'Oreille" appeared at Toulouſe in 1714. He had, however, a more powerful defender in his illuſtrious friend Morgagni: who publiſhed Valſalva's works at Venice in 1740, accompanied with 18 epiſtles of his own, chiefly relating to the ear. A German anatomiſt, the indefatigable Caſſebohm, who had proſecuted the inveſtigation with that perſevering induſtry which characteriſes the nation, had made greater progreſs in unfolding the ſtructure of the ear, than either of the laſt-mentioned anatomiſts. His "Tractatus VI. de aure Humanâ," Halle, 1734 and 1735, preſent a model for ſuch reſearches, which will hardly be exceeded. Laſtly, a moſt perfect work on this ſubject has lately appeared in Germany; for which we are indebted to the celebrated Soemmerring. His "Abbildungen des Menſchlichen Ohrorganes," Frankfort on the Mayn, 1806, contain a moſt elegant ſeries of engravings, repreſenting the anatomy of the whole organ with that minuteneſs and fidelity, which the well-known abilities of the illuſtrious author would naturally lead us to expect.

Beſides the above-mentioned works, in which the anatomy of the whole organ is conſidered, there are ſeveral excellent treatiſes on particular parts of the ſubject. Meckel's "Diſſertatio de Labyrinthi Auris Contentis," Argent. 1777; Scarpa's "De feneſtrâ rotundâ," Mutinæ, 1772; and the "Diſquiſitiones Anatomicæ de Auditu & Olfactu," Ticini, 1789, of the ſame author, are works of the higheſt merit: and the engravings in the laſt of theſe books are executed with unrivalled elegance. Much information may likewiſe be derived from the 4th book of Albinus's "Annotationes Academicæ;" from Monro's "Obſervations on the Nervous Syſtem;" and from Cotunni's work "De Aquæductibus Auris Humanæ," Neapoli, 1760.

The organ of hearing, as formed in the bone, conſiſts of three diviſions. Firſt, the external portion, or *meatus auditorius;* which terminates at the attachment of the membrana tympani: ſecondly, the middle portion, or *cavity of the tympanum;* and thirdly, the internal portion, or *labyrinth.* To theſe may be added the *oſſicula auditus,* as a fourth diviſion of the ſubject.

Of the Meatus Auditorius.

The external circumference of this canal is formed of the rough bony plate, paſſing obliquely from without inwards and forwards, which ſeparates the meatus from the glenoid cavity of the temporal bone, and a part of which forms the proceſſus vaginalis. The external opening of the paſſage is the broadeſt part of the canal: its greateſt diameter is in a line paſſing from the upper and anterior, to the lower and poſterior part. It penetrates the bone in an oblique direction, being inclined inwards and forwards. The upper ſurface of the meatus is conſiderably ſhorter than the lower, in conſequence of the oblique poſition of the membrana tympani, which cloſes the canal internally, and forms the boundary between the external and middle diviſions of the organ. This membrane has its ſuperior margin directed conſiderably outwards, and its lower edge turned proportionally inwards.

In the fœtal ſtate the membrana tympani is ſtretched on a bony ring, *annulus auditorius;* which is ſomewhat oval in ſhape, more or leſs deficient at its upper part, where it joins the ſquamous portion, rough on its outer margin, and grooved internally, for the attachment of the membrane. Its poſterior portion is thinner and ſharper than the anterior part; which is grooved above for the reception of the long proceſs of the malleus. This ring grows gradually broader, particularly at its lower part; and it is generally conſolidated above to the temporal bone, before birth. The formation of the meatus proceeds, as the oſſification of the ſkull advances; and it is completed about the age of puberty. This bony canal is therefore formed by a gradual increaſe in the breadth of the fœtal annulus auditorius.

Cavity of the Tympanum.

This includes the ſpace ſituated within the membrana tympani. Its ſurface is irregular, rough, and cellular in ſome parts. Its extent is much increaſed in the adult, by the formation of the maſtoid cells. Beſides the three oſſicula auditus, which are contained in this cavity, we meet with the following parts.

The *feneſtra ovalis,* is an oval opening, ſituated in a depreſſion near the middle of the cavity of the tympanum; and filled by the baſe of the ſtapes. Its upper margin is more arched, and the lower more nearly ſtraight. It opens into the veſtibulum.

The *promontory* is a conſiderable riſing, juſt below the feneſtra ovalis. It indicates the commencement of the cochlea; and has the *feneſtra rotunda,* which opens into the cochlea, placed juſt under it. This opening is occupied in the recent ſubject by a delicate membrane.

Above and behind the feneſtra ovalis is placed a prominence, indicating the ſituation of the anterior extremities of the upper and outer ſemicircular canals. In front of the ſame feneſtra is a conſiderable groove, which forms the opening of a canal running obliquely forwards, cloſe to the Euſtachian tube, and holding the tenſor tympani muſcle. The opening of the Euſtachian tube itſelf is ſituated at the upper and anterior part of the tympanum. Juſt behind the feneſtra ovalis is a very ſmall hole, as if formed by the point of a needle, through which the thread-like tendon of the ſtapedeus comes out of the bony cavity in which the muſcle itſelf lies. At ſome little diſtance towards the outſide of the laſt-mentioned opening, and in the ſame horizontal plane with it, is another very ſmall hole, leading to a canal, which terminates in the aquæductus Fallopii, and tranſmits the chorda tympani. Over the feneſtra ovalis, between the groove that holds the tenſor tympani, and the opening for the tendon of the ſtapedeus, a portion of the aquæductus Fallopii appears. This canal conveys the facial nerve from the meatus auditorius internus to the foramen ſtylomaſtoideum.

The maſtoid cells open into the upper and poſterior part of the tympanum. In the fœtus, where theſe cavities are not yet formed, there is a cell between the ſquamous and petrous portions of the bone, and therefore juſt over the tympanum: this forms in the adult the communication between the maſtoid cells and tympanum.

The cavity of the tympanum contains the three *oſſicula auditus; viz.* the *malleus, incus,* and *ſtapes;* which are diſtinguiſhed by their diminutive ſize, and the elegance of their formation, and poſſeſs the important office of conveying the ſound from the membrana tympani to the labyrinth. They are articulated to each other, connect the membrana tympani to the feneſtra ovalis, and admit of being moved by three ſmall muſcles attached to them at different parts. They are the only bones in the body which acquire their complete ſize and form, and perfect oſſification, before birth. Their ſtructure is very conſtant on the whole, conſidered in their chief conſtituent parts; but variations in form are by no means unuſual.

The *malleus* (which, together with the *incus,* was diſcovered about the end of the 15th century) has received its name from a ſuppoſed reſemblance to a hammer. It reſembles a ſhort, knotty, and curved club; and is divided into the head, the handle, and two proceſſes. The *handle (manubrium)* is cloſely attached, through its whole length, to the membrana tympani. The lower extremity of this part is placed about the middle of the membrane, which it draws inwards, ſo as to occaſion a depreſſion on the outer ſurface. At the upper end of the handle is placed the ſhort proceſs *(proceſſus obtuſus)* of the bone.

Rather higher than this proceſs, there is a very ſlender ſharp-pointed one, ſtanding forwards from the neck of the bone: it is called the long proceſs of the malleus *(proceſſus ſpinoſus.)* In young children it ſometimes forms a very long curved and elaſtic bony ſpine. It reſts in a groove of the annulus auditorius, and often becomes anchyloſed to that part in the courſe of years.

Rau firſt diſcovered this part in the ſtate in which it forms a bony ſpine, and hence aroſe the appellation of *proceſſus Ravianus.* But the long proceſs, as it is uſually formed, was known long ago; (ſee S. Alberti "Hiſtor. plerarumque partium corp. hom." 1583. p. 84. & Fab. Hildanus "Die Fürtreflichkeit der Anatomie," 1624. p. 190.) It is alſo delineated by Folius in his "Nov. Auris internæ delineat." Venet. 1645.

The *head* of the malleus ſtands off from the handle at an obtuſe angle. It forms a rounded eminence connected to the handle by a contracted neck. It lies oppoſite to the upper margin of the annulus auditorius, and the articular ſurface, by which it is connected to the incus, is divided by a kind of groove into two parts.

The tenſor tympani muſcle is attached to the ſhort proceſs of this bone; and the externus mallei to the long proceſs. The laxator tympani (of the muſcular nature of which ſome entertain doubts) is inſerted into the neck of the malleus.

The *incus* is ſhorter but thicker than the malleus; and its figure was compared not unaptly by Veſalius to that of a grinding tooth. It lies between the malleus and ſtapes, and is divided into a body, and two proceſſes. The body of the bone forms an articular ſurface, with a middle eminence, adapted to the head of the malleus. One of the proceſſes *(the ſhort leg* of the incus) is ſhorter and broader; and flattened in its form. This is placed in the ſame line with the proceſſus ſpinoſus of the malleus; but is turned backwards. The other *(the long leg)* is more ſlender, and projects into the middle of the tympanum, where it lies nearly parallel with the handle of the malleus; the chorda tympani paſſing between them.

Moſt anatomiſts deſcribe a fourth bone, under the name of *os lenticulare,* or *orbiculare,* as being placed at the end of this long proceſs, juſt where it is articulated to the malleus. On this ſubject we agree with Blumenbach ("Beſchreibung der Knochen," p. 144.) in ſtating, that careful inveſtigation in the moſt natural and ordinary ſtructure of parts will ſhew this ſuppoſed fourth bone to be nothing elſe than an *epiphyſis,* and not indeed a conſtant one, of the long *apophyſis* of the incus. It is often wanting, even in oſſicula auditus, which are in other reſpects moſt perfectly formed. This fact has been aſcertained by Blumenbach in the crania of negroes and North American ſavages. It can only be ſeparated in the adult by the application of ſome force; and the ſurface has afterwards a manifeſtly broken appearance, when examined with the microſcope. And when, on the contrary, as ſometimes happens, a really ſeparate bit of bone is found between the incus and ſtapes, this can be no more conſidered as belonging to the ordinary natural ſtructure, than thoſe other ſupernumerary oſſicula which are occaſionally met with in man and animals. (See Teichmeyer "Vindiciæ quorund. inventor. Anat." 1727. Caſſebohm "Tractat. 4. p. 55.)

The third bone is the ſtirrup *(ſtapes, ſtapha),* which is the ſmalleſt in the ſkeleton, but very elegant in its formation, and poſſeſſing a peculiar and determinate figure, from which it derives its ordinary and well adapted name. It was firſt diſcovered by Ingraſſias ("Comment. in lib. Galeni de oſſibus," p. 57.) The ſituation of the ſtapes is horizontal; and it poſſeſſes a head, two crura, and a baſis. The head is excavated into an articular ſurface for the long leg of the incus; and there is a ſlight prominence at its poſterior part, denoting the attachment of the ſtapedeus muſcle. The anterior crus of the ſtapes is ſtraighter, and conſequently ſhorter than the poſterior, which is thicker and more curved. They are both grooved internally, for the attachment of a membrane which fills the opening between them. The baſis is exactly adapted in form to the feneſtra ovalis, which it fills; hence the ſuperior margin is curved, and the inferior ſtraighter.

The internal Diviſion of the Ear, or the Labyrinth.

In a fœtus of ſix, ſeven, or eight months, the labyrinth conſiſts of a peculiar firm, but thin and brittle bony ſubſtance, ſurrounded by an oſſeous matter, of a looſe and ſpongy texture, which can be eaſily removed, ſo as to exhibit the labyrinth without much difficulty. The formation of this part is complete at the time of birth, like that of the oſſicula auditus; but the oſſification of the petrous portion in general is not ſo far advanced; for the ſuperior ſemicircular canal is diſtinctly viſible in the baſis cranii through its whole courſe; and there is a peculiar hollow within its curve, filled by a proceſs of dura mater. The poſterior canal comes alſo partially into view at this time; as the oſſification of the ſkull advances, the petrous portion becomes more compact in its texture, and ſurrounds the canals more completely; it is conſolidated at laſt into a particularly hard and denſe bone, and the labyrinth at that time, inſtead of conſiſting of a ſubſtance diſtinct from the reſt of the temporal bone, ſeems to have its cavities excavated in the hard and almoſt impenetrable texture of the petrous portion. Hence the temporal bone of the fœtus muſt be ſelected for the purpoſe of diſſecting and examining the organ, and of making preparations of it.

The labyrinth conſiſts of a *veſtibulum*, or middle part; *cochlea*, or anterior; and *three ſemicircular canals*, or poſterior portion.

The *veſtibulum*, to which the feneſtra ovalis leads, is a cavity of an elliptical form, in which two ſlight depreſſions are obſervable; an inferior and poſterior one *(fovea hemiſphærica;)* a ſuperior and external one *(f. ſemielliptica,)* which terminates towards the orifice of the aquæductus veſtibuli. Theſe two foveæ are ſeparated from each other by a ſharp bony ſpine, with a denticulated extremity (the *pyramis* of Scarpa).

There are ſeven openings into the veſtibulum: *viz.* five from the three ſemicircular canals (one end of the ſuperior and poſterior canal joining together, and terminating by a common orifice;) one from the ſuperior ſcala of the cochlea; and one from the aquæductus veſtibuli.

The *cochlea* is a convoluted bony tube, reſembling externally a ſnail ſhell; from which circumſtance its name is derived. It conſiſts of two turns and a half, its axis is directed downwards and outwards. The baſe or broadeſt part is turned towards the termination of the meatus auditorius internus; and the firſt or largeſt turn forms at its commencement the promontory of the tympanum. The canal of the right cochlea turns towards the right; while that of the left follows juſt the oppoſite courſe. The bony canal, like the tube of the ſnail ſhell, turns round a central part called the *modiolus, nucleus*, or *columella*. This is hollow for the reception of a large branch of the auditory nerve; and in ſhape it is funnel-like; *(ſcyphus* of Vieuſſens.)

The canal of the cochlea is divided through its whole courſe into two paſſages or *ſcalæ*, a ſuperior and an inferior one, by means of a moſt curious and artificially fabricated ſeptum *(lamina ſpiralis)* which terminates at the extremity of the organ in a ſmall hook *(hamulus.)*

Where this ſeptum is attached to the modiolus it is bony; but it poſſeſſes a membranous ſtructure towards the convolutions of the tube. The oſſeous portion of the lamina ſpiralis conſiſts of two very thin plates, between which the ramifications of the auditory nerve are expanded in the form of a ſtriated or net-like ſubſtance, to the fibres of which the bony plates are adapted. The branches of the nerve alſo leave impreſſions on the ſurface of the modiolus.

The lower ſcala of the cochlea terminates at the feneſtra rotunda of the tympanum, and is therefore called *ſcala tympani*. The ſuperior one opens into the veſtibulum, and is diſtinguiſhed by the name of *ſcala veſtibuli*. Its aperture is juſt under the feneſtra ovalis. The feneſtra rotunda, which is cloſed by a thin membrane *(tympanum ſecundarium,)* is the termination of the ſcala tympani. The membrane is attached to a groove, which is viſible on the inner margin of the opening, and is alſo connected to the membranous portion of the lamina ſpiralis.

The three ſemicircular canals are diſtinguiſhed, according to their ſituation, by the epithets ſuperior, inferior, and exterior. One extremity of each canal is rather larger than the other, and forms a dilatation called the ampulla. The ſmaller ends of the ſuperior and inferior canals join to form a common opening, which is placed juſt oppoſite the feneſtra ovalis.

The aqueducts of the ear are two very minute canals commencing in the labyrinth, and terminating by open orifices on the ſurface of the temporal bone. The *aquæductus cochleæ* begins in the ſcala veſtibuli, and penetrating the bone, terminates by an expanded orifice juſt under the meatus auditorius internus. The *aquæductus veſtibuli* has its commencement juſt below the common opening of the ſuperior and inferior ſemicircular canals, and terminates on the poſterior part of the inner ſurface of the petrous portion, as mentioned in the deſcription of the bone.

The meatus auditorius internus ſeems, on a ſuperficial view, to terminate in a blind extremity. It is divided by a projecting bony ridge into two parts; an upper one, from which a canal commences, tranſmitting the facial nerve to the foramen ſtylomaſtoideum; the *aquæductus Fallopii*. The other portion of the meatus gives paſſage to the filaments of the auditory nerve. We may obſerve in it a conſiderable depreſſion, which is the baſis of the cochlea, and has therefore a convoluted ſpiral appearance; this is perforated through its whole extent with numerous foramina for the paſſage of thoſe branches of the auditory nerve, which ſupply the cochlea; it is called by Scarpa *tractus ſpiralis foraminulentus*. By the ſide of this ſpiral impreſſion are ſome ſmaller foveæ perforated in the ſame way for tranſmitting filaments of the auditory nerve to the ampullæ of the ſemicircular canals; theſe are the *maculæ cribroſæ* of Scarpa.

The *ethmoid bone*, ſo called from ηθμος, *a ſieve*, and ειδος, *form*, is known alſo by the name of *os cribriforme*, and is deſcribed by Galen under the term of σπογγοειδης, or the *ſponge-like* bone. It is the ſmalleſt of the eight bones of the cranium, and remarkably light on account of its numerous cells; but derives conſiderable importance from its delicate and intricate ſtructure, and from the circumſtance of its containing the chief organs of ſmelling. It has been excellently deſcribed by Schneider in his ſmall, but invaluable work, "De Oſſe Cribriformi et ſenſu ac Organæ Odoratus." Witteb. 1655. 12mo. which forms an epocha in phyſiology, as refuting the twofold error which had previouſly been univerſally received; *viz.* that the odorous particles aſcended through the ethmoid foramina into the brain, and that the mucus of the noſe deſcended from the ſame part.

It appears, on a ſuperficial view, to conſiſt of an irregular aſſemblage of thin bony plates, intercepting various cavities; and not to admit of illuſtration by compariſon with any known object.

It may be moſt conveniently divided into three parts. 1. The *cribriform plate*: 2. The *naſal plate*, with the criſta galli: 3. The intricate lateral portions.

The cribriform plate, from the ſtructure of which the whole bone has derived its name, fills up the ethmoidal fiſſure of the *os frontis*. This, with the criſta galli, is the only part of the bone viſible from the cavity of the cranium. Its poſition is horizontal, and lower than the orbital proceſſes of the frontal bone, between which it is ſituated. It conſiſts of a thin plate of bone, perforated by ſeveral ſmall foramina, which lead to the noſe, and are ſo numerous as to have ſuggeſted the compariſon to a ſieve. The filaments of the olfactory nerve penetrate this plate, which varies conſiderably in length, breadth, and general figure. The ſmall ganglia of the olfactory nerves lie on this plate; one on either ſide of the criſta galli.

The *criſta galli*, which is the thickeſt and ſtrongeſt part of the ethmoid bone, projects longitudinally from the middle of the ſuperior ſurface of the cribriform plate. It is ſituated towards the front of the bone; and is occaſionally bent towards the right or left. Its ſuperior edge is generally ſharp, but ſometimes obtuſe. Towards the front it is joined by two ſmall proceſſes *(apophyſes alares)* to the naſal portion of the os frontis, and thereby contributes to the formation of the foramen cæcum.

The ſubſtance of the criſta galli is generally occupied by medullary cavities; but it is occaſionally formed into a hollow communicating with the frontal ſinuſes.

The *naſal plate* of the ethmoid bone is a thin, broad, generally flat, but ſometimes curved lamina, deſcending perpendicularly from the middle line of the under ſurface of the cribriform plate into the cavity of the noſe; where it forms the upper and anterior portion of the ſeptum narium. It is connected in front to the naſal ſpine of the os frontis, and to the ſuture, which joins the oſſa naſi. Its inferior margin, which is thicker than the reſt, and has a ſomewhat ſpongy appearance, reſts on the cartilaginous portion of the ſeptum narium; its poſterior edge is partly joined to the vomer, and partly to the body of the ſphenoid bone.

The lateral portions of the ethmoid bone, which, on account of their complex ſtructure, have been called the *labyrinth*, may be divided into three parts. The *conchæ narium;* the *cells;* and the *os planum*, or *papyraceum*.

The *conchæ narium ſuperiores (oſſa turbinata*, or *ſpongioſa ſuper.)* are formed of a rough bony plate, having a ſpongy appearance, and placed parallel to the ſeptum of the noſe. Its ſuperior margin is attached to the cribriform lamella, while the anterior extremity is connected to the naſal proceſs of the upper jaw. There is a deep depreſſion on this plate running from before backwards, and dividing it into two portions; each of which has a ſpongy convoluted appearance, and has a convex ſurface oppoſed to the ſeptum naſi, while it is concave towards the orbit.

The lower of theſe two portions, which is much the largeſt, conſtitutes the *concha media (os turbinatum*, or *ſpongioſum medium)* of the noſe. It hangs into the middle of the naſal cavity, and terminates by a convex unconnected margin, which runs longitudinally from before backwards. It has a more convoluted ſtructure than the ſuperior one. Its concave ſurface covers the *meatus narium medius*.

The upper portion *(concha ſuper.* or *Morgagniana; os turbinatum*, or *ſpongioſum ſuper.)* is much ſmaller than the preceding. It terminates in a projecting convex edge, turned towards the cavity of the noſe. The ſpace left between this and the preceding part is the *meatus narium ſuperior*. Some unimportant varieties occaſionally occur in theſe parts, as a diviſion of the upper concha into two ſmaller ones by a groove, &c.

The ethmoid cells or ſinuſes fill up the ſpace between the conchæ and the os planum. They are partially expoſed along the upper and outer edge of the bone; but are covered at this part in the perfect cranium by the edge of the orbital proceſs of the os frontis. The anterior cells are alſo covered extenſively by the os unguis and the naſal proceſs of the upper jaw, and the poſterior ones by the orbital portion of the os palati. The number and arrangement of theſe bony cavities is very iregular. They open moſtly into the ſuperior meatus of the noſe. The bony laminæ, which divide them from each other, are the moſt delicate in the whole ſkeleton.

Juſt under the anterior cells there is a thin hook-like convoluted bony plate, connected to the cells or concha media, and extending backwards; it is called by Blumenbach *proceſſus uncinatus*.

The cells of the ethmoid bone are covered towards the orbit by a thin plate of an oblong form, which, from its ſmoothneſs, has been termed *os planum*, and from its exceſſive thinneſs, *os papyraceum*. In conjunction with the os unguis, which is connected to the anterior margin of this plate, and covers the front cells of the ethmoid bone, it conſtitutes the inner ſurface of the orbit, the partition which ſeparates that cavity from the noſe.

The naſal plate of the ethmoid bone, the conchæ, and the cells are all covered by the Schneiderian or pituitary membrane.

There is no muſcle attached to this bone.

Foramina of the Ethmoid Bone.

1. Numerous ſmall holes in the cribriform plate, tranſmitting the filaments of the olfactory nerve. Theſe amount to two or three dozen. They are arranged, not indeed with perfect regularity, into two ſeries; one of which, including the largeſt foramina, as Schneider rightly obſerved in his work "De oſſe cribriformi," runs by the ſide of the criſta galli, and ſends nerves to the ſeptum of the noſe; the other is placed towards the orbit, and diſpatches the filaments, which are diſtributed on the ſurface of the two upper conchæ. Theſe openings are the commencement of ſmall and ſhort canals, which run for various diſtances on the ſeptum and conchæ, and terminate by open orifices through which the nervous ramifications come out to be diſtributed on the pituitary membrane of thoſe parts. Some of theſe canals may be obſerved occaſionally to reach as far as the lower edge of the middle concha.

Through a large opening in front, the naſal branch of the ſuperior maxillary nerve, which enters the cranium through the anterior internal orbitary hole, again quits that cavity.

2. *Foramina orbitaria interna.* } See the deſcription of the
3. *Foramen cæcum.* } os frontis.

Connections of the Ethmoid Bone.

1. By its cribriform plate and criſta galli, to the orbital and naſal portions of the os frontis, and ſphenoid bone: 2—5. By the naſal lamella, to the oſſa naſi, vomer, and ſphenoid bone: 6, 7. To the ſuperior maxillary bones in the orbit and noſe: 8, 9. To the oſſa palati: 10, 11. To the oſſa unguis.

In the fœtus at nine months, the formation of this bone is very incomplete; as indeed is the whole organ of ſmelling. The ſeptum and criſta galli are quite cartilaginous; oſſification has ſcarcely commenced in the lateral portion of the bone; but the cribriform plate, which ſupports the large olfactory nerve is larger than the other parts.

Beſides the well-known oſteological works of Albinus and others, and the claſſical book of Schneider, which we have already quoted; much information concerning the ſtructure of this bone may be derived from Santorini's "Obſervat. Anat." and from his poſthumous plates, edited by Girardi: from the 4th faſciculus of Haller's "Icones;" from the 6th of Morgagni's "Adverſaria Anatomica;" and from the 2d book of Scarpa's "Annotationes Anatomicæ," the plates of which are executed with unrivalled elegance.

Bones of the Face.

The bones which have been hitherto deſcribed form the cranium properly ſo called: thoſe which follow, namely, the upper jaw with the bones connected to it, the lower jaw, and the teeth are included under the appellation of bones of the face. Theſe are chiefly concerned in forming the inſtruments of maſtication; but they contribute likewiſe to the cavities of the noſe and orbits.

As theſe tend, when viewed altogether in relation to the bones of the cranium, to diſtinguiſh the head of man from that of other animals; ſo they are of great importance, when conſidered particularly, in influencing the natural or individual form of the countenance. This will be more particularly conſidered in the general remarks on the head at the end of this article.

Theſe bones are generally diſtributed into two diviſions: thoſe which form the upper jaw, or the upper immoveable ſhare of the face; and the bone of the lower jaw.

The upper jaw conſiſts of ſix bones on each ſide, of a thirteenth bone, which has no fellow, placed in the middle, and of ſixteen teeth. The thirteen bones are, two *oſſa naſi*, two *oſſa unguis*, two *oſſa malæ*, two *oſſa maxillaria ſuperiora*, two *oſſa palati*, two *oſſa turbinata inferiora*, and the *vomer*.

The *oſſa naſi* are placed at the upper part of the noſe; the *oſſa unguis* are at the internal angles of the orbits; the *oſſa malæ* form the prominence of the cheeks; the *oſſa maxillaria* form the ſides of the noſe, with the whole lower and forepart of the upper jaw, and the greateſt ſhare of the roof of the mouth; the *oſſa palati* are ſituated at the back part of the palate, noſtrils, and orbit; the *oſſa ſpongioſa* are ſeen in the lower part of the *nares*; and the *vomer* helps to ſeparate theſe two cavities.

The bones of the face are joined to thoſe of the cranium by the tranſverſe ſuture which runs acroſs the orbits and roots of the noſe, and by *ſchindyleſis*; which is the peculiar mode of connection of the vomer. They are connected together by ſutures, like thoſe of the cranium; but they have not ſuch conſpicuous indentations, and approach therefore more nearly to the mode of union called *harmonia*. The various ſutures will be mentioned in deſcribing the individual bones, which they connect. The lower jaw, which conſiſts of a ſingle bone, and has ſixteen teeth implanted in it like the upper; is not joined to the other bones of the face; but is connected by a moveable articulation with the baſis cranii. It is evident from the manner in which the upper jaw is joined to the cranium, that it can have no motion, except in common with the cranium.

The *ſuperior maxillary bones*, (*maxillæ ſuperiores*,) are by far the largeſt bones of the upper jaw, whence the name of *maxillaria* has been appropriated to them. They ſerve as a baſis or foundation, on which all the other facial bones reſt, excepting the lower jaw. They are largely concerned in forming the cavities of the noſe and orbit; they contribute alſo conſiderably to the cheeks and palate; and they contain the upper ſeries of teeth.

Each ſuperior maxillary bone may be divided into a body, and four apophyſes or proceſſes; *viz.* the *naſal*, *zygomatic*, *alveolar*, and *palatine*.

The body of the bone diſplays four ſurfaces or ſides; *viz.* the external or *malar*; the ſuperior or *orbital*; the inferior or *palatine*; the internal or *naſal*.

The malar ſurface is the moſt extenſive of all. It commences below, by an arched or convex margin, juſt above which it has ſome ſlight eminences, (particularly towards the anterior part, where it acquires from this cauſe a fluted appearance,) from the ſituation of the fangs of the teeth. It terminates behind in a rough prominence, called the *tubercle*, which, beſides the tracks and foramina of the veſſels and nerves proceeding to the upper teeth, contains a muſcular impreſſion from the origin of the buccinator, and is marked alſo, together with the neighbouring malar proceſs, by the attachment of the maſſeter. The malar ſurface contains, towards the front of the face, a ſuperficial hollow, called the maxillary foſſa, in which the infraorbital canal opens, about a quarter of an inch below the margin of the orbit. Juſt over this a ſmall ſuture is obſerved, continued from the fiſſure of that canal. It terminates on its inner edge in forming a ſemilunar notch, which, with the excavation of the oppoſite bone, forms the heart-ſhaped external aperture of the noſtrils; in the middle and lower part of which a rough bony prominence is placed, called the naſal ſpine. Above this prominence commences the naſal proceſs, which, growing gradually narrower, aſcends between the os naſi and unguis, along the ſide of the noſe. It is convex on its outer ſurface, and ſlightly hollowed within. Its upper extremity terminates in a rough broken ſurface, attached to the internal angular proceſs of the frontal bone. Its poſterior and inner ſurface is marked by a deep groove; in which a part of the lacrymal ſac and naſal duct is lodged. The bony cavity for containing theſe parts is completed by the appoſition of the os unguis.

The *orbital ſurface*, which has a ſomewhat triangular ſhape, is continued towards its lower and outer part into the zygomatic proceſs: this is a broad ſurface having numerous depreſſions, and pointed eminences, by means of which it is firmly connected with the os malæ. A groove appears towards the back part of the orbital ſurface, and gradually deepens into a bony canal, called the *infraorbital*, hollowed out in the ſubſtance of the bone, but diſplaying a fiſſure in that part of its ſides which is towards the orbit. The infraorbital branch of the ſuperior maxillary nerve, and an artery of the ſame name from the internal maxillary, go through this canal, and come out on the face at the infraorbital foramen. In other parts, the orbital ſurface of this bone, which conſtitutes the whole inferior part of the cavity, is perfectly ſmooth. Its inner edge is joined to the os unguis, os planum, and os palati; in front it has a rounded margin, forming a ſmall part of the rim of the orbit; and towards the back part it conſtitutes, with the ſphenoid bone, the inferior orbital fiſſure.

The palatine ſurface has an external elliptical margin, which forms the alveolar proceſs, containing ſockets for eight teeth. This proceſs is made up of an external and thinner, an internal and thicker plate of bone; with tranſverſe proceſſes connecting theſe together, and thereby ſeparating the different alveoli. The three front ſockets, which hold the inciſor and canine teeth, are nearly round in their form, and are ſimple cavities; that of the canine tooth is longer and deeper than any other. The two next alveoli, which hold the bicuſpides, are rather flattened laterally, and divided towards their upper part into two ſlight hollows. The ſixth and ſeventh, containing the firſt and ſecond grinders, are the largeſt ſockets, and are ſubdivided into three cavities; one of which is placed towards the palate, and the other two towards the cheek. The eighth is ſubject to great variety; and may be either ſimple, double, or triple. The poſterior alveoli, and their ſepta, are much more ſpongy in their texture than the anterior ones.

As the uſe of the alveolar proceſs is merely that of receiving the fangs of the teeth, this part is not formed until after the teeth have appeared through the gum; it grows round the root of the tooth, in proportion as the body riſes in the mouth. When theſe organs are loſt, the alveoli are ſoon after removed, ſo that the jaw of an old perſon reſembles, when all its teeth are gone, that of a young child, which has not yet got any. When a ſingle tooth is loſt, and the contiguous ones remain, the alveolus is not always abſorbed; but the vacancy is filled up by bony matter, as if the two laminæ of the alveolar proceſs had been pinched together, and united in a ſharp line running between the two alveoli, which remain before and behind that of the loſt tooth. The length of the face muſt of courſe be moſt materially affected by theſe changes in the jaw; as we ſhall explain more fully in that part of this article which relates to the teeth.

The palatine portion of the upper jaw is concave, and very rough on its ſurface, where the arteries and nerves leave very manifeſt traces, being ſometimes ſurrounded by complete bony rings.

Towards the front a ſmall tranſverſe fiſſure croſſes the palate, and is loſt between the inciſor and canine teeth; hence a ſlight analogy ariſes to the intermaxillary bone of brutes. But there is this very obvious and important diſtinction to be obſerved; that no veſtige of ſuture can ever be traced in the human ſubject between the alveoli, much leſs on the upper and anterior ſurface of the jaw: ſo that the ſimilarity to the ſtructure of the quadruped is very remote The fiſſure in queſtion is more diſtinct in young than old ſubjects, and it is called by Blumenbach *ſutura inciſiva.* Although this has been overlooked by ſeveral modern oſteologiſts, it was obſerved and accurately deſcribed by the great anatomiſts of the ſixteenth century, Veſalius, Fallopius, and Columbus. It is alſo mentioned by Riolan (Anthropog. p. 649.) Galen has expreſsly enumerated an intermaxillary bone among the component parts of the human face; and Veſalius very juſtly inferred from this, amongſt many other equally ſtriking proofs, that the anatomical deſcriptions of that author, which had been univerſally received with the moſt implicit deference till that time, had not been drawn from the examination of the human ſubject. This attempt to reſcue mankind from error and prejudice drew upon him nothing but hatred and reproaches from his contemporaries, who were driven to the moſt abſurd and cauſeleſs arguments in defence of their idol, Galen. One of them ſuggeſted that an intermaxillary bone might have belonged to the human face in former times. See Jac. Sylvii *depulſio calumniarum* veſani *eujuſdam in Galenum.* The inner margin of the palatine ſurface is joined by the middle or longitudinal palate ſuture to the correſponding part of the oppoſite bone. The poſterior edge is united by means of the tranſverſe palate ſuture to the os palati.

The *naſal ſurface* diſplays; 1. A ſmall ſinus which covers ſome of the anterior ethmoidal cells. 2. Towards the front, a margin joined to the os naſi by the lateral naſal ſuture. 3. A groove varying in depth, which lodges the naſal duct; this is ſometimes almoſt a complete canal. 4. A rough line for the attachment of the inferior concha or turbinated bone. 5. A large irregular aperture leading to the maxillary ſinus. Sometimes the ſuperior margin of this opening forms cells, which join thoſe of the ethmoid bone. The naſal ſurface is then continued into the floor or bottom of the noſe, which is rather contracted towards the front. In the ſuture, which joins it to the oppoſite bone, the inferior margin of the vomer is implanted. A rough prominence is formed at this part, with a groove in the middle (*criſta naſalis*) for receiving the vomer.

The *maxillary ſinus* (*antrum maxillare*, or *Highmori*) of which the rudiments may be perceived ſome time before birth, is the largeſt cavity in any bone of the head, and poſſeſſes a very irregular figure. The various ſurfaces of the upper jaw, which we have juſt deſcribed, are merely thin plates of bone forming the walls of the ſinus. It is only ſeparated above therefore by the orbital ſurface from the orbit: it extends behind to the tubercle, and reſts below on the alveoli of the back teeth, which are ſeparated from it by a very thin bony plate; nay, in ſome inſtances, the fangs of the teeth are viſible within the ſinus. The ſockets of the three grinders, and two bicuſpides lie under the ſinus. It opens into the middle meatus of the noſe; the aperture being much contracted by the ethmoid, palatine, and inferior turbinated bones.

The ſubſtance of the upper jaw-bone contains medullary cells in its thicker parts only; for inſtance, at the root of the naſal proceſs, and juſt below the entrance of the noſtrils, for the palatine arch is conſiderably extenuated towards its back part.

Canals and foramina of the ſuperior Maxillary Bone.

1. *Canalis infraorbitalis*, and foramen infraorbitale.
2. *Foramen inciſivum*, or *palatinum anterius:* a round opening in the middle palate ſuture, juſt behind the inciſor teeth: it communicates by a ſmall aperture with both noſtrils. A ſmall twig of the ſuperior maxillary nerve, and ſome inſignificant blood-veſſels paſs through it. The noſe and palate ſometimes communicate through this opening, while the bones are ſtill covered by the ſoft parts.
3. *Canalis lacrymalis.*
4. *Canalis pterygopalatinus exterior*, and *foramen palatinum poſterius;* are formed between the maxillary and palate bones, and tranſmit the palatine artery and nerve.
5. *Fiſſura orbitalis inferior*; or ſpheno-maxillary fiſſure; a vacancy at the lower and outer part of the orbit between the ſphenoid and upper jaw-bones. The infraorbital artery and nerve paſs through this fiſſure.

The following muſcles are attached to the ſuperior maxillary bone: 1. Orbicularis palpebrarum, to its naſal proceſs; 2. Obliquus inferior oculi to the front of the orbital ſurface; 3—5, a part of the maſſeter muſcle, of the pterygoideus externus, and buccinator; 6. Levator labii ſuperioris and alæ naſi; 7. Levator anguli oris. 8. Naſalis labii ſuperioris; 9. Compreſſor narium; 10. Depreſſor alæ naſi.

Connections of the ſuperior Maxillary Bone.

By the upper end of the naſal proceſs to the os frontis, by means of the tranſverſe ſuture;—at the ſide of this proceſs to the os unguis by the lacrymal ſuture;—to the os naſi by the lateral naſal ſuture;—to the cheek-bone by the external orbitar ſuture;—to the os planum by the inner ſide of the orbital ſurface, by means of the ethmoidal ſuture;—by the back of its tuberoſity to the os palati by the palato-maxillary ſuture;—by the poſterior edge of its palatine lamella, to the os palati, by the tranſverſe palate ſuture;—to the oppoſite bone by the longitudinal palate ſuture;—to the vomer, along the ſuperior ſurface of the laſt-mentioned ſuture;—to the inferior concha or turbinated bone;—to the teeth by gomphoſis.

Superior Maxillary Bone of the Fœtus.

In the fœtus at full time this bone poſſeſſes the ſame general ſtructure as in the adult; but its parts have a different relation to each other. It conſiſts however of a ſingle piece only. The length of the bone is much leſs than in the adult, from the different ſtructure of the alveolar portion; and from the ſame cauſe the palate, which is conſiderably arched in the adult, is nearly on a level with the alveolar ſurface at this time. Hence the remarkable ſhortneſs of the face. The orbital ſurface and naſal proceſs are the moſt completely formed. There is, properly ſpeaking, no alveolar proceſs; but ſix large cells, containing the rudiments of the teeth, are hollowed out in the ſubſtance of the bone. This occaſions the external ſurface to aſſume a tuberculated appearance; which is moſt conſpicuous in young fœtuſes. The maxillary ſinus is very ſmall.

The *os malæ*, or cheek-bone, i sgenerally called, in Latin, *os* *jugale*, or zygomaticum, from the ſhare which it contributes to the formation of the zygoma. It is a thick and ſtrong bone, ſlightly convex on its outer ſurface, but hollowed internally; connecting the ſuperior maxillary bone to the os temporis, and forming more than one-third of the margin of the orbit.

It poſſeſſes a ſomewhat quadrangular figure with three thick and one thinner ſides; but the proportion of theſe margins to each other varies conſiderably.

It may be divided into three proceſſes; the *maxillary*, *orbital*, and *zygomatic*.

The maxillary proceſs is the broadeſt, and includes the whole of the thin edge, beginning near the infraorbital foramen, it runs downwards and outwards. It forms a very rough irregular ſurface, by which it adheres moſt cloſely to the zygomatic proceſs of the upper jaw.

The orbital portion of the bone forms a ſmooth rounded margin, beginning from the front of the orbital ſurface of the upper jaw, running firſt outwards, and then turning upwards to be attached to the external angular proceſs of the frontal bone. It is continued for a ſhort ſpace within the orbit, where it joins the orbital ſurface of the great ſphenoid ala. Some anatomiſts diſtinguiſh three orbital proceſſes in the os malæ; a ſuperior, which joins the os frontis; an inferior connected to the ſuperior maxilla; and an internal continued inwards towards the cavity. It is the laſt-mentioned plate of bone that ſeparates the orbit from the temporal foſſa, and which belongs only to the quadrumanous mammalia beſides man.

The zygomatic proceſs paſſes backwards, to join that of the temporal bone, by means of an oblique ſuture; which connects the proceſſes in ſuch a manner, that the temporal bone forms moſt of the ſuperior margin, and the os malæ the greateſt part of the lower edge of the zygoma.

The upper and poſterior ſide of the bone, which is continued from the ſuperior orbitar proceſs to the zygoma, and which is turned towards the temporal foſſa, forms a ſharp ridge for the attachment of the temporal faſcia. The lower ſide, which runs from the maxillary proceſs along the zygoma gives origin to the maſſeter, and hence acquires a very rough ſurface.

The inner or poſterior ſurface of the os malæ, which is concave, bounds the temporal foſſa in front, and affords origin to the fibres of the temporal muſcle.

A ſmall round hole is obſerved about the middle of this bône, and ſometimes there are even two or three ſuch: a ſuperficial branch of the ſuperior maxillary nerve penetrates this foramen, and blood-veſſels ſometimes paſs in this direction.

The zygomatic muſcles, the maſſeter, and the temporal, are attached to the os malæ.

The ſubſtance of the bone is thick, hard, and compact; including but little medullary ſtructure.

Connections of the Os Malæ.

By its ſuperior and internal orbitar proceſſes to the frontal and ſphenoid bones, by means of the tranſverſe ſuture;—to the ſuperior maxillary bone by the internal orbital ſuture, within the orbit, and by the external orbital ſuture towards the cheek;—by the zygomatic ſuture to the temporal bone.

State of the Bone in the Fœtus.

As the cheek-bones are the chief means of uniting the upper jaw firmly to the cranium, their formation is conſiderably advanced at the time of birth. Their magnitude is conſiderable at this period, but their form changes afterwards. The orbital ſurface is large and conſpicuous, while the facial and temporal portions are comparatively ſmall.

The *bones of the noſe* (*oſſa naſi*, or *naſalia*) fill up the vacancy left between the naſal proceſſes of the ſuperior maxillæ and os frontis. When viewed together, their external ſurface is regularly convex, and they are concave behind.

They are thick but narrow at the upper part, much broader and thinner below, where they terminate in a ſharp extenuated margin. We may notice in each bone an outer and inner ſurface, and four margins.

The external ſurface is gently convex and ſmooth. It has uſually one or more ſmall foramina, for the admiſſion of nutrient veſſels. The inner ſurface is proportionally concave, rough on its ſurface, and marked by deep veſtiges of blood-veſſels.

The ſuperior margin, which is narrow, but very thick, preſents a very rough ſurface, by which it is cloſely attached to the naſal proceſs of the frontal bone. Along the inner margin the two oſſa naſi are united together by the middle naſal ſuture. The gradual change in the thickneſs of the bone, from its upper to the lower margin, may be obſerved along this part of the bone. The naſal lamella of the ethmoid bone is uſually connected to the oſſa naſi, at their line of junction to each other. The external margin reſts on the naſal proceſs of the ſuperior maxilla. The lower edge, which is connected to the cartilaginous ala naſi, forms the upper part of the entrance of the noſtrils.

The frontal muſcle and compreſſor narium are attached to this bone.

The *connections* of the bone have been ſufficiently detailed in the above deſcription. On this ſubject we have only to remark further, the immenſe ſtrength of their attachment. Their arched form, and the broad rough ſurface by which they are joined to the os frontis, renders their poſition ſo ſecure, that no external violence could poſſibly drive them in; although their lower thin edge might be eaſily broken. The utility of this ſtrong union is immediately apparent, when we conſider that the delicate ethmoid bone, which the ſmalleſt force would demoliſh, is placed directly behind the oſſa naſi; and if this were injured, the fragments would probably be driven in on the brain.

The form of the oſſa naſi in the fœtus is very different from that of the ſame bones in the adult. They are nearly ſquare; the ſuperior margin being of equal breadth with the inferior. Their ſize is conſiderable in proportion to that of the other bones; and their formation is more advanced.

The *os unguis* or *lacrymale* is the ſmalleſt bone of the face, of conſiderable delicacy and elegance in its ſtructure, and may be compared to the ſcale of a fiſh.

It is ſituated at the inner margin of the orbit; connected above to the os frontis; in front to the naſal proceſs of the ſuperior maxilla; below to the orbital portion of the ſame bone; and behind to the os planum. The ſuture which joins it to all theſe is called by Monro the *lacrymal*.

It is not ſo large, nor completely formed in the embryo, as the os naſi; but its ſize and developement are conſiderable, when compared with the other bones of the face.

It contributes by nearly its whole ſurface to the formation of the orbit; but the lower end of its anterior margin forms a ſmall curved hook-like proceſs (*hamulus*), which aſſiſts in incloſing the lacrymal duct.

The external ſurface of the os unguis is, on the whole, ſmooth; but it is divided into two unequal portions, by a prominent and very ſharp ridge (*criſta longitudinalis*), which terminates below in forming the above-mentioned hamulus.

The poſterior diviſion of the bone is the largeſt, and may be called the *orbital* ſurface: the anterior or ſmaller portion, which forms a foſſicula, contributing to the bony cavity for lodging the lacrymal bag, forms the *lacrymal* ſurface of the bone.

The inner ſurface of the os unguis is concave, and does not poſſeſs the ſmoothneſs of the external; it is marked by a groove in the ſituation of the criſta; and it covers the anterior portion of the ethmoid cells.

The ſubſtance of the bone is of extreme tenuity, ſo that it is broken with the ſlighteſt force; and it is often perforated by numerous ſmall holes in its lacrymal portion, by which the membrane gains a more firm attachment.

The palatine Bone (*Os Palati*).

This bone appears in the roof of the mouth like a ſmall ſquare portion placed behind the upper jaw; but it is conſiderably more extenſive, being continued up the back part of the noſtrils to the orbit: hence it aſſiſts in forming the two latter cavities, and in completing the bony arch of the palate. Its figure is ſo irregular, that it cannot be illuſtrated by any compariſon; and it is ſo intricately connected to the ſurrounding bones, that to procure it ſeparate and perfect in the adult ſtate is a matter of much difficulty.

It may be divided into four portions: 1. The ſquare palatine plate; 2. The pterygoid proceſs; 3. The naſal lamella; and, 4. The orbitar proceſs.

The palatine plate or proceſs forms a ſquare and nearly level ſurface, occupying the vacancy left in the ſuperior maxilla, and appearing like an uniform continuation of the palatal ſurface of that bone. Its ſuperior ſurface forms the back part of the floor of the noſe, and is ſmooth; the under ſurface is rather rough, but not to the degree which is obſerved in the palatine portion of the ſuperior maxilla. The upper part of its internal edge riſes in a ſpine, after the ſame manner as the palatine plate of the ſuperior maxillary bone does, to receive the poſterior part of the lower edge of the vomer. Its anterior edge is unequally rugged, for a firmer connection with the palatine portion of the maxillary bone. The internal edge is thicker than the reſt, and of an uniform ſurface, for conjunction with its fellow of the oppoſite ſide. The poſterior margin of the bone is ſlightly ſemicircular, according to the form of the correſponding portion of the velum pendulum palati: and when the two palate bones are joined, a middle projecting point is formed, from which the azygus uvulæ ariſes.

This palatine plate is well diſtinguiſhed from the pterygoid proceſs by a perpendicular foſſa, which, applied to ſuch another in the maxillary bone, forms a paſſage for the palatine branch of the fifth pair of nerves; the opening of the canal thus formed, on the palate, conſtitutes the poſterior palatine foramen. There is another ſmall hole behind this, through which a twig of the ſame nerve paſſes.

The *pterygoid proceſs* (*proceſſus pyramidalis*) is ſomewhat triangular, having a broad baſe, and ending ſmaller behind. The back part of this proceſs has three foſſæ formed in it; the two lateral receive the ends of the two pterygoid plates, and the middle one makes a part of the pterygoid foſſa: hence the pterygo-palatine fiſſure, which divides the two pterygoid plates of the ſeparate ſphenoid bone, does not appear in the entire cranium, where it is filled by this pterygoid proceſs of the os palati. The foreſide of the palatine pterygoid proceſs is an irregular concave, where it receives the back of the great maxillary tubercle. Frequently ſeveral ſmall holes may be obſerved in this triangular proceſs, particularly one near the middle of its baſe, which communicates a little above with the openings before-mentioned, and tranſmits an artery or nerve.

The *naſal lamella* of the os palati is a broad, but extremely thin and brittle, bony plate, riſing upwards from the upper ſurface of the external edge of the palatine plate, and from the pterygoid proceſs. It is ſo weak at this part, and yet ſo firmly attached to the maxillary bone, as to be very liable to break in attempts at ſeparation.

From the parts where the plate riſes, it runs up broad on the inſide of the tuberoſity of the maxillary bone, to form a conſiderable ſhare of the ſides of the maxillary ſinus; and to cloſe up the ſpace between the ſphenoid and the great protuberance of the upper jaw, where there would otherwiſe be a large ſlit, opening into the noſtril. A croſs ridge is obſerved on the middle internal ſide of this thin plate, for the attachment of the back part of the inferior turbinated bone. On the outſide of this plate the perpendicular foſſa made by the palatine nerve is obſervable.

At the upper part of the naſal plate the palate bone divides into two proceſſes, called *orbitar*; between which and the body of the ſphenoid bone a hole is formed, tranſmitting a branch of the internal maxillary artery and ſuperior maxillary nerve to the noſtrils. Sometimes, however, this hole is proper to the palate bone, being entirely formed out of its ſubſtance.

The *anterior* of the two orbitar proceſſes is the largeſt, and has its fore part contiguous to the back part of the maxillary ſinus; while its upper ſurface appears as a ſmall triangular point in the bottom of the orbit, behind the back part of the os maxillare and planum, difficultly diſcernible in the entire cranium, on account of its diminutive ſize and remote ſituation. It has cells behind, reſembling thoſe of the ethmoid bone, to which it is contiguous; and it is placed on the aperture of the ſinus ſphenoidalis, ſo as to have only a round hole at its upper fore part.

The other diviſion of the orbitar portion is extended along the internal ſide of the upper back part of the maxillary tuberoſity, to the baſe of the ſphenoid bone, between the root of the proceſſus azygos and pterygoid proceſs.

The palatine portion of this bone, and its pterygoid proceſs, are firm and ſtrong, with ſome cancelli; but the naſal plate and orbitar proceſſes are very thin and brittle.

The circumflexus palati, azygus uvulæ, and a portion of both pterygoid muſcles are connected to the os palati.

Foramina, &c. of the Palate Bone.

1. *Spheno-palatine*, or *pterygo-palatine notch*, or *opening*; formed between this and the ſphenoid bone for the tranſmiſſion of nerves and veſſels to the noſe.

2. *Pterygo-palatine canal* commences from the laſt-mentioned notch, and receives the nerve of the ſame name from the ſecond branch of the fifth pair. This canal is formed almoſt entirely towards the lower part in the ſubſtance of the os palati; but the ſuperior maxilla contributes to it generally at its origin. It divides below into three canals, the largeſt of which (*canalis pterygo-palatinus anterior*, or *major*) opens at the poſterior lateral part of the palate, cloſe to the alveolar proceſs, by the large *poſterior palatine foramina*, the formation of which is aſſiſted by the ſuperior maxilla. The *poſterior pterygo-palatine canal* opens on the under ſurface of the *pterygoid proceſs*; and the *exterior* ends between the latter proceſs and the alveolus of the dens ſapientiæ.

The chief palatine nerve, and the palatine branch of the internal maxillary artery, come through the large canal: ſmaller twigs of nerve paſs through the other openings. There is ſometimes only a ſingle opening.

Theſe canals and foramina may be ſeen in the treatiſe of Mekel “De Quinto pare Nervorum,” and in the ſecond book of Scarpa's “Annotationes Anatomicæ,” tab. 2.

Connections of the Palate Bone.

The palate bones are joined to the maxillary, at the fore-edge of their ſquare portions by the tranſverſe palatine ſuture; by the thin naſal plate and orbitar portion to the ſame bone, by means of the palato-maxillary ſuture; by the pterygoid proceſs to the ſphenoid bone by means of the ſphenoid ſuture; by the tranſverſe ridge of the naſal plate to the inferior turbinated bone. This union is frequently anchyloſed in old ſkulls. By the orbitar proceſſes to the os planum and ethmoid cells, at the inner edge of its ſquare portion, to the oppoſite bone, by the longitudinal palate ſuture, and at the upper ſurface of the ſame part to the vomer.

This bone conſiſts, in the fœtus, of a ſingle piece; but its formation is incomplete. The orbital and pterygoid portions are the moſt perfect at that period.

The inferior turbinated Bone (Concha inferior; Os ſpongioſum inferius).

This bone reſembles very cloſely, in ſtructure and ſhape, that proceſs of the ethmoid called the concha media. Realdus Columbus was the firſt who aſcertained it to be a diſtinct and ſeparate bone, “De Re Anatomicâ,” p. 58. Several modern oſteologiſts have however repreſented it as a proceſs or appendix of other bones of the face: thus, Winſlow deſcribes it as a part of the os unguis; Santorini as a proceſs of the os palati, “Obſ. Anat.” p. 88; and Hunauld as a portion of the ethmoid bone, “Mem. de l'Acad. des Sciences de Paris,” 1730, p. 560, as Fallopius had long ago conſidered it. “Obſ. Anat.” p. 35.

It happens, however, very rarely, that the inferior concha is conſolidated with either of theſe three bones. It might more juſtly be regarded as a part of the ſuperior maxillary bone, with which it is ſometimes anchyloſed in the crania of perſons not advanced in years, and well formed in other reſpects.

It is placed in the lower part and external ſide of the noſe, and has that irregular, ſpongy, convoluted ſurface from which its names of *turbinated* or *ſpongy* bone are derived. The name of *concha* has been given to it from a compariſon to the ſhell of the freſh-water muſcle (*mya pictorum*), which will indeed bear a reſemblance to it, if we ſuppoſe the ſhell placed longitudinally, with its long margin below, the hinge above, and the convex ſurface towards the ſeptum naſi. The bone, however, varies both in ſize and form, and may ſometimes be found in very elegant crania, forming a ſharp edge without the uſual ſhell-like convexity.

It is attached chiefly to the upper jaw and os palati: ſometimes, however, it is connected to the proceſſus uncinatus of the ethmoid bone, or by its upper and anterior extremity to the inner ſurface of the os unguis.

Oſſification commences in theſe delicate bones about the middle of pregnancy, at which time the cartilaginous conchæ poſſeſs throughout a looſe reticulated bony texture. In the newly born infant their oſſification is very complete.

The external ſurface of the bone is concave, and its internal convex. Three margins may be obſerved in it; an anterior, a ſuperior, and a poſterior.

The anterior margin is the ſhorteſt, and terminates by a ſmooth edge; it is placed obliquely on the inſide of the upper jaw, near the root of the naſal proceſs, and covers by its attachment the termination of the naſal duct: its anterior end reaches almoſt to the outer margin of the orbit.

The upper margin forms a thin hook-like lamina which cloſes a conſiderable portion of the lower part of the opening of the antrum, and reſts behind on the os palati.

The lower margin is the longeſt and thickeſt of the three; very rough and ſpongy on its ſurface, and convoluted ſo as to form a convex edge. This covers the lower meatus of the noſe.

The *vomer* was firſt recognized as a diſtinct bone by Columbus and Fallopius, “De Re Anatom.” p. 48. “Obſ. Anat.” p. 33; who gave it the name of *vomer* from its form. Veſalius, on the contrary, deſcribed it as an appendage of the ethmoid bone, and he was followed in this miſtake by Santorini, “Obſ. Anat.” p. 88. Anthony Petit in his edition of “Palfyn's Anatomy,” Lieutaud and Portal, “Anat. hiſtorique et pratique de Lieutaud par Portal,” vol. i. p. 66. Vidus Vidius repreſented it as a proceſs of the ſphenoid bone.

With the exception of its ſuperior margin, it forms a thin and flat bony plate, and conſtitutes a conſiderable portion of the ſeptum narium.

It is connected above to the ſphenoid and ethmoid bones, below to the ſuperior maxilla and os palati.

It has already acquired a conſiderable magnitude about the middle of pregnancy; but its form in the newly born child is very different from that of the adult. Its two laminæ are widely diſtant from each other in the whole length of the upper margin, and they unite below, not to form a ſharp edge, but a flat ſurface. It does not poſſeſs the rhomboidal form which it has in the adult, but is much narrower and longer. In progreſs of time the two layers approach nearer together, and ſometimes are completely conſolidated; or they leave at leaſt only a ſmall vacuity in the middle. It becomes at the ſame time broader, and acquires a rhomboidal form, ſo that it poſſeſſes four margins, *viz.* a ſuperior, inferior, anterior, and poſterior.

The ſuperior margin is the thickeſt and ſtrongeſt; it forms a deeply grooved ſurface, the ſides of which form two flattened plates. The vacancy left between theſe receives the azygous proceſs of the ſphenoid bone, and the cornua ſphenoidalia are connected to their margins.

The anterior margin is the longeſt, and generally has an irregular ſpongy edge. Its upper part ſupports the naſal lamella of the ethmoid bone; and on the front it is joined to the cartilaginous portion of the ſeptum narium, which is often received into a kind of groove or fiſſure formed by a ſeparation of the bony laminæ.

The lower margin repreſents the cutting edge of the plough-ſhare, and is received into the groove of the *criſta naſalis* formed at the junction of the ſuperior maxillary and palatine bones. Blumenbach ſtates, that in caſes of hydrocephalus internus, he has known this under edge of the bone to be driven down by the mechanical preſſure of the accumulated fluid, ſo as to cauſe a fiſſure of the palate. “Beſchreibung der Knochen,” p. 221.

The poſterior margin is ſharp and even; it divides the back opening of the nares into two halves, running obliquely downwards and forwards from the ſphenoid to the palate bone.

The *lower jaw bone* (*maxilla inferior; mandibula*) is by far the largeſt and ſtrongeſt of the bones of the face. Its reſemblance in form to a horſe-ſhoe is well known. It is connected only to the temporal bone by means of an articulation.

This bone, as Veſalius long ago obſerved, is ſhorter in man than in any other animal. Yet the elephant would, perhaps, form an exception to this rule, as the bone there ſeems to be really as ſhort as in the human ſubject. It appears remarkably large, comparatively ſpeaking, in animals of the monkey kind, even in ſuch genera as are on the whole moſt *anthropomorphous.*

Its oſſification commences at a very early period, and it has attained a conſiderable magnitude in fœtuſes of the ſecond and third month after conception; but its form at this period differs much from that which it poſſeſſes ſubſequently. In the fœtus, and in the newly born child, it conſiſts of two diſtinct halves, which are connected by a cartilaginous ſymphiſis at the chin. On account of the want of teeth it is very narrow, particularly at the ſides. Its ſubſtance is hollowed out into large bony cavities, which hold the rudiments of the future teeth. The ſynchondroſis of the chin becomes firmly oſſified in the firſt month after birth. In proportion as the temporary teeth make their appearance, the form of the jaw, conſiſting of a ſingle piece of bone, becomes more and more developed. (The changes of its form, &c. will be more fully conſidered in that part of this article which relates to the teeth.) In moſt animals, on the contrary, the lower jaw conſiſts throughout life of two ſeparate pieces joined by a mere ſynchondroſis, which is deſtroyed by boiling or maceration.

The lower jaw-bone may be divided into the arch-like *body*, and into the two lateral productions (*rami*) which aſcend from the extremities of the arch towards the baſis cranii.

The *body* of the bone includes the *chin*, and two *lateral portions*, which run backwards to the rami. The former part conſtitutes nearly a ſquare piece in the front of the jaw, in the cranium of a ſtrong and well-formed man; and the lateral portions are continued backwards from this at an obtuſe angle. This ſquare form of the chin is particularly obſervable in the negro. But very frequently the bone forms a regular curve or arch at this part; and ſometimes the chin has almoſt a pointed appearance. The part, where the ſynchondroſis exiſted in the fœtus, is ſtill called the ſymphyſis of the bone. The name of *baſis* is applied to the inferior edge of the jaw-bone; extending from the chin in front to the *angle*, or part at which the ramus commences.

The ſuperior margin of the body is formed into an alveolar proceſs, reſembling in its ſtructure the ſame proceſs of the upper jaw. The front ſurface of this proceſs, which lodges the inciſor and canine teeth, has generally a fluted appearance, as it is moulded to the fangs of thoſe organs. The form of the alveolar margin does not exactly reſemble that of the ſuperior maxilla, as it is contracted in front: whereas the other forms a regular arch. The front teeth of the lower jaw are ſmaller than thoſe of the upper, by which they are overlapped; and hence ariſes the difference in the outline of the two parts. The outer plate of the alveolar proceſs is the thinneſt, as in the upper jaw; but an exception to this obſervation occurs in the ſockets of the ſecond molaris, and dens ſapientiæ; and particularly in the latter, which is almoſt covered externally by the coronoid proceſs.

On the forepart of the chin there is a ſlight longitudinal ridge in the middle, on each ſide of which the bone is depreſſed to contain the depreſſor labii inferioris, and levator menti; and below a ſmall riſing may be obſerved, where the depreſſor originates. On the middle and back part of the chin, one or two more or leſs prominent pointed protuberances are obſerved (*ſpina mentalis interna*), to which the genio-gloſſi and genio-hyoidei are affixed. Below theſe are two rough ſinuoſities denoting the attachment of the biventres maxillæ inferioris.

At the lower and forepart of the outer ſurface of the *lateral portion*, a ſmall eminence may be obſerved, where the depreſſor labiorum communis ariſes. Above this, at about the mid-diſtance between the alveolar proceſs and baſis is a round hole, called the *foramen mentale*, which tranſmits an artery and nerve of the ſame name. The poſterior alveoli are ſeparated from the root of the coronoid proceſs by a ſmall groove (*ſulcus obliquus*), cloſe to which is a rough line for the attachment of the buccinator muſcle. An oblique impreſſion from the origin of the mylohyoideus may be noticed on the inner ſurface of the bone: it commences juſt within the ſocket of the dens ſapientiæ, and runs obliquely downwards and forwards.

The end of the baſe of the jaw, where it turns upwards at an obtuſe angle towards the cranium, is called the *angle* of the bone. And the *ramus* includes the whole broad and flat production which is continued towards the ſkull. The maſſeter muſcle covers the whole external ſurface of this part: but the ſtrongeſt impreſſions of its attachment are obſerved juſt on the angle of the bone. The correſponding portion of the internal ſurface is marked in the ſame way by the pterygoideus internus.

The ramus of the jaw terminates above in forming two proceſſes. The anterior of theſe, which is flattened at the ſides, ſharp-edged, and pointed, is called the *coronoid;* it has the tendon of the temporal muſcle inſerted in it, and paſſes juſt within the zygoma.

The poſterior proceſs, or *condyle*, terminates in an oblong ſmooth head, which is articulated to the temporal bone; and ſupported on a ſmaller part or neck. The condyle, whoſe greateſt length is tranſverſe, and whoſe convexity is turned forwards, is covered with a cartilage, as the articulated parts of all other moved bones are. The poſterior ſharp edge of the coronoid proceſs is continued into the front of the condyle, near its outer extremity; forming a ſemilunar vacancy between theſe two parts (*inciſura ſigmoidea.*) The inner and forepart of the condyle is a little hollowed out and rough to receive the inſertion of the pterygoideus externus. The direction of the condyle is not exactly tranſverſe with reſpect to the cranium; but its axis paſſes obliquely from without, inwards and backwards; ſo that the outer extremity is placed rather further forwards, than the inner end; and hence theſe eminences are adapted to the articular cavities of the temporal bones.

A large irregular hole is found about the middle of the inner ſurface of the ramus; this leads into a *canal* hollowed out in the ſubſtance of the bone, and running under the ſockets of the teeth, as far as the *foramen mentale,* where it opens externally. From this point, however, a ſmaller canal is continued under the alveoli of the front teeth. A large branch of the inferior maxillary nerve, accompanied by the inferior maxillary artery, and its correſponding vein, run in this canal. The chief portion of the nerve comes out again at the foramen mentale, together with a minute twig of the artery; and a ſmall branch of each enters the canal under the inciſor teeth. A groove is obſerved on the inner ſurface of the bone, commencing at the origin of the canal, and running forwards; ſometimes there is a complete bony tube for ſome diſtance. It holds a branch of the inferior maxillary nerve.

The ſurface of the lower jaw is hard and firm, except at the ſpongy ſockets; where, however, it is ſtronger than the upper jaw. Its internal ſubſtance is cellular, without any ſolid partition between the cancelli in its middle. At the baſe, eſpecially of the chin, where this bone is moſt expoſed to injuries, the ſolid ſides of it are thick, compact, and hard.

The following muſcles are attached to different parts of the lower jaw-bone; depreſſor labii inferioris; depreſſor anguli oris; levator menti; platyſma myoides; maſſeter; temporalis; pterygoideus externus et internus; biventer maxillæ inferioris; mylohyoideus; geniohyoideus; genioglosſus; buccinator.

The joint of the lower jaw with its motions, will be conſidered under the article MASTICATION.

Of the Teeth.

Parts common to all the Teeth.

Each tooth conſiſts of three parts; the *body* or *crown*, which appears through the gum in the cavity of the mouth; the *root* or *fang*, which is lodged in the alveolar proceſs; and the *neck*, round which the gum adheres, dividing the two firſt mentioned parts from each other. Every tooth has an internal cavity, which extends nearly the whole length of its bony part. This opens or begins at the point of the fang by a very minute aperture: it grows larger in its paſſage, and terminates in the body of the tooth, where it is the largeſt of all. This latter part is exactly of the ſhape of the body of the tooth to which it belongs; and, indeed, it may be ſtated in general terms, that the whole cavity is nearly of the form of the tooth itſelf, larger in the body, from whence it gradually diminiſhes to the extremity of the fang. Where the tooth has only one root, the cavity is ſimple; in others, each fang has its own hollow, which opens into the common excavation in the body of the tooth. This cavity is not cellular, but ſmooth on its ſurface; and is filled with a ſoft membranous and pulpy ſubſtance, which is made red by injection, and probably receives branches of the nerve, as it is exquiſitely ſenſible, when expoſed by decay of the tooth. The blood-veſſels, when injected, can be traced through the whole cavity; but it is difficult to purſue the nerves even to the point of the fang. The ſurface of the crown of the tooth is the only bone in the body not covered by perioſteum. The fang is, however, inveſted by a membrane of this deſcription, from the neck to its extremity. This, though very thin, is vaſcular, and appears to be common to the tooth which it encloſes, and the ſocket, which it lines as an inveſting internal membrane. At the neck of the tooth, it is attached to the gum.

Connection of the Teeth.

The fangs of the teeth, implanted in the alveoli of the jaws, are compared to nails driven into wood; and hence the mode of union is called *gomphoſis* (from γομφος, a *nail.*) By the adheſion of the above-mentioned perioſteum, and of the gum, and the cloſe connection of the alveolar proceſs, the teeth are ſo firmly retained in their ſituation in the living ſubject, that they can only be ſeparated by conſiderable force. When, however, the ſoft parts are deſtroyed by macerating the cranium, thoſe teeth, which have only one fang, drop out; while ſuch as poſſeſs two or three diverging roots, are retained in their ſituation.

The Gums.

The alveolar proceſſes are covered by a red vaſcular ſubſtance; called the gums. This is perforated by as many openings as there are teeth; the necks of which are covered by the cloſely adhering ſides of the apertures. The external and internal gums are united by tranſverſe fleſhy partitions, which are higher than the other parts of the gum, and thence form an arch between every two adjacent teeth. The thickneſs of that part of the gum, which projects beyond the ſockets, is conſiderable; ſo that when it ſhrinks from the tooth by diſeaſe, or is deſtroyed by boiling or maceration, the teeth appear longer, or leſs ſunk into the jaw. The gum adheres very firmly, in the healthy ſtate, both to the alveolar proceſs and to the teeth, but its extreme border is naturally looſe all around the teeth. It approaches, in its ſubſtance, to a kind of cartilaginous hardneſs and elaſticity. It is very vaſcular, ſo as to be rendered quite red by minute injection; yet it does not ſeem to poſſeſs any great degree of ſenſibility. For, though we often wound it in eating, and in picking the teeth, much pain is not felt on theſe occaſions; and both in infants and old perſons, where there are no teeth, the gums bear a very conſiderable preſſure without pain. The advantages ariſing from this inſenſibility are obvious; for till the child has cut its teeth, the gums muſt perform their office, and be conſequently expoſed to conſiderable mechanical force, for which they are formed by having a hard ridge running through their whole length. Old perſons, who have loſt their teeth, have not this ridge. As the gums are not eaſily irritated by wounds in a ſound ſtate, they are not ſo liable to inflammation as other parts, and ſoon heal.

As the teeth are united to the jaw by the perioſteum and gums, they have ſome degree of yielding motion in the living body. This circumſtance probably renders them more ſecure; as by breaking the jar of bony contact, it may prevent fractures both of the ſockets, and of the teeth themſelves.

Component Parts of the Teeth.

Theſe organs are compoſed of two ſubſtances, differing conſiderably in their ſtructure and appearance, and exiſting in very unequal proportions.

The crown of the tooth is furniſhed with an exterior coat or cruſt of a ſubſtance, called *enamel (ſubſtantia vitrea, cortex ſtriatus)*, which terminates at the neck. This, which in texture and appearance reſembles the porcellaneous ſhells, is the hardeſt ſubſtance in the whole body. It is of a milk-white colour, ſmooth, or as it were high poliſhed on its external ſurface; and poſſeſſing a kind of ſemi-tranſparency in the living ſtate, which is afterwards loſt. It preſents, on a fracture, a regular fibrous and cryſtalline appearance; but, in other reſpects, its texture is homogeneous. It differs ſo clearly in its colour and ſtructure from the ſubſtance which it covers, that, in whatever direction the crown of a tooth be divided, a ſharp line, defining the limits of the two parts, can be very readily diſtinguiſhed. The exterior cruſt of enamel is thickeſt on thoſe parts of the teeth, which are oppoſed to each other in maſtication; that is, on the cutting edges of the inciſor teeth, and the grinding baſes of the grinders. It grows gradually thinner and thinner towards the gums; it is alſo generally rather thicker on the outer than on the inner ſurface of the teeth, particularly in the inciſors. The fibres of the enamel, generally ſpeaking, have the direction of radii proceeding from the centre of the tooth; but, near the gum, they become inclined towards the ſurface of the bony part.

The hardneſs of this ſubſtance is ſuch, that it will ſtrike fire with ſteel, provided the metal be good, and the ſurface of the enamel broken. It can only be divided by means of a file, as ſaws, even of the fineſt ſtructure, do not affect it; and even files are ſoon worn ſmooth by it. When expoſed to the action of fire, it becomes ſlightly diſcoloured, cracks, and flies off from the bone.

No pain is occaſioned by filing, perforating, or eroding the enamel in the living ſubject; nor is there the ſlighteſt appearance of reproduction, when it has been partially deſtroyed or removed.

It acquires a temporary tinge by eating fruits, which have highly coloured juices, as mulberries and black cherries; for it ſeems, like all other calcareous ſubſtances, to attract colouring matters ſtrongly. In this way ſome people tinge their teeth with particular colours, according to their notions of elegance; as the Javaneſe, and inhabitants of the Pelew iſlands.

The poſſibility of imparting an artificial colour to the teeth, *ab externo*, a circumſtance of conſiderable importance in the phyſiology of theſe organs, has been abundantly proved by the experiments of Mr. Moor, an ingenious ſurgeon dentiſt, and lecturer on the teeth, in London. He immerſed them in different coloured fluids, ſuch as ink and bile, and found that their ſubſtance became tinged throughout. He has found alſo that oil penetrates them completely, ſo as to render them tranſparent.

It is not hitherto decided, whether or no the enamel of a growing tooth receives any tinge from feeding the animal with madder; but if it does, the effect is certainly much leſs than that produced on the bony part. When, however, the enamel is formed, it certainly is not affected by mixing madder with the food, except on the external ſurface, which becomes ſtained by maſtication. (Blake's Eſſay, p. 132—135.)

Chemical Compoſition of the Enamel.

Enamel conſiſts of phoſphate and carbonate of lime, joined to a very ſmall proportion of animal ſubſtance: hence, when immerſed in muriatic or nitric acids, it is diſſolved with a rapid efferveſcence, occaſioned by the liberation of carbonic acid gas. Sulphuric acid ſeems at firſt to have no action; but in the courſe of an hour, ſmall bubbles are perceived; and in twelve hours the enamel burſts, cracks, and ſeparates, accompanied with an evident formation of ſelenite by the action of the acid on the lime. Diſtilled vinegar has a very trifling effect, but operates more powerfully when concentrated.

There is a ſlight flocculent appearance, after diſſolving the bony part of the enamel in dilute nitrous acid, ariſing from the ſmall proportion of animal matter which belongs to this ſubſtance.

The conſtituent ingredients of the enamel are ſtated by Mr. Pepys to be in 100 parts: phoſphate of lime 78, carbonate of lime 6, *water* of compoſition 16. Should not the latter be rather conſidered as an animal ſubſtance?

The employment of acids in the living ſubject will impart a very white colour to the teeth; but it ſhould never be reſorted to, as it is extremely injurious by diſſolving the enamel. Cream of tartar (*acidulous tartrite of potaſh*), containing an exceſs of the tartarous acid, exerts this deleterious ſolvent influence; ſo that a tooth immerſed in it for twelve hours became very rough. (Blake's Eſſay, p. 157.) Yet it is not an unfrequent ingredient of dentifrices. Theſe powders ought never to poſſeſs any chemical properties; which muſt indeed be completely uſeleſs, if the proper attention be paid to bruſhing the teeth every morning. For the ſame reaſon, perſons who take nitrous or other acids medicinally, ſhould draw them into the mouth through a glaſs tube. It is in the ſame way, by a ſlight action on the enamel, that eating large quantities of fruit tends rather to whiten the teeth.

The enamel ſometimes ſeems to be depoſited irregularly on the ſurface of the tooth, producing the appearance called honey-comb teeth. It has been aſcertained by Mr. Moor, that this ariſes from inequalities in the bony part, over which the enamel is depoſited. Such teeth are more liable to decay than others. Sometimes, however, we ſee ſpots, in which no enamel has been laid down, and which appear black from caries of the expoſed bony part; and the colour of the enamel itſelf ſometimes deviates partially from its ordinary appearance.

The uſe of the enamel muſt appear very clearly from the above deſcription of the ſubſtance. It oppoſes a hard and almoſt indeſtructible ſurface to the action of the food which we maſticate. It is, however, at laſt worn off from the oppoſed ſurfaces of the teeth, by the long continued and conſtant employment of theſe organs in chewing. And when this takes place, the bony ſubſtance is much more rapidly deſtroyed; ſo that the ſurface of the tooth becomes concave, in conſequence of the external cruſt of enamel reſiſting the trituration longer than the bony part. The enamel is alſo much leſs prone to caries than the oſſeous ſubſtance of the tooth.

Bony Part of the Tooth.

The whole body, with the exception of its exterior ſurface, and the entire fang, are compoſed of what is called the *bone of the tooth*.

The term *bone of the tooth* is here employed in compliance with eſtabliſhed cuſtom, which has arranged the teeth among the bones of the body, and generally induced anatomiſts to deſcribe them with the bones. The general reſemblance which they bear to bone, particularly in the hardneſs of their texture, and in the nature of their conſtituent elements, has probably led to this arrangement. There are, however, ſo many differences in ſtructure between theſe parts, that we ſhould be fully warranted in affirming that the *teeth* are not *bones*. The proceſs, by which theſe organs are formed, is alſo ſo entirely different from the formation of bones, that the term *oſſification* is certainly very improperly uſed, when applied to the developement of the teeth, and could only lead us to form erroneous concluſions. To perſons who have not conſidered the ſubject minutely, theſe remarks may appear rather paradoxical. Yet we may repel this charge by obſerving that other anatomiſts have conſidered the ſubject in the ſame point of view. Eyſſon, who publiſhed ſome obſervations on the bones of children, in the year 1659, has the following very juſt remark: "Poſtquam dentium procreatio longe diverſa eſt ab oſſium generatione, ſiquidem oſſa fiunt per interceſſionem cartilaginum, dentes ex converſione mucoris in dentium ſubſtantiam, *opinor dentem non eſſe os*, ſed proprium aliquod corpus eſſe, durius, candidius, ſolidius." (Tractatus Anatomico-medicus de Oſſibus Infantum, Groningæ, 12mo. p. 188.) To this we may add the deciſive opinion of one of the ableſt anatomiſts of the preſent day. I allude to Cuvier, the learned ſecretary of the French national inſtitute. "We may," ſays he, "ſafely affirm, that it is very improperly that ſeveral anatomiſts have given to the internal ſubſtance of the teeth the name of *oſſeous ſubſtance;* and equally improperly have they given the name of *oſſification* to the operation which developes and hardens them. This is to confound two things eſſentially different, and to give, by ill applied names, falſe ideas, which may even have an influence upon practice." (Philoſophical Magazine, vol. xxviii. p. 264. from the Memoires de l'Inſtitut National.)

This is much leſs hard and brittle than the enamel; but it is more denſe and compact than any other bony ſubſtance. It is more inclined to a yellow colour than the enamel; and this is particularly obſervable towards the fang, where it is often at the ſame time ſemi-tranſparent like horn, and ſofter in its texture. This is deſcribed by Blumenbach as a third ſubſtance of the tooth, by the name of *ſubſtantia cornea.* (Beſchreibung der Knochen, p. 244.) Its fracture has a fibrous appearance, and it is ſuſceptible of a very high poliſh.

It differs from other bone, in never containing any medullary cells, nor indeed any reticular texture, however large the tooth or its cavity may be.

It conſiſts of the ſame earthy ſubſtances with thoſe that belong to the enamel; but they are united to a much larger ſhare of animal matter. The latter conſtituent exiſts in the teeth in ſuch abundance, that although their earth be diſſolved by acids, the form of the tooth is ſtill retained by a firm cartilaginous ſubſtance, which remains. This reſidue is indeed more denſe than that of other bones.

The different proportions of animal matter, contained in the enamel and bone of the tooth, are beſt ſhewn by the common method of exhibiting the arrangement of the former ſubſtance on the tooth. Let a ſection of the tooth be made in any direction, and burn the cut ſurface; then waſh it with a weak acid. The bone is perfectly blackened by the action of the fire on its animal matter, while the enamel, conſiſting almoſt entirely of earth, retains nearly its original whiteneſs.

According to Mr. Pepys, the bone of the tooth conſiſts, in 100 parts, of 64 parts of phoſphate of lime, 6 of carbonate of lime, and 20 of gelatine. The remaining 10 he ſets down as water of compoſition and loſs.

The exiſtence of fluoric acid in the teeth has lately been announced by ſome foreign chemiſts; but the fact of its exiſtence, as a component part of theſe organs, is not yet definitively aſcertained. Sig. Morichini of Rome diſcovered fluoric acid in the foſſil tooth of an elephant; and thence was led to examine that of the human ſubject. He ſtates that 100 parts of it contain 30 of animal ſubſtance, and 22 of fluate and phoſphate of lime. He ſuppoſes the phoſphoric acid to be in very ſmall quantity. They contain alſo ſome magneſia, alumine, and carbonic acid. The very ſmall proportion of earthy matter, and the large quantity of animal ſubſtance, which this analyſis aſſigns to the enamel, differ ſo much from the reſults obtained by other chemiſts, that the accuracy of the experiments muſt incur ſuſpicion. Mr. Brande could not diſcover any fluoric acid in the enamel. He powdered it, and ſubjected it with ſulphuric acid to the action of heat; but its preſence was not ſhewn by any action on glaſs: nor was he more ſucceſsful by collecting the gas produced by expoſing the enamel to heat with ſulphuric acid. (Nicholſon's Journal, vol. xiii. p. 214.)

Fourcroy and Vauquelin have obtained fluoric acid from tuſks and teeth, altered by remaining in the earth; but not from freſh ones. (Philoſophical Magazine, vol. xxvii. p. 88.)

Mr. Berzelius of Stockholm ſtates, that he has found fluoric acid both in the bone and in the enamel of the teeth; as alſo in the bones in general, both in man and in the ox. He gives the following analyſis.

Enamel of human Teeth.

Phoſphate of lime,	85.3
Fluate of lime,	3.2
Carbonate of lime,	8.0
Phoſphate of magneſia,	1.5
Soda, animal matter, and water,	2.
	100

Oſſeous Part of human Teeth.

Phoſphate of lime,	61.95
Fluate of lime,	2.10
Carbonate of lime,	5.50
Phoſphate of magneſia,	1.05
Soda, with a little muriate of ſoda,	1.40
Gelatine, water, &c.	28.00
	100

Nicholſon's Journal, vol. xviii. p. 75.

Formation of the Teeth.

This can be beſt examined, by obſerving the contents of the jaw of a newly born child. The bone is hollowed out into a number of cells, ſeparated from each other by imperfect bony ſepta, and rather contracted at their mouths, which are towards the gum. By removing the external or internal plate of the jaw, the contents of theſe cells are expoſed. They conſiſt of membranous bags, called the *capſules* of the teeth, incloſing the rudiments of the bodies of theſe organs, and certain ſoft vaſcular ſubſtances, termed the *pulps,* on which the bodies of the teeth are forming.

The bone of the body of the tooth is the part firſt formed; the enamel is added to this; and the fang appears the laſt in order.

The *pulp* exactly reſembles in ſhape the body of the tooth, which is to be formed on it. It is a ſoft vaſcular ſubſtance, and its veſſels are moſt numerous in that part which is covered by the portion of tooth already formed; ſo that this appears much the reddeſt after injection.

The *capſule* is a membrane of whitiſh appearance externally, but very vaſcular on its inner ſurface. It includes the pulp, round the baſis of which it adheres, and the rudiment of the imperfect tooth. On its outer ſurface it adheres firmly to the gum; ſo that if we attempt to tear the laſt-mentioned part up from the jaw of a fœtus, the capſules and their contents will come away at the ſame time. Theſe membranes adhere leſs cloſely to the bony cells, in which they are contained. The office of the capſule is that of ſecreting the enamel. Its cavity contains a ſmall quantity of a fluid reſembling ſynovia.

The oſſification commences by the formation of the cutting edge of the inciſors, and the grinding baſes of the grinders. The bony ſubſtance being depoſited on the pulp, as on a mould, the rudiments of the teeth are neceſſarily hollow; and the bony layers firſt formed are thoſe which will be in contact with the enamel, when that ſubſtance is depoſited. The oſſification commences by as many points as there are prominences on the maſticatory ſurface of the tooth. In the inciſors there are generally three points; the middle one being the higheſt, and the firſt that begins to oſſify. The cuſpidatus begins by one point only; the bicuſpides by two, one external, which is the firſt and the higheſt, and the other internal. The molares begin by four or five oſſifications, of which the external are always the firſt. When the teeth begin to form by one point only, they gradually proceed, until the oſſification is completed. But if there are more points than one, each oſſification increaſes till their baſes come in contact, when they unite and proceed in their formation as a ſimple tooth.

The oſſifications in their progreſs become thicker and thicker where they firſt began; but they increaſe faſter at the edge, which is always thin and elaſtic: hence the cavity of the tooth becomes deeper in the progreſs of the oſſification. As the formation advances, the pulp is gradually ſurrounded, till the whole is covered by bone, except its baſe.

The adheſion of the pulp to the newly formed tooth or bone is very ſlight; for it can always be ſeparated without any apparent violence, nor can we diſcern any veſſels going from the one to the other. It is, however, moſt ſtrongly attached round the thin elaſtic edge, which is the laſt part formed. When the bone has covered all the pulp, it begins to contract a little, and becomes ſomewhat rounded, making that part of the tooth which is called the neck; and from this place the fangs begin. The formation of the fangs occaſions the bodies of the teeth to aſcend through the ſockets, and afterwards through the gum, which is abſorbed in conſequence of the preſſure of the tooth.

The pulp has originally no proceſs anſwering to the fang; but as the cavity in the body of the tooth is filled up by the oſſification, the pulp is lengthened, and the fang forms over it. The latter part grows in length, till the whole body of the tooth is puſhed through the gum: the ſocket, at the ſame time, contracts at its bottom, and graſps the neck or beginning fang, adheres to it, and riſes with it. This contraction is continued through the whole length of the alveolus as the fang riſes; or the ſocket, which contained the body of the tooth, being too large for the fang, is waſted or abſorbed into the conſtitution, and a new alveolar portion is raiſed with the fang: whence in reality the fang does not ſink or deſcend into the jaw.

Both in the body and in the root of a growing tooth the extreme edge of the oſſification is ſo thin, tranſparent, and flexible, that it ſeems to be rather horny than bony; very much like the mouth or edge of the ſhell of a ſnail.

As the tooth grows, its cavity becomes gradually ſmaller, eſpecially towards the point of the fang. It is formed by a ſucceſſive depoſition from without inwards; the exterior lamina, or that which adjoins the enamel, being the firſt formed, and the ſucceeding layers being added within this. Thus the cavity is gradually diminiſhed, as the oſſification advances; and it is always proportionally largeſt in the moſt incomplete teeth.

In tracing the formation of the fang of a tooth, we have hitherto ſuppoſed it to be ſingle; but where there are two, or more fangs, it is ſomewhat different, and more complicated.

When the body of a molaris is formed, there is but one general cavity in the tooth, from the brim of which the oſſification is to ſhoot, ſo as to form two or three fangs. If two only, then the oppoſite parts of the margin of the cavity ſhoot acroſs where the pulp adheres to the jaw, meet in the middle, and thereby divide the mouth of the cavity into two openings, from the edges of which the two fangs grow. Sometimes a diſtinct oſſification begins in the middle of the general cavity upon the root of the pulp, and two proceſſes, coming from the oppoſite edges of the bony ſhell, join it; which anſwers the ſame purpoſe as the more ordinary ſtructure. When there are three fangs, three proceſſes come from as many points of the brim of the cavity, meet in the centre, and divide the whole into three openings; from which the three fangs are formed.

When the ſurface of the tooth firſt appears through the gum, the formation is far from being completed: the body is at this time much hollower than in the perfect tooth, and the fang is only in an incipient ſtate. The hollow of the body is gradually filled up, and the fang is lengthened in proportion as the tooth riſes through the gum. Even when the whole body has paſſed the gum, the formation of the root is not completed, as it ſtill remains hollower than in the perfect tooth.

When the bone of the body of the tooth is ſomewhat advanced in its formation, the enamel begins to be depoſited on its ſurface, from the veſſels of the capſule. This depoſition commences on the maſticating ſurface of the tooth, and thence extends towards the root. It is firſt ſoft and moiſt, and preſents a rough appearance when dried. It continues in this ſtate until it has acquired the full degree of thickneſs, when it becomes white and hard, and aſſumes its natural ſhining and poliſhed ſurface. The depoſition of this ſubſtance is completed when the fang of the tooth begins to form; for at that time the body penetrates the gum, and thereby lays open the capſule, which will be found at this period to have undergone great alteration in its texture and appearance. Inſtead of the ſoft vaſcular ſurface, which it exhibited while the depoſition of the enamel was proceeding, it is now denſe, compact, and almoſt tendinous, with very few blood-veſſels. The capſule, which before poſſeſſed no adheſion to the tooth, becomes connected to it when the formation of the fang commences; and it forms the perioſteum of the fang. Mr. Hunter ſtates, that the enamel is depoſited from a pulp, analogous to that on which the bone forms. There is no foundation for this aſſertion; and the miſtake, which has been noticed by Blake in his valuable Eſſay (chap. iv.), aroſe probably from the ſituation of the rudiments of the permanent inciſores behind, and cloſe upon the capſules of the temporary ones at the time of birth; and partly alſo, perhaps, from the analogy of graminivorous quadrupeds, where pulpy proceſſes deſcend from the capſule into the teeth, to depoſit the proceſſes of enamel, intermixed with the bony ſubſtance of the organ.

The regular ſtriated appearance of the enamel has led ſome to ſuppoſe, that it forms on the tooth by a proceſs of cryſtallization; being contained in a diſſolved ſtate in the mucous fluid, which exiſts in the cavity of the capſule. We cannot attach much weight to this explanation, when we conſider that that fluid does not contain a greater proportion of phoſphate of lime than other ſimilar animal liquors; that the depoſition, in the teeth of ſome animals, is confined to a particular part of the tooth; and that there are inſtances, occaſionally, in which a ſmall ſpot has no enamel.

Claſſification and Deſcription of the adult Teeth.

The whole number of the adult teeth is thirty-two; and they are equally divided between the two jaws, ſo that each of theſe contains ſixteen. Occaſionally there are only twenty-eight or thirty. Of the ſixteen teeth contained in each jaw, thoſe on the left ſide are juſt the ſame with thoſe on the right, ſo that they are arranged in pairs; and the teeth in the upper jaw nearly reſemble thoſe of the lower jaw in ſituation, figure, and uſe.

The teeth have been commonly divided into *inciſors*, *canine*, and *grinders*. This arrangement is not adopted by Mr. Hunter, who ſubſtitutes in its place a more eligible one. He diſtributes theſe organs into four claſſes. 1. The *inciſores*, or cutting-teeth, which include the four front ones of each jaw. 2. *Cuſpidati*, two in number; one on each ſide of the inciſors. Theſe were formerly called *canine teeth*, from a compariſon to the correſponding ones in the dog, and other carnivorous animals, to which they bear no reſemblance. 3. *Bicuſpides*, four in each jaw, two on either ſide. Theſe are moſt clearly diſtinguiſhed by their ſmaller ſize from the back teeth, with which they were before included,

cluded, in the common denomination of grinders. 4. *Molares*, ſix in number, three on each ſide, behind the bicuſpides.

There is a regular gradation, both in growth and form, through theſe claſſes, from the inciſors to the molares; in which reſpect the cuſpidati are of a middle nature between the inciſors and bicuſpides, as the laſt form the connecting link between the cuſpidati and molares. Conſequently the inciſors and molares are the moſt unlike in every circumſtance.

The following deſcription is taken from the teeth of the lower jaw, and the differences between theſe and the upper teeth are noticed ſubſequently.

The *inciſor teeth* (*primores* of Linnæus; *tomici, riſorii*) have an anterior and poſterior flat ſurface, which meet in a cutting edge. The anterior ſurface is convex, and placed almoſt perpendicularly; the poſterior is concave, and ſloping, ſo that the cutting edge is directly over the front ſurface.

The two ſurfaces are broadeſt at the cutting edge, and they grow gradually narrower from that part to the neck. The ſide of the tooth, on the contrary, is narroweſt at its cutting edge, and becomes thicker and thicker towards the neck; ſo that it is of a wedge-like form. The fang, on the contrary, is compreſſed laterally; ſo that its ſides are broadeſt, and the anterior and poſterior ſurface are narroweſt. It follows, therefore, that an inciſor tooth, when viewed on its anterior or poſterior ſurface, is broadeſt at the cutting edge, and grows conſtantly narrower to the extremity of its fang; but in a ſide view, it is thickeſt or broadeſt at its neck, and thence becomes gradually more narrow, both to its cutting edge and to the point of its fang. The enamel is continued farther down, and is thicker on the anterior and back part of the inciſors than on their ſides; it is alſo rather thicker on the fore part than on the back of the tooth. They ſtand almoſt perpendicularly; their bodies being turned a very little forwards. The two middle ones are ſmaller than the two exterior: they are indeed the ſmalleſt teeth in the mouth, and are diſtinguiſhed by the epithet of *ſmall inciſors*, from the lateral ones or *large inciſors*.

The upper inciſors are conſiderably broader, thicker, and ſtronger, than the correſponding lower teeth. The two middle ones are conſiderably the largeſt, and are diſtinguiſhed by the term of *large inciſors*. The fangs of theſe teeth are round, inſtead of flattened, eſpecially thoſe of the large inciſors. They project in front more than the lower teeth, ſo that their axis points downwards and forwards; and they uſually overlap thoſe of the lower jaw to a ſmall extent.

The upper large inciſor covers the lower ſmall ones and half of the large; and the upper ſmall one covers the other half of the lower large inciſor, and more than half of the cuſpidatus. The edges of theſe teeth generally become blunt and thicker by the friction of maſtication; but in ſome perſons they are rendered thinner by the mutual attrition.

The Cuſpidati (*Laniarii* of Linnæus; *canini*).

Theſe teeth are thicker and ſtronger than the inciſors, poſſeſſing a large and long fang, which cauſes a marked prominence of the outer plate of the alveolar proceſs. Their body, which is thick, and nearly cylindrical at the root, terminates above in a point, which projects beyond the other teeth, particularly in the lower jaw. Their fang is compreſſed laterally, and occaſionally divided through its lower half, into two. Their ſides are more extenſively covered with enamel than thoſe of the inciſors: and they ſtand almoſt perpendicularly. They are conſiderably larger in the upper jaw; and their fangs are longer than thoſe of any teeth; from which circumſtance they have acquired the name of *eye-teeth* in common language.

When the jaws are cloſed, the upper cuſpidatus falls between the lower correſponding tooth, and the firſt bicuſpis; and projects a little over them. Their points are ſoon worn away by maſtication, and then they rather reſemble the inciſors, but as the friction goes on the worn ſurface is much more cylindrical.

The Bicuſpides.

The two bicuſpides reſemble each other ſo much, that a deſcription of the firſt will ſerve for both. The firſt indeed is frequently the ſmalleſt, and has rather the longeſt fang, approaching more nearly than the ſecond to the ſhape of the cuſpidatus. Its body is flattened laterally, and it terminates above in two obtuſe tubercles, an external, and an internal one; of which the former is the longeſt and thickeſt; ſo that on looking into the mouth from without, this point only can be ſeen, and the tooth has very much the appearance of a cuſpidatus. The internal point is the leaſt, and indeed ſometimes ſo very ſmall, that the tooth greatly reſembles a cuſpidatus in any view. It is broadeſt in the lateral direction at the union of the two points, and thence it diminiſhes to the pointed extremity of the fang. The fang itſelf, which is broad, and compreſſed laterally, is ſometimes forked at its extremity. The enamel extends nearly equally all round the neck of theſe teeth. They ſtand perpendicularly in the jaw.

In the upper jaw they are more flattened laterally, and broader from within outwards, than in the lower; and are inclined a very little forwards and outwards. They poſſeſs here frequently two fangs, inſtead of the ſingle broad one which they have in the lower jaw; but the diviſion does not in general extend to the neck of the tooth, when there is only one broad fang, it contains two cavities; one towards each margin. The firſt upper bicuſpis falls between the two correſponding lower teeth; the ſecond between the ſecond lower bicuſpis, and the firſt grinder; and they project a little over thoſe of the lower jaw.

Theſe teeth are more frequently wanting than any others, excepting the dentes ſapientiæ.

Molares, or *Grinders*.

The firſt and ſecond of theſe nearly reſemble each other in their form, ſo that they may be conſidered together: the third differs from theſe in ſome circumſtances.

The grinders differ from the bicuſpides, in being much larger; in having more numerous points on the body, and more fangs. Their grinding baſe forms a ſquare, with rounded angles. The ſurface has commonly five points or protuberances; two of which are on the inner, and three on the outer part of the tooth: there are alſo generally ſome ſmaller points at the root of theſe larger protuberances. Theſe inequalities, being ſituated at the margins of the grinding baſis, leave an irregular ſuperficial cavity in the middle of the tooth. The three outer points do not ſtand ſo near to the outer edge of the tooth, as the inner ones do to the inner margin; ſo that the body ſwells more from the points, or is more convex, on the outer ſurface. The body is but ſlightly contracted at the neck, where it divides into two broad and flat fangs, an anterior and a poſterior one, which are generally bent a little backwards. The flat ſurfaces of theſe fangs are placed directly acroſs the jaw, ſo that one is preciſely *anterior* and the other *poſterior* : their edges are turned towards the two plates of the alveolar proceſs, and are conſequently *exterior* and *interior*. They continue broad nearly to their extremities, which are ſometimes bifurcated. There are two cavities in each fang ; one towards each edge, leading to the general cavity in the body of the tooth. The fang is therefore thicker at theſe parts, and thinner in its middle, where it is marked externally by a longitudinal groove. The enamel is much thicker on the grinding ſurface of theſe teeth than in other parts, but it terminates at the ſame line all round the neck.

The firſt grinder is ſomewhat larger and ſtronger than the ſecond ; it is turned a little more inward than the adjacent bicuſpides, but not ſo much as the ſecond grinder. Both of them have generally rather ſhorter fangs than the bicuſpides.

There is a greater difference between theſe grinders in the upper and lower jaw, than in any of the other teeth.

They are rather rhomboidal than ſquare in the upper jaw; having one ſharp angle turned forwards and outwards, the other backwards and inwards. They have three ſmaller and round fangs, which diverge and terminate in a pointed manner; each of them having a ſimple cavity. Two of theſe are placed near each other, perpendicularly over the outſide of the tooth ; and the other, which is generally the largeſt, ſtands at a greater diſtance on the inſide of the tooth, ſlanting inwards. They are inclined outwards and a little forwards ; projecting ſlightly over the correſponding teeth of the lower jaw, and placed further back in the mouth, ſo that each is partly oppoſed to two of the lower jaw. They are placed directly under the maxillary ſinus, and the ſecond is rather the ſmalleſt of the two.

The third molaris in each jaw is called, from the circumſtance of its appearing late in life, *dens ſapientiæ*, or the *wiſe tooth*. It is ſhorter and ſmaller than the others. Its body is rounder, but poſſeſſes the ſame general formation with the other grinders. The fangs are not ſo regular and diſtinct ; generally appearing as if ſqueezed together into one ; and ſometimes there is only one thick conical fang. It varies more in the upper than in the lower jaw ; and is ſmaller in the former than in the latter, ſo as to be directly oppoſed to it. And but for this circumſtance the grinders would reach further back in the upper jaw than in the lower.

When the natural number of the teeth is leſs than uſual, it ariſes from a want of theſe dentes ſapientiæ.

General Obſervations on the Teeth, as viewed in Conjunction.

From the inciſores to the firſt grinder, the teeth become gradually thicker at the extremity of their bodies ; and ſmaller from the firſt grinder to the dens ſapientiæ. From the cuſpidatus to the wiſe tooth, the fangs become ſhorter : the inciſors are nearly of the ſame length with the bicuſpides.

From the firſt inciſor to the laſt grinder, the teeth ſtand out leſs from the ſockets and gum.

The bodies of the lower teeth are turned a little outwards at the front of the jaw ; and thence to the third grinder they are inclined gradually more inwards. The upper teeth project over thoſe of the under jaw, eſpecially at the forepart, where the cutting edges of the upper inciſors overlaps that of the lower, ſo that they act like the blades of a pair of ſciſſars. This ariſes from the upper teeth being placed more obliquely, for the circle of the ſockets is nearly the ſame in both jaws. This obliquity becomes conſtantly leſs from the inciſors to the laſt grinder ; ſo that inſtead of overlapping, the outer edge of the upper teeth projects a little over the oppoſed margin of the lower ones.

The teeth in the upper jaw are placed farther back in the circle, than the correſponding ones in the lower ; in conſequence of the upper inciſors, particularly the two front ones, and the cuſpidati being broader than the lower teeth. Yet this is compenſated by the lower back grinders being larger than the upper ones, ſo that the upper dens ſapientiæ falls on the ſurface of the lower one.

The ſize of the fangs bears a proportion to the bodies of the teeth for reaſons which muſt be obvious. They ſeem to be rather leſs firmly fixed in the upper than in the under jaw, or, in other words, the alveolar proceſs is ſtrongeſt in the former. This difference may be partly accounted for by the ſituation of the antrum. The upper grinders, inſtead of poſſeſſing two ſtrong and ſtraight fangs, have three ſmaller diverging ones, incloſing, as it were, the bottom of the antrum. That all this weakneſs of the upper jaw is for the increaſe of the antrum, is rendered probable by conſidering that the upper teeth are generally ſimilar to thoſe of the lower jaw, excepting juſt where they are oppoſite to the maxillary ſinus ; and here they differ principally in the fangs, without any other apparent reaſon. And this is further confirmed by obſerving, that the dentes ſapientiæ of both jaws are more alike than the other grinders, becauſe they do not interfere ſo much with the ſinus.

The arch formed by the teeth altogether is generally parabolical, ſometimes elliptical, but very rarely ſemicircular. Sometimes it forms nearly a ſtraight line in front, and this joins the ſides by two angles. It is more capacious in the upper than in the lower jaw, on account of the greater breadth of the front teeth ; but the difference is trivial at the back part.

The line formed by the junction of the teeth is not perfectly ſtraight, being ſlightly elevated before and behind, and depreſſed in the middle. Hence the front and back teeth of the lower jaw are rather higher than the middle ones, in order to meet the upper teeth.

The arch of the teeth forms a ſimple line at the anterior part of their maſticating ſurface : but from the point of the cuſpidatus backwards, in conſequence of the breadth of the bicuſpides and molares, there is a double line, conſtituting an outer and an inner margin.

The number and diſpoſition of the teeth are uſually found as we have above deſcribed them. There are occaſionally ſupernumerary ones, which are moſt frequent about the inciſors and cuſpidati of the upper jaw. And ſometimes, where the number is not greater than uſual, from want of room or other cauſes, the teeth deviate in various ways from their ordinary poſition, ſo as even, in ſome inſtances, to give the appearance of a double row in the front of the mouth. The exact deſcription, and the mode of remedying ſuch deformities, fall within the province of the dentiſt.

Wearing of the Teeth by Maſtication.

The true and exact form of the teeth can only be obſerved juſt after they have appeared in the cavity of the mouth.

For afterwards, the conſtant friction, which they experience in the act of maſtication, wears away their oppoſed ſurfaces, and thereby changes their form. Thus the inciſors, which at firſt poſſeſs three prominent points on their cutting edge, ſoon have theſe projections removed ; the apex of the cuſpidatus is ſpeedily worn off, ſo as to render the body obtuſe ; and the prominences of the grinders are removed in the ſame manner at a more remote period. After a certain time the enamel is conſumed from the maſticating ſurfaces of the teeth; this happens tolerably ſoon in the inciſors and cuſpidati. After the expoſure of the bone the tooth wears down much more rapidly while the ſuperior hardneſs of the enamel cauſes that part to reſiſt longer and thereby to form an elevated margin. The body is at laſt conſumed in the progreſs of time down to the very neck; and it is obvious that the cavity would be expoſed by this proceſs, were it not filled up by new matter, in proportion as the ſurface is worn off. This newly formed matter may be readily diſtinguiſhed as it forms a more tranſparent ſpot in the middle of the tooth. The effects of the friction of maſtication on the teeth are moſt ſtrikingly exhibited in the crania of ſavages: or of ſuch perſons as have lived moſt nearly in a ſtate of nature, or on the moſt ſimple kinds of food. Here we often find the grinders with their prominences deſtroyed, and worn down to a level ſurface. This may be partly accounted for by the food being leſs ſoftened by the artificial aid of the proceſſes of cookery, and partly by the natural effects of attrition being anticipated in us by caries of theſe organs.

It muſt be obvious from this deſcription, that there is no proceſs of reparation going on in the teeth to ſupply the loſs of ſubſtance occaſioned by maſtication. We ſhall prove in a ſubſequent part of the article that theſe parts poſſeſs no veſſels nor nerves, and that they muſt conſequently be completely incapable of ſuch proceſſes. How indeed can we ſuppoſe, that organs deſtined for the mechanical reduction of the food, and which therefore can only be compared to millſtones, ſhould be indued with vaſcularity and ſenſiblity? Theſe parts are conſtantly becoming leſs after they have cut the gum, by their ſurface wearing away in the manner above deſcribed. Yet in ſome books even of ſuch diſtinguiſhed authors, as ought to have been better acquainted with the ſubject (for inſtance, in Monro's very excellent deſcription of the Bones, p. 115.) it is ſtated that they are conſtantly growing larger. The proofs of this fact are ſaid to be, that when an upper or lower tooth is loſt, the oppoſite one grows longer, and that the teeth before and behind the vacancy grow broader. The appearances in theſe caſes are truly ſtated; but we have a more natural ſolution of them, than by the hypotheſis of aſcribing vaſcularity to the teeth. When a tooth has loſt its oppoſite one of the other jaw, it ſeems to become longer than the others, in proportion as theſe have become ſhorter by abraſion; which cannot now affect the apparently lengthened tooth. The effect may poſſibly be further increaſed in this inſtance by the loſs of preſſure giving the alveolar proceſs of the oppoſite tooth a diſpoſition to riſe higher, and fill up below. Where the interval left by a fallen tooth ſeems to be contracted by the increaſed thickneſs of the adjacent teeth, the appearance is occaſioned by the teeth moving from that ſide, where they are well ſupported, to the other ſide, where they are not. Thus they get an inclined direction, which extends to the adjacent teeth in a proportionally leſs degree, and affects thoſe which are behind, more than thoſe which are before the vacant ſpace. This kind of effect is moſt obſervable in the lower jaw, where the back teeth are naturally inclined forwards.

Uſe of the Teeth.

The grand utility of the teeth in maſticating the food, will be conſidered under the article MASTICATION. They are moreover of great ſervice in the pronunciation of ſeveral letters; particularly the front teeth, the loſs of which occaſions a peculiar defect of the ſpeech, called liſping. The loſs of all the teeth, and the alveolar proceſſes in old perſons, ſtill further impedes pronunciation by obſtructing conſiderably the motions of the tongue.

Are the Teeth of Man Carnivorous?

We cannot decide this queſtion better than in the words of Mr. Hunter: "Natural hiſtorians have been at great pains to prove from the teeth, that man is not a carnivorous animal; but in this, as in many other things, they have not been accurate in their definitions; nor have they determined what a carnivorous animal is. If they mean an animal that catches and kills his prey with his teeth, and eats that fleſh of the prey, juſt as it is killed, they are in the right; man is not in this ſenſe a carnivorous animal, and therefore he has not teeth like thoſe of a lion; and this, I preſume, is what they mean.

"But if their meaning were that the human teeth are not fitted for eating meat that has been catched, killed, and dreſſed by art, in all the various ways that the ſuperiority of the human mind can invent, they are in the wrong. Indeed from this confined way of thinking, it would be hard to ſay what the human teeth are fit for; becauſe, by the ſame reaſoning, man is not a graminivorous animal, as his teeth are not fitted for pulling vegetable food, &c. They are not made like thoſe of cows or horſes, for example.

"The light in which we ought to view this ſubject is, that man is a more perfect or complicated animal than any other; and is not made like others, to come at his food by his teeth, but by his hands, directed by his ſuperior ingenuity; the teeth being given only for the purpoſe of chewing the food, in order to its more eaſy digeſtion. Theſe as well as his other organs of digeſtion, are fitted for the converſion of both animal and vegetable ſubſtances into blood; and thence he is enabled to live in a much greater variety of circumſtances than any other animal, and has more opportunities of exerciſing the faculties of his mind. He ought therefore to be conſidered as a compound, fitted equally to live upon fleſh and vegetables."

Of the Temporary Teeth.

The teeth being, as we have already obſerved, deſtitute of any principal of growth within themſelves, have not the power of increaſing in ſize as the jaws grow. Hence the ſmall teeth, which occupy the alveolar proceſſes of the child, are diſcharged, at a certain period, to make room for a new ſet, adapted in form and magnitude to the dimenſions of the adult jaw. The former are therefore diſtinguiſhed by the epithets of the *temporary* or *deciduous* teeth, from the latter, which are called the *adult* or *permanent* ſet.

There are ten temporary teeth in each jaw; conſiſting of four inciſors, two cuſpidati, and four grinders. In poſition and form theſe reſemble the correſponding permanent ones, which have been already deſcribed; and the chief difference conſiſts in their being very much ſmaller. The temporary ſet contains therefore no teeth correſponding to the adult bicuſpides. The cuſpidatus has a more pointed form than in the adult; and the front grinder is ſmaller than the poſterior one.

Formation and Time of Appearance of the Temporary Teeth.

At the ninth or tenth week after conception there is a ſimple longitudinal groove in the jaw; containing a ſoft jelly-like vaſcular ſubſtance, without any diſtinction of parts; at the fifth month bony partitions begin to ſhoot acroſs the alveolar grooves; the pulps and capſules can now be diſtinguiſhed, but are ſtill in a gelatinous ſtate; ſmall hollow ſhells have formed on the inciſors and cuſpidati, and oſſification has commenced by ſome angular depoſitions on the points of the grinders. The canal of the veſſels and nerve is open at the bottom of the alveolar groove, and the capſules adhere ſo ſtrongly to the gum, that they come away, if that part be torn up from the jaw.

In the full-grown fœtus, the rudiments of the teeth are contained in almoſt complete bony cells. The different capſules are ſeparated by bony ſepta; and the mouths of the cavities, which are ſituated towards the gum, are rather contracted in order to ſupport that part, and to prevent the ſtill imperfect rudiments from being injured by any mechanical preſſure. At this time the pulps of the inciſors and cuſpidati are nearly covered by bony ſhells; the points of oſſification of the grinders are united or very nearly ſo. There are the rudiments of ſix teeth in each ſide of the jaw at this time; *viz.* of the five temporary ones, and of the firſt or anterior adult grinder, which is contained in the ſame bony cell with the ſecond temporary molaris; and is ſituated under the coronoid proceſs of the lower jaw, and in the tubercle of the upper.

As oſſification does not commence on all the pulps at the ſame time, thoſe on which it firſt commenced are in general the ſooneſt completed, and of courſe they appear through the gum firſt. At the time of birth the bodies of the middle inciſors of both jaws are the moſt perfect; the lateral inciſors and the ſmall grinders are the next in order; and the cuſpidati and large grinders are the leaſt complete. In general the teeth begin to appear about the ſixth, ſeventh, or eighth month after birth; but there are ſome exceptions to this rule; owing to the rapid progreſs of oſſification in ſome children, and the ſlowneſs of it in others. There are a few inſtances of children at birth having one or two of the inciſors already cut, and in ſuch caſes it is often neceſſary to remove them immediately; on the contrary, in children apparently healthy they have not begun to appear till the firſt, ſecond, and even the third year. For the moſt part they appear in pairs; that is, the two correſponding teeth on either ſide of the jaw come through the gum at the ſame time. The firſt teeth are the middle inciſors of the under-jaw, and in a few weeks after the middle inciſors of the upper appear. In a month or ſix weeks afterwards, we have reaſon to expect the under lateral inciſors; which are followed in a ſhort time by thoſe of the upper jaw. About the twelfth or fourteenth month the under anterior grinders appear, and thoſe of the upper jaw about the ſame time. At the ſixteenth or twentieth month the cuſpidati appear, and firſt in the lower jaw. The poſterior or large grinders come through the gum from the twentieth to the thirtieth month. Thus, in general, about the ſecond or third year, the twenty temporary teeth are complete. We muſt not however expect to find the teeth always appear in the preciſe order which has been juſt deſcribed. Some irregularities are frequently met with; ſuch as, one tooth appearing a conſiderable time before its fellow; all the inciſors of the under jaw before any of the upper; or the reverſe, which is very rare. The anterior grinders ſometimes come through before the lateral inciſors: and the poſterior grinders before the cuſpidati; but the cuſpidati are never cut before the ſmall grinders. Three or four teeth ſometimes appear nearly at the ſame period. The ſmall grinders have been known, in a very few inſtances, to come through firſt of all.

Formation, and Time of Appearance of the permanent Teeth.

The adult teeth are formed in the ſame manner with thoſe of the temporary ſet; and their capſules are contained in peculiar cavities of the jaws, ſituated for the moſt part near thoſe of the deciduous claſs.

The rudiments of the inciſors and canine teeth are found at the time of birth cloſely adherent to the poſterior ſurface of the capſules of the temporary ones, as Euſtachius has juſtly obſerved. At this time, therefore, they are contained in the ſame ſockets with the deciduous teeth; and there is a very diſtinct foveola on the inner plate of the alveolar proceſs at this period, cauſed by the ſituation of the adult large inciſor, the pulp of which is now tolerably advanced.

The ſacs of the permanent teeth, ſituated as we have juſt mentioned, are ſo intimately connected with the membranes of the temporary ſet, that they cannot be ſeparated without tearing one or both. As their formation proceeds, they become ſurrounded by a complete bony cell, which, as the temporary teeth riſe in the jaw, is ſituated below and behind them in the lower maxilla, above and behind them in the upper jaw. Oſſification has commenced on theſe teeth at the age of ſix or ſeven months. Their formation is conſiderably advanced at the age when the temporary inciſors have appeared. The oſſification of the lower adult cuſpidati has now commenced, and the pulp of the upper cuſpidati is formed; this begins to oſſify about the ſixteenth month.

The capſules of theſe permanent teeth are connected to the gum by proceſſes paſſing through certain openings of their bony cells, which form ſmall foramina juſt behind the correſponding temporary teeth.

As the adult inciſors and cuſpidati form in that portion of the jaw which holds the analogous temporary teeth, and are ſo much larger than theſe, they are conſequently crowded; the lateral inciſors are rather behind the middle ones, and the cuſpidati are placed at a great diſtance from the alveolar portion of the jaw; being juſt under the orbital plate of the upper maxillary bone, and cloſe to the baſis of the lower jaw. Hence the proceſs connecting its capſule to the gum has the appearance of a ſlender thread paſſing through the bone.

The adult bicuſpides form over and under the temporary molares. Oſſification has commenced on the points of theſe in the lower jaw about the third year, and they are all conſiderably advanced at the age of ſix years.

The adult molares are not formed in the neighbourhood of any temporary teeth, but completely behind them. Theſe are ſucceſſively produced under the coronoid proceſs of the lower jaw, and in the tubercle of the upper. The anterior grinder is the firſt permanent tooth that can be diſcovered. This is diſcerned ſome time before birth: and oſſification has commenced on one or more of its points at the time of birth. At the fourth year this grinder has left its original ſituation under the coronoid proceſs and in the tubercle, and has advanced in the jaw. Its place is ſupplied by the ſecond grinder, which comes forwards in the ſame way; and the ſituation of this tooth is occupied at the eighth or ninth year by the dens ſapientiæ, which then begins to form.

The various teeth of the adult ſet proceed in their formation in the ſituations juſt deſcribed until they have attained ſuch a ſtate of perfection as to come through the gum. The temporary teeth are then ſhed to make room for them. This is effected by the gradual abſorption of their fangs, which being completely removed, the neck only holds by the gum, and the tooth then falls out with the ſlighteſt force. The appearance of the temporary teeth, when thus diſcharged, has led ſome to the erroneous idea that they poſſeſs no fangs.

It has been often ſtated, that the abſorption is produced by the preſſure of the new teeth, which mechanically puſh out the old ones. But that this is not true, is ſhewn by this circumſtance, that the fangs are often abſorbed long before the permanent tooth appears; and ſometimes even where no permanent tooth ſucceeds. On the contrary, ſome of the deciduous ſet occaſionally remain in the jaw among the adult teeth. This is the caſe where no correſponding permanent teeth are formed; ſo that, if the abſorption of the temporary fangs be not owing to any actual preſſure, the formation of the permanent ſet muſt conſiderably influence the proceſs. The temporary inciſors, both of the upper and under jaw, ſometimes continue during life; and occaſionally one or more of the bicuſpides is wanting. A perſon has been known to have only four teeth of the permanent ſet in each jaw. (Fox's "Natural Hiſtory of the Human Teeth," p. 41.) The ſhedding of the teeth generally commences at the ſixth or ſeventh year. The riſing of the permanent tooth deſtroys the partition which ſeparated its cell from the temporary ſocket, through which therefore the adult tooth appears. But if the fang of the temporary tooth ſhould not have been abſorbed in proportion to the advancement of the permanent one, the latter protrudes at the opening through which its capſule was connected to the gum, ſo as to appear behind the temporary tooth.

The membranous proceſſes, which paſs through the foramina of the jaws to connect the capſules of the permanent teeth to the gum, ſeem to have been firſt noticed by Blake, although the openings themſelves, and their ſituation; were known to, and accurately deſcribed by Albinus. The former author conſiders the rudiments of the permanent teeth to be proceſſes of the temporary capſules, and that the membranes unite the permanent capſules to the necks of the temporary teeth. To us this repreſentation has never appeared quite correct: the capſules of the permanent inciſors and cuſpidati, when they can be firſt obſerved, are contained in the ſame ſockets with the temporary teeth, and undoubtedly are moſt cloſely connected to their capſules; but when they have become included in complete bony cells, the connection between the two ſets ceaſes; the proceſs which goes through the opening of the jaw to the gum has no particular connection to the temporary tooth, except inaſmuch as the gum adheres to the neck of the tooth. That the permanent capſules in ſome inſtances are not at all formed by any proceſſes of the temporary ones, is evident from the bicuſpides; the rudiments of which are not perceptible until after the child's grinders have completed their growth. Neither have we noticed that connection, which Blake ſpeaks of, between the firſt and ſecond, and the ſecond and third adult molares. (See his fourth chapter.)

It will be eaſy, from what we have already ſaid, to determine the number of teeth which are formed and forming in the jaw at any given time. Thus at the time of birth there are in each jaw the rudiments of the ten temporary teeth; of the two anterior molares; and thoſe of the adult inciſors at leaſt, in an incipient ſtate, if not of the cuſpidati. The greateſt number is found in the jaw, juſt before the ſhedding of the teeth commences; that is, about the ſixth year. There are then twenty-four teeth in each jaw-bone; *viz.* the ten temporary ones, and all the permanent ſet, excepting the dentes ſapientiæ. It is ſtated however by Blake, who, in his over-anxious zeal to detect every trivial miſtake of Mr. Hunter, not uncommonly commits errors himſelf, that there is a greater number in the jaw at the age of four years; and he makes this number amount to twenty-ſix, which includes the whole of the deciduous and permanent ſet. We have never found the dentes ſapientiæ beginning to be formed at ſo early a period as this; but if they begin very ſoon, or the ſhedding does not commence until late, there may undoubtedly be twenty-ſix teeth in each jaw at once, although this is not uſual.

The uſual time for the ſhedding of the teeth to begin is about the ſixth or ſeventh year; it may commence as early as the fifth, or be delayed until the eighth. The anterior molares being rather earlier in their formation than the inciſors, uſually appear firſt; and ſoon after theſe have been cut, the ſhedding of the temporary teeth may be expected to begin. The central lower inciſors are firſt removed, and ſucceeded by the permanent ones: thoſe of the upper jaw appear about two or three months after. The lateral inciſors of the under jaw follow next in ſucceſſion, and then thoſe of the upper. The temporary molares begin to looſen in about ſix or twelve months more, and are uſually ſhed before the cuſpidati. The firſt bicuſpides come into the place of the anterior grinders about the ninth year; and ſoon after the temporary cuſpidatus is ſucceeded by the permanent one. The ſecond temporary molaris then gives place to the poſterior bicuſpis: and the middle permanent molares appear about the twelfth year; the laſt grinders, or dentes ſapientiæ, uſually come ſome time between the ſeventeenth and twenty-third year; although occaſionally they are not cut until a much later period of life.

In ſome rare inſtances a greater or ſmaller number of teeth has appeared at very late periods of life, and have been deſcribed as conſtituting a *third ſet.* The individuals in whom this circumſtance has been obſerved, have invariably been conſiderably advanced in years, yet ſtrong and healthy for their age. Lord Bacon ſtates that the counteſs of Deſmond was an example of this occurrence. ("Works," vol. 3. p. 152.) Mr. Hunter knew an inſtance in which two fore teeth appeared in the lower jaw late in life. (p. 85.) John Moore, aged 102, the oldeſt man at preſent in Chelſea Hoſpital, has had four new front teeth within the laſt five years. Sir John Sinclair, who mentions this circumſtance, ("On Health and Longevity," Appendix to vol. 2. p. 147.) cites other inſtances; and one of them is a perſon whom he himſelf ſaw. He found the new teeth of a ſofter conſiſtence than teeth uſually are, and he conſidered them as imperfect in their formation. In the laſt volume of his ("Elements of Phyſiology," part 2. p. 85.) Haller has collected ſeveral caſes mentioned by preceding authors. Theſe evidences muſt be allowed to prove clearly that teeth have appeared at a late period of life, although the number in any one inſtance has been ſmall, and the examples of the occurrence very rare. It has never occurred to any anatomiſt to detect the rudiments of theſe teeth in the jaw, during their formation; and perhaps a ſtrict examination might ſhew that in ſome inſtances the appearance has only ariſen from ſome of the permanent teeth being cut unuſually late: as we know that the cutting of theſe teeth is ſometimes delayed for many years beyond the uſual time. At all events, we ought not to admit any caſe as clear proof of the fact, unleſs it could be aſcertained that the perſon in whom it appeared had had the two ordinary ſets of teeth, conſiſting each of its natural number, and this probably has not been made out in any one inſtance. The "Account of a Caſe of three different Growths of Teeth ſucceeding one another in the Jaw of a Child," in the third volume of the London Medical Obſervations and Inquiries, is ſo imperfect and omiſſive, that we can draw no concluſions from it.

Form of the Jaws as influenced by the Teeth.

Theſe bones may be ſaid perhaps to grow equally in all directions until the time of birth. Yet in the latter months of fetal exiſtence they probably increaſe rather more towards their poſterior part than in other ſituations; for although about five months we find only five rudiments in each ſide of the bone, there are ſix diſcoverable at the ſeventh or eighth month; and the ſixth occupies the ſituation which was before filled by the fifth.

At twelve months after birth, the ten temporary teeth are tolerably complete in their ſize; and, after this time, the jaws grow no more in that part which holds theſe teeth, than in proportion to the difference of ſize between the deciduous and temporary teeth. The front arch of the jaw is therefore very nearly as large at this time as in the adult, and hence the face of the child has a flattened appearance at its anterior part.

But theſe bones ſtill increaſe very conſiderably towards their poſterior parts; and as they do ſo, the adult molares advance ſucceſſively from the tubercle of the upper jaw, and the coronoid proceſs of the lower. The ſixth tooth (firſt adult molaris), which was in theſe ſituations in the new-born child, has advanced completely in front of them at the age of four years, when its place is occupied by the ſecond adult grinder, which coming forwards in the ſame way, as the jaw increaſes at its poſterior part, is ſucceeded by the third, or dens ſapientiæ; and this laſt advances into the alveolar circle at a later period.

There are alſo moſt remarkable changes at different periods in the alveolar portions of the jaws. The ſubſtance of the bones is hollowed out into cells at the time of birth to contain the rudiments of the forming teeth; but alveolar proceſſes in the proper ſenſe of the term cannot be ſaid to exiſt at this period. The gums in the upper jaw are nearly on a level with the glenoid cavity of the temporal bone; and in the lower jaw with the condyle. The ſurface of the palate is nearly level. As the teeth advance into the mouth, the margin of the jaw is lengthened into an alveolar proceſs, ſo that the gum is now very conſiderably below the level of the glenoid cavity. The ramus of the lower jaw muſt be proportionally lengthened; and ſtill more ſo, as the breadth of the lower jaw is equally increaſed with that of the upper, by the growth of the alveolar proceſs. This increaſed depth of the jaws, with the addition of the teeth, muſt of courſe very greatly lengthen the face; which recovers its former ſhortneſs in old age by the loſs of the teeth, and the conſequent removal of the alveolar proceſſes. A diminution is hence effected of not much leſs than two inches in ſome caſes. The edge of the upper gum now again is on a level with the glenoid cavity; and the palate, inſtead of its ſtrongly-arched form, is again nearly flat. The length of the ramus of the lower jaw cannot however be altered; hence it ſhuts in front over the upper one, ſo as to bring the upper and lower gums into contact at the back of the mouth, where the greateſt force can be exerted in maſtication. If the jaws of a toothleſs perſon came in contact in their anterior part, they would not touch behind. The degree of diminution in breadth of the lower jaw may be eaſily eſtimated by comparing the ſituation of the foramen mentale. This opening in the perfect jaw is rather nearer to the under than to the upper margin of the bone; but after the loſs of the alveolar proceſs, it is cloſe on the upper edge.

Are the Teeth Vaſcular?

The queſtion concerning which anatomiſts and phyſiologiſts are divided in opinion on this ſubject is, whether the bone of the tooth poſſeſs any veſſels or nerves in its ſubſtance, ſo as to be capable of thoſe actions and changes which we may obſerve in other vaſcular and living parts? Or whether it be deſtitute of veſſels and nerves, unpoſſeſſed of vitality, and obnoxious to ſuch changes only as can be effected by mechanical and chemical agency? The arguments in favour of the latter opinion are beyond all compariſon the moſt numerous and direct, ſo that we cannot help being greatly ſurpriſed that the oppoſite ſentiment ſhould have acquired any partizans amongſt perſons acquainted with the ſtructure, formation, and diſeaſes of theſe organs. In conſidering this queſtion, the enamel does not come under our obſervation; as that part is allowed to be deſtitute of veſſels, even by the perſons who argue for their exiſtence in the bone of the tooth; and we ſhall, therefore, in the following diſcuſſion, aſſume that it is not vaſcular.

The office which the teeth perform affords a ſtrong preſumption againſt their poſſeſſing veſſels and nerves. Is it at all probable that a vaſcular and ſenſible part ſhould be deſtined to perform the trituration of the different hard bodies, which conſtitute our food, and be expoſed to the mechanical attrition which this office muſt neceſſarily occaſion? Here it may be ſaid, that the enamel is an inſenſible external covering, intended to reſiſt the effects of the hard bodies, which are maſticated, and to protect the vaſcular and ſenſible bone. But the time comes, when the enamel being worn away, the bone of the tooth is itſelf expoſed to friction, and expoſed in that part where the greateſt effects are produced. Another argument, to the ſame effect, ariſes from the formation of two ſets of teeth. As theſe organs are formed at once of the ſize of which they always remain, and as the jaw-bone, which contains them, increaſes like all other vaſcular parts of the body, the teeth of the child do not correſpond in ſize to the jaw of the adult: hence, the neceſſity of a ſecond ſet of teeth. Surely, if theſe organs were vaſcular; if they poſſeſſed in themſelves the means of growth they would increaſe, ſo as to accommodate themſelves to the ſize of the jaw, and we ſhould not have this tedious and complicated proceſs of forming a new ſet of teeth, of diſcharging the old ones to make room for theſe, and of bringing them forwards at long and regular intervals; a proceſs which gives riſe to ſo many troubleſome complaints, and affords ſo much employment for the dentiſt.

The teeth never exhibit any appearances of reparation, under circumſtances of accidental injury, or of ſuppoſed diſeaſe. The loſs of ſubſtance occaſioned by the friction of maſtication is not repaired; a part broken off is never renewed, but the fractured ſurface remains unchanged; a hole occaſioned by decay is never again filled up. None, in ſhort, of thoſe proceſſes of reſtitution, which ſo ſtrikingly characterize all organized bodies, for which alone powers of life and growth can ever be required, take place in the preſent inſtance; ſo that if the teeth poſſeſs veſſels, they exiſt to no purpoſe, and manifeſt their preſence by none of the uſual phenomena.

Such is, preciſely, the reaſoning employed to ſhew that the enamel is not vaſcular: and every argument, tending to prove that poſition, will apply with equal force to ſhew the want of vaſcularity in the bone of the tooth. If it be broken off, it is never regenerated; if it be filed away, it is never reproduced. The ſame facts hold good of the bone of the tooth, and ſhould lead us to the ſame concluſion.

There is another effect of injury on the teeth, equally concluſive with the former, as to the non-exiſtence of veſſels in their ſubſtance. A violent blow will cauſe a general diſcolouration of a tooth, as if from a general effuſion of blood throughout its texture. This effect never goes off. There are two ways of accounting for the appearance. 1ſt. By ſuppoſing veſſels to exiſt throughout the ſubſtance of the tooth, which pour out the blood in conſequence of the injury; or, 2dly, by ſuppoſing that the veſſel in the fang is ruptured, and that the effuſed blood mechanically diſcolours the ſubſtance of the tooth. If we adopt the former explanation, the colour ought not to be permanent; for, wherever there are arteries, there muſt alſo be abſorbents; and theſe abſorbents ought to remove the effuſed blood as they do in bruiſes of the ſoft parts. By the latter explanation, we gain a ſatisfactory ſolution of the difficulty; we account for the duration of the colour in the ſame manner as of that which ariſes from feeding an animal with madder.

The teeth are exempted from all thoſe diſeaſes which ravage the other bony ſtructures of the body. Lues venerea, ſcrofula, and rickets, which attack all other bones, never produce the ſlighteſt effect on theſe organs, which remain unaltered, even in caſes of mollities oſſium, where all the other earthy matter of the ſyſtem is abſorbed. In ſhort, the teeth never become conſtitutionally diſeaſed, nor do they appear, in any inſtance, to participate in the leaſt in general affections of the frame.

Their ſubſtance never ſwells from inflammation; it never throws out a fungus nor exoſtoſis; it never exfoliates. By the latter expreſſion, I mean, that a part of a tooth never undergoes that proceſs of death, and ſubſequent ſeparation from the living parts, which we call exfoliation in bones. Whole teeth are ſometimes included in an exfoliated portion of the jaw; but then they are not at all altered in ſtructure or appearance, which is another proof of their want of connection with the reſt of the body. If it be ſaid that theſe teeth are dead, like the bone which incloſes them, I would wiſh to be informed, what are the diſtinctions in appearance between a dead and a living tooth? Are they to be aſcertained by external inſpection in the living body, or can they be even demonſtrated by anatomical inveſtigation? The abſorption of the fangs of the temporary teeth cuts off the veſſels long before theſe teeth are actually ſhed: yet there is no ſign or character by which a tooth, whoſe vaſcular ſupply is thus intercepted, can be diſtinguiſhed from another, in which it remains unimpaired.

A conſideration of the mode of formation of the teeth will lead us to the ſame concluſion, as the arguments already adduced ſo clearly and irrefragably eſtabliſh. In this view of the ſubject, we muſt inevitably be ſtruck with the great difference between the growth of the teeth, and that of all other bones; a circumſtance which would naturally lead us to expect the differences which are found in their ſtructure and economy. In the cartilaginous epiphyſis of a young bone, veſſels are ſeen entering from all ſides: in the centre there is a ſmall bit of bone of a looſe and ſpongy texture, which can be made quite red by injection. We can trace this hardening through every intermediate ſtage to that of perfect bone, the veſſels of which, even in its moſt compact ſtate, are ſtill eaſily demonſtrable by the anatomiſt. Let us compare with this the growth of a tooth. If we examine it at ever ſo early a period, when a ſpeck of oſſification only can be diſcerned, the part, which is then formed, is complete, and has all the properties which belong to the bone of the perfect tooth. It does not undergo that gradual proceſs of developement, which is ſeen in the growth of bones; but the ſmalleſt point, when once formed, never alters. The mode of connection of the tooth to its pulp is highly worthy of conſideration. In cartilaginous epiphyſes, the central portion of bone is imbedded in the cartilage: veſſels can be traced in numbers entering it on all ſides. Obſerve the contraſt in the tooth: the oſſification does not go on in the centre of the pulp; but the bone of the tooth covers that part exteriorly like a ſhell. The connection between them is merely that of contact of ſurface; there is no diſcoverable vaſcular union: a ſmall degree of force ſuffices to ſeparate them, and the ſurface of each remains ſmooth and uninjured.

The arguments and illuſtrations which we have now offered, tend moſt ſtrongly to ſhew, that the teeth poſſeſs no veſſels in their ſubſtance: the point is undeniably proved by the reſult of anatomical injections, and the effect of feeding animals with madder.

Anatomiſts have not hitherto ſucceeded in their attempts to inject coloured fluids into the veſſels of the teeth after death. The pulpy ſubſtance in the cavity of the tooth may be made red by the injection; but no trace of veſſels entering the bone can be diſcovered. Yet the arteries of other bones, even of ſuch as poſſeſs the moſt compact ſtructure, can be readily demonſtrated. No veſſel can be ſhewn in a tooth at any period of its growth; although the proportion of animal matter in the bone of the tooth is not leſs than what we find in any other bone. To us this argument appears moſt ſtrong and convincing; but it has ſometimes been evaded by ſtating, that there are other parts in the body poſſeſſing no demonſtrable veſſels, which are yet proved, by various phenomena, to be vaſcular. Without entering particularly into the general queſtion, we may juſt obſerve, that an example, to carry any weight with it, ſhould be adduced from parts of a ſimilar ſtructure; ſome bone for inſtance.

The effects produced on the teeth, by feeding animals with madder, tend moſt directly to prove that theſe parts poſſeſs no veſſels. We ſhall preſent the reader with the reſults of Mr. Hunter's experiments in his own words:

"Take a young animal, *viz.* a pig, and feed it with madder for three or four weeks: then kill the animal, and you will find, upon examination, the following appearances: Firſt, if this animal had ſome parts of its teeth formed before the feeding with madder, theſe parts will be known by their remaining of their natural colour; but ſuch parts of the teeth as were formed while the animal was taking the madder, will be found to be of a red colour. This is different from what happens in all other bones; for we know that any part of a bone, which is already formed, is capable of being dyed with madder, though not ſo faſt as the part which is forming. Therefore, as we know that all other bones, by being vaſcular, are ſuſceptible of the dye, we may conclude that the teeth are not vaſcular, becauſe they are not ſuſceptible of it when once formed." It is further ſtated, that the dye communicated to a growing tooth by means of madder is never afterwards diſcharged, although all other bones loſe their colour in time. Nat. Hiſtory of the Human Teeth, 2d. edit. p. 37 and 38.

The arguments advanced by perſons who hold a contrary opinion, who conſider the teeth to poſſeſs veſſels and nerves, and to be endowed with vitality, are ſo weak and indirect, in compariſon with thoſe which are to be urged againſt theſe poſitions; that we ſhould, perhaps, ſtand excuſed, if we entirely omitted to notice them. Yet, as the ſubject is intereſting, and as we wiſh to exhibit a complete view of the queſtion, we ſhall beſtow a few words on their refutation.

It is ſaid, that a part containing ſo much animal matter as the teeth, could not exiſt in the temperature of animal body, without undergoing chemical changes. This is merely begging the queſtion. If it can be ſhewn, by incontrovertible arguments, that theſe organs are deſtitute of all circulation and living principle, that will prove that they can exiſt in ſuch a temperature without experiencing theſe alterations. But the futility of the objection is ſhewn by the circumſtance of artificial teeth remaining in this ſituation unaltered.

The fangs of the tooth are ſaid to become united to each other by anchyloſis, and to be deformed by depoſitions of bony matter like exoſtoſes; alſo to become tranſparent and horny in old age.

Theſe are all inſtances of original formation. They exhibit none of thoſe irregularities on the ſurface which characteriſe an anchyloſis, or exoſtoſis, in other bones; nor is the ſubſtance different in any one point from the healthy part of the fang. It is, in ſhort, merely an accidental difference of form; where, as the offices of the part require no definite figure, variations in form occur daily. The tranſparency, or horny appearance of the fang, belongs ſo decidedly to the natural ſtructure, that a *ſubſtantia cornea* is enumerated by Blumenbach among the ordinary conſtituent ſubſtances of the teeth.

A queſtion has been triumphantly ſtated to the opponents of the vaſcularity of the teeth; why blood is ſent into the cavity of the tooth, except for purpoſes of growth and action? There is one very obvious end anſwered by this ſtructure; that of filling up the cavity of the tooth, in proportion as it becomes expoſed by the friction of maſtication. This indeed only ſhifts the difficulty a ſtep further; for why ſhould there be any cavity at all? We will give an anſwer to this queſtion, when we ſhall have been ſatisfactorily informed why male animals poſſeſs mammæ and nipples, which are never of the leaſt uſe to them in any part of their lives; or why a thouſand other parts of the body, where we are either ignorant of the office, or can diſcover no connection between it, and any ſpecific form or organization, ſhould be framed as they are.

The yellow colour imparted to the bone of the teeth in jaundice has been urged in proof of their vaſcularity. This is an argument that would prove too much. The veſſels of the teeth, if any ſuch exiſt, are obviouſly ſo minute, that they neither convey red blood, nor coloured injection; yet they are capable of carrying ſo much bile as to tinge the tooth of an uniform yellow to a certain diſtance from the cavity. If this colour be then owing to a yellow fluid, contained in veſſels, theſe tubes muſt be ſo numerous as to render the tooth much more vaſcular than other bone. The real ſtate of the fact is this, the veſſels of the pulp become loaded with bile, and dye that part of an uniform yellow colour; this tint is mechanically imparted to the adjacent bone, and colours it in the neighbourhood of the cavity; the effect gradually ceaſing at a little diſtance from that part. The appearance, in ſhort, is produced in the ſame way as by immerſing the teeth in bile after death. We are informed that the teeth in old age become changed in colour, and particularly that they acquire a greater tranſparency. No one pretends to affirm, that ſuch a change cannot happen; but why may not this change be produced by mechanical or chemical means? Have we not reaſon to expect that a long reſidence in the moiſture of the mouth, and contact with all the ſubſtances that form our food, ſhould influence the appearance of theſe organs; and that this effect ſhould be produced to a greater extent, where the deſtruction of the enamel by maſtication, as in old perſons, has expoſed the bone of the tooth?

Tranſplanting the teeth from the head of one perſon to that of another, or to parts of another animal's body, as the comb of a cock, where they will become adherent, has been conſidered as a proof of their poſſeſſing veſſels. Theſe experiments will ſucceed with dead teeth; and the truth of this fact, in reſpect to the latter circumſtance, has been aſcertained by Mr. Moor, whoſe ingenious experiments on the teeth we have before had occaſion to mention. We have ſeen a cock, in whoſe comb he had inſerted a tooth, which had previouſly lain many months in a drawer, and it was firmly adherent.

The advocates for the vaſcularity of the teeth have laid great ſtreſs on the phenomena attending the decay of theſe organs; and particularly on the pain, which is occaſioned in ſome parts of the proceſs. We are firmly convinced that an attentive inveſtigation of the origin, progreſs, and ſymptoms of this affection will moſt materially ſupport and illuſtrate thoſe opinions, which we have all along endeavoured to inculcate.

This diſeaſe begins by a ſpeck on the ſurface of the enamel, and, when it has deſtroyed that part, it attacks the bone of the tooth. Its progreſs is now much more rapid: the bone becomes excavated, and the enamel remains in the form of a ſhell. The ſurface aſſumes more or leſs of a brown colour, and becomes conſiderably ſoftened, gradually crumbling away until the cavity of the tooth is expoſed. The expoſure of the vaſcular and ſenſible pulp to the air and to the food, occaſions that acute pain which attends the decay in this ſtage.

It would perhaps be difficult to aſcertain, beyond the poſſibility of a doubt, whether or not the pain of toothache ever comes on before the expoſure of the cavity. This, at leaſt, is certain, that if the affirmative were moſt clearly eſtabliſhed, it would by no means prove the teeth to be vaſcular. If we take any very warm or cold fluid into the mouth, it occaſions pain of the teeth; this cannot prove the ſurface of contact to be ſenſible, for that is enamel, which no one ſuppoſes to poſſeſs nerves or veſſels. The impreſſion is communicated through the ſubſtance of the tooth to the nerves in its cavity. When the enamel and a part of the bone is removed by decay, there is ſo much of the medium between the impreſſing body and the nerve taken away, that an impreſſion which before only excited a ſlight ſenſation, may now cauſe actual pain. The influence, which variations in the inſenſible medium between the nerves and external bodies produce on the ſenſation ariſing from their contact, is ſtrikingly evinced in the ſkin; the removal of the cuticle occaſions pain to follow the contact of any body, inſtead of its conveying to our minds impreſſions of its tangible properties; and a thickened ſtate of this integument entirely obſtructs ſenſation. It is moreover certain that the effect of the decay is not limited to the ſurface of the tooth, but that the diſcolouration extends for ſome depth into its ſubſtance; the change, which is indicated by this alteration of colour, may bring on a painful affection of the nerve of the tooth, without an expoſure of the cavity.

The following reaſons ſhew that this decay is not the effect of vaſcular action. It firſt attacks the enamel, which is confeſſedly not vaſcular. There is no attempt at reparation during the whole proceſs; ſo that if it be, as ſome perſons call it, an ulcer, it muſt, we preſume, be of a cancerous nature. If any doubt could remain on the ſubject, it will be removed by the fact, that artificial teeth are as much ſubject to decay as natural ones. The appearance and progreſs of the caries is exactly the ſame as in teeth naturally contained in the jaws. The diſcolouration appears to me to be more deep and extenſive in the artificial teeth formed of the tooth of the hippopotamus, than in the natural human teeth. But in engrafted human teeth the decay is preciſely ſimilar to that of the natural ones.

The alleviation of the pain of the tooth-ache by cauſtic applications to the ſurface, as muriatic acids or argentum nitratum, has been conſidered as a proof that the caries is an ulcer in an irritable ſtate, and that its irritability is deſtroyed by theſe applications. Since however theſe remedies may act upon the expoſed vaſcular contents of the cavity of the tooth, or may affect theſe contents, before actual expoſure, by penetrating through the thin medium which remains, it is obvious that they can afford no proof of the point in queſtion. Other means however of ſtopping the pain of tooth-ache afford a ſtrong proof that the pain does not ariſe from the ulcerated ſurface, but from the nerves in the cavity. Let the decayed hole be ſtopped up (which is rather a rude method of uſing an irritable ulcer), ſo as to cut off the acceſs of the external air, and of foreign bodies, and the pain will ceaſe.

It is not perhaps ſo eaſy to determine what the decay is, as what it is not. Thoſe who conſider the teeth as deſtitute of veſſels, aſcribe their decay to the chemical action of the juices of the mouth, and of the ſubſtances which are taken in for food. It is difficult to comprehend how a cauſe, which muſt neceſſarily be ſo general in its application, ſhould be ſo circumſcribed in its effects: never producing decay in an extent of ſurface, but being limited at its commencement to a ſmall ſpot. Here however it may be obſerved, that a large ſurface ſometimes decays in artificial teeth, under circumſtances favouring an accumulation of fluids in a particular part; *viz.* the portion which correſponds to the gum, which is uſually grooved; and thereby more likely to retain any fluids.

Many arguments may be adduced to prove, that the decay of the teeth originates from the cauſes above-mentioned. It commences in thoſe ſituations, which favour the lodgement of food or extraneous matters; as between the teeth, and near the neck, juſt where the gum adheres. It is cured by ſtopping up the hole, and preventing the introduction and accumulation of the food, and the juices of the mouth. It is moſt frequent in the higher claſſes of ſociety, where the food is of the moſt unnatural kind, and the appetite is pampered with all the refinements of cookery; and is much leſs common in the peaſantry, which take more ſimple food, and employ it in a more natural form. It is very rare to ſee it in the teeth of ſavages, or ſuch perſons as have lived nearly in a ſtate of nature; and it never, we believe, occurs in animals. In twelve or fourteen crania, diſcovered in two barrows opened in Glouceſterſhire, there was not a ſingle decayed tooth. This mode of burial has not been employed for the laſt ſix centuries, ſo that the heads in queſtion muſt be referred to a remote period of hiſtory, to a time when the modern habits of luxury and indulgence, in reſpect to food, were unknown, and where the effects of ſuch habits on the teeth were of courſe not diſcernible.

A ſimilar obſervation is made by ſir John Sinclair, in his "Code of Health and Longevity," vol. i. p. 69, reſpecting the ſtate of the teeth in the crania, found on opening a place of interment at Scone, near Perth in Scotland. This had not been touched for two hundred years; and among a great number of ſkeletons there was hardly one, whoſe teeth were not entire and ſound. This fact leads the worthy baronet to ſuppoſe that our anceſtors enjoyed advantages over us in the ſtructure of their teeth; but our explanation of the appearance will be collected from the remarks made above. The practice of ſmoking, which is univerſally prevalent in ſome countries on the continent, is attended with a moſt marked deleterious effect on the ſtate of the teeth; inſomuch that the diſcoloured and unſound ſtate of theſe organs, in inhabitants of ſuch countries, attracts the notice of every traveller.

As all the attempts to prove the vaſcularity of the human teeth by direct arguments, drawn from the ſtructure and diſeaſes of theſe organs, have ſo completely failed, recourſe has been had to comparative anatomy; and the conſtant growth of the teeth of glires, and the appearances cauſed by the preſence of bullets in elephant's tuſks, have been brought forwards in ſupport of their opinions by the partiſans of the vaſcularity of the teeth.

Animals of the claſs glires of Linnæus, ſuch as the beaver, hare, rabbit, ſquirrel, rat, mouſe, &c. are diſtinguiſhed by poſſeſſing two very large inciſor teeth in each jaw, which being employed by the animal in cutting various hard bodies, wear down very rapidly. Hence if theſe animals be kept to ſoft food, their teeth grow out to a great length; and if theſe teeth be loſt from one jaw, the oppoſite ones grow out in the ſame way. This conſtant growth of theſe organs is effected in the ſame manner as their original formation. They are hollow internally, and contain a pulp, which continues to depoſit freſh ſubſtance below, in proportion as the tooth wears away above. The tuſks of the elephant poſſeſs the ſame conſtant growth, as alſo thoſe of the hippopotamus, and all ſimilar organs.

When an elephant's tuſk has been ſhot with a leaden bullet, it is ſaid, that the opening, through which the ball entered, is filled up again by the veſſels of the tooth. The bullet is cloſely ſurrounded by the ivory, and there is a ſwelling towards the cavity of the tooth oppoſite to the ſituation of the foreign body, aſcribed to the inflammation cauſed by its irritation.

It may be obſerved in the firſt place, that the appearances exhibited by the teeth in queſtion, are by no means what we ſhould reaſonably expect in ſuch a caſe. When a bullet has entered the ſubſtance of the body, the ſurrounding lacerated and contuſed parts do not grow to the metal and become firmly attached to its ſurface, but they inflame and ſuppurate, in order to get rid of the offending matter. If the ivory be vaſcular and ſenſible, why do not the ſame proceſſes take place in it?

We can explain very ſatisfactorily how a bullet may enter the tuſk of an elephant, and become imbedded in the ivory without any opening for its admiſſion being perceptible. We have already mentioned, that theſe tuſks are conſtantly growing during the animal's life, by a depoſition of ſucceſſive laminæ within the cavity, while the outer ſurface and the point are gradually worn away; and that the cavity is filled for this purpoſe with a vaſcular pulp, ſimilar to that on which the teeth are originally formed. If a ball penetrate the ſide of a tuſk, croſs its cavity, and lodge in the ſlighteſt way on the oppoſite ſide, it will become covered towards the cavity by the newly depoſited layers of ivory, while no opening will exiſt between it and the ſurface, to account for its entrance. If it have only ſufficient force juſt to enter, it may ſink by its own weight between the pulp and tooth, until it reſts at the bottom of the cavity. It there becomes ſurrounded by new layers of ivory, and as the tuſk is gradually worn away, and ſupplied by new depoſitions, it will ſoon be found in the centre of the ſolid part of the tooth. Laſtly, a foreign body may enter the tuſk from above, as the plate of bone which forms its ſocket is thin: if this deſcends to the lower part of the cavity, it may become imbedded by the ſubſequent formations of ivory. This muſt have happened in a caſe where a ſpear-head was found in an elephant's tuſk. The long axis of the foreign body correſponded to that of the cavity. No opening for its admiſſion could be diſcovered, and it is clear that no human

man ſtrength could drive ſuch a body through the ſide of a tuſk. See Philoſ. Tranſact. 1801. part 1.

Having now enumerated the reaſons which prove that the ſubſtance of the teeth is deſtitute of veſſels and nerves, and having briefly anſwered ſome objections which may be made to that opinion, we ſhall terminate the preſent diviſion of the article by putting one queſtion to the ſupporters of a contrary doctrine. Of what uſe could veſſels and nerves be in a part like the tooth, which undergoes no natural change except the mechanical one of abraſion of ſurface, which is ſubject to no diſeaſe except one, that is referable to chemical action; which ſets up no proceſs of regeneration to repair the effects of either of theſe changes, or the conſequences of accidental injury, and which in every known ſtate is totally deſtitute in itſelf of allſenſation? We deſire to know what end could be anſwered by making theſe parts vaſcular and ſenſible?

The following are the moſt uſeful works on the teeth, and contain repreſentations of moſt parts of their ſtructure and anatomy. Euſtachii "Libellus de Dentibus." Albini "Annotationum Academicarum," lib. ii. J. Hunter's "Natural Hiſtory of the Human Teeth." Girardi "Oratio de Re Anatomicâ." Parma, 1781, 8vo. Blake's "Eſſay on the Structure and Formation of the Teeth in Man and various Animals." Dublin, 8vo. 1801. Fox's "Natural Hiſtory of the Human Teeth." Soemmering, *de dentibus*, in the firſt vol. of his "Anatomy."

In the deſcription which we have thus given of the individual bones of the cranium and face, all the particulars relating to their ſtructure and formation are detailed. It remains for us to view the ſkull as forming one whole, which is indeed the proper way of conſidering it, as the connection of the various bones, by means of ſutures, is ſo firm, that the adult cranium may be conſidered as conſiſting of a ſingle piece of bone. Hence it becomes neceſſary to deſcribe the form of the cranium and face in a general way.

Many of the cavities and depreſſions in the ſkull and face, which are formed of proceſſes of ſeveral bones, would not be at all underſtood by reading the deſcriptions of the individual bones. Theſe, therefore, muſt be deſcribed as they exiſt in the entire cranium, in order to give the reader a notion of their form, extent, &c. Hence we ſhall add to the account of the form of the cranium and face, a deſcription of the *calvaria* (ſkull cap), *baſis cranii*, *temporal foſſa*, *orbit*, and *noſe*, and a general enumeration of the openings on the ſurface of the ſkull. This will be followed by a deſcription of the *national differences in the form of the ſkull*, and the article will be concluded by an enumeration of the characters of the human head; by an account of thoſe points of ſtructure which diſtinguiſh the cranium of man from that of other animals.

Form of the Cranium and Face.

The external ſurface of the cranium, conſidered on its anterior, ſuperior, and poſterior parts, is pretty regularly elliptical; the narrower part of the ellipſe being placed in front, and the broader part behind. The radius of the anterior part is to that of the poſterior as three to four, or two to three, in the infant; as thirty to thirty-one in the adult. The largeſt horizontal circumference of the cranium preſents likewiſe an oval figure, and is narrow or contracted in front, broader behind. The anterior, poſterior, and upper parts of the bony arch are uniformly convex on their ſurface; but the ſides of the cranium are rather flattened by the temporal muſcles. Theſe, however, are convex like the reſt of the ſurface in infants.

The greateſt diameter of the cranium is from the os frontis to the occiput, and meaſures ſix inches and a half; the greateſt *tranſverſe* diameter is five inches and a half; and the greateſt *perpendicular* (*viz.* from the middle of the foramen magnum to the vertex) five inches.

A longitudinal ſection of the cranium, in the direction from before backwards, would form an oval rather contracted in front, if its curve were continued from the occipital foramen to the root of the noſe. The great axis of the oval would be nearly parallel to the floor of the noſtrils, or at leaſt it would ſlope backwards very ſlightly. The ratio of the great to the ſmall axis would be as five to four. But the ſpace included between the two points above-mentioned, which form the boundary of the cranium and face, inſtead of preſenting a curved line, forms an irregular projection within the cavity of the oval. The ſection of the face forms, therefore, a triangle, the longeſt ſide of which is that which touches the cranium, and the ſhorteſt is the anterior one.

The external ſurface of the cranium, on its upper and back part and ſides, is generally ſmooth and uniform, with the exception of the ſlight inequalities noticed in the frontal, parietal, and occipital bones. It is alſo ſolid or imperforate, with the exception of a few ſmall apertures. The baſis on the contrary is very irregular and broken in its ſurface, and pierced by numerous apertures, which tranſmit arteries to the interior of the cranium, give exit to the correſponding veins, and allow paſſage to the various nerves originating from the brain. On either ſide of its anterior part it is excavated to contribute to the formation of the orbits. Between theſe two hollows it deſcends towards the cavity of the noſe, and behind the palate. A prominence on either ſide aſſiſts in forming the zygomatic arch; the maſtoid proceſſes form large protuberances behind, and the articular condyles of the occiput ſmaller ones near the centre of the baſis.

Deſcription of the Calvaria, or Skull-cap.

An horizontal ſection of the cranium, at whatever part, repreſents an ovate figure, of which the ſmall end is placed anteriorly and the larger poſteriorly.

The bony arch which forms the upper part of the head, conſiſts of the greateſt part of the frontal and parietal bones, with a ſmall ſhare of the occipital. Its internal ſurface is nearly ſmooth. It only preſents the impreſſions made by the veſſels and glandulæ pacchioni of the dura mater, or by the convolutions of the brain. A broad, but ſuperficial groove runs along the middle of the bony vault in its whole extent; it holds the ſuperior longitudinal ſinus of the dura mater. The pits of the glandulæ pacchioni are found in conſiderable number, but of various ſizes and depths, on either ſide of this groove. Frequently the bone is ſo thin in theſe pits that it appears tranſparent when held againſt the light.

Baſis Cranii.

The baſis or floor of the cranium is very unequal on its ſurface, and preſents conſiderable prominences and depreſſions, adapted to the various parts of the baſis of the encephalon. It may be divided into *three regions*, of which the anterior exhibits a convex ſurface, while the two poſterior are conſiderable depreſſions or foſſæ.

The *poſterior region*, which is chiefly occupied by the cerebellum, may be named foſſa cerebelli. It is the deepeſt of the three, and has been called the lower occipital foſſa.

The great occipital foramen is formed in the middle and lower part of this diviſion. From the front of this opening a ſlight excavation extends obliquely upwards and forwards, and is terminated anteriorly by a thin projecting bony plate, the two corners of which form the *poſterior clinoid* proceſſes. The oſſeous lamina, which forms the boundary of this excavation, belongs to the ſphenoid bone; the concavity itſelf is chiefly formed by the baſilary proceſs of the occiput, and may be called the *baſilary foſſa*. The medulla oblongata reſts in it, and ſends from its lower or poſterior part the medulla ſpinalis through the foramen magnum.

From each poſterior clinoid proceſs, a ſharp ridge is continued obliquely backwards and outwards, and marks the termination of the foſſa cerebelli in this direction. To this part, which belongs to the petrous portion of the temporal bone, the tentorium cerebelli is affixed. The poſterior boundary of this foſſa is formed by the internal tranſverſe ridge of the occiput; from the middle of which a longitudinal ſpine deſcends to the foramen magnum, ſo as to divide the foſſa cerebelli into equal portions; in which the two lobes of the cerebellum are contained.

The *anterior region*, which ſupports the front lobes of the cerebrum, is formed by the roof of the orbits and noſe. It is not ſeparated, by any mark of diſtinction, from the calvaria. Its poſterior boundary is the ſharp concave edges of the leſſer ſphenoid alæ. Theſe terminate towards the inner and back part by two rounded projections (*anterior clinoid proceſſes*,) ſituated nearly oppoſite the poſterior clinoid proceſſes. A ſlight prominence of the bone between theſe projecting points completes its poſterior boundary. The middle of this region is the deepeſt part; it is the cribriform lamella of the ethmoid bone, having the criſta galli ſtanding up from its middle, and dividing the two anterior lobes of the cerebrum. The ſides, which are formed by the roofs of the orbits, are convex and irregular on their ſurface, from the prominences which riſe between the convolutions of the brain.

The *middle region* conſiſts of a large foſſæ on either ſide of the ſkull, formed by the upper ſurface of the great ſphenoid ala, and of the petrous bone. The boundaries of the anterior and middle regions will of courſe form the limits of theſe middle foſſæ of the cranium. The ſurface of this diviſion occupies the intermediate degree between the level of the anterior and poſterior regions. As theſe latter extend conſiderably farther in the middle of the cranium than at the ſides, they nearly meet together in the centre, where they are only ſeparated by the *ſella turcica;* which cavity belongs to the middle region, although it is more elevated than the foſſæ, which lie on either ſide of it.

Theſe middle foſſæ of the baſis cranii hold the anterior convex portions of the poſterior lobes of the cerebrum (the middle lobes of ſome writers.)

The Temporal Foſſa.

The flat ſurface which is obſervable towards the anterior part at the ſide of the cranium affords attachment to the temporal, or crotaphyte muſcle. A white and ſowewhat prominent line commences behind the outer edge of the orbit, and runs upwards and backwards over the frontal and parietal bones, ſo as to deſcribe a ſemicircle on the ſide of the ſkull. From the termination of the parietal bone it turns forwards over the os temporis to the root of the zygoma. This line, the ſuperior edge of the zygoma, and the poſterior margin of the os malæ have the ſtrong temporal faſcia attached to their ſurface. The ſide of the ſkull within the line, which is obviouſly compreſſed or flattened, including a ſmall portion of the os frontis, a very large ſhare of the parietal bone, the whole ſquamous portion of the temporal bone, a conſiderable ſurface of the ſphenoid ala, and of the os malæ, gives origin to the fibres of the muſcle. The internal orbital proceſs of the cheek-bone ſeparates this foſſa from the orbit; and the zygoma is a bony arch at the lower part, where it is deepeſt, within which the tendon paſſes.

The ſurface of the temporal foſſa is much more extenſive, and the depreſſion is more ſtrongly marked, in the negro than in the European.

Cavity of the Orbit.

Thoſe deep bony cavities of the face, called the *orbits*, which hold the organs of viſion, are ſeparated from each other by the noſe; and are ſituated under the front of the cranium. They repreſent in form fourſided pyramids, of which the angles are rounded off; the baſis is placed towards the front, and the apex backwards. The margin or front entrance of the cavity has the ſame ſquare form with rounded angles; and hence it conſiſts of a ſuperior, inferior, external, and internal margin; the junction of which to each other, forms the frontal, temporal, malar, and lacrymal angles. The orbit has alſo four ſurfaces; a ſuperior, which extends nearly in the horizontal direction, and is concave; an inferior, which ſlopes very ſlightly backwards and upwards; an internal gently convex; and an external which is level. They are all very ſmooth.

The internal ſurfaces of the two orbits are parallel to each other; while the outer ſurfaces are ſituated very obliquely, paſſing from before backwards and inwards. Hence the axes of the two cavities would join at an angle in the ſella turcica. In conſequence of this conſtruction the eyes command a wider field of viſion than they would if the axes were parallel to each other.

Seven bones contribute to form this cavity: the upper ſurface is formed by the os frontis only; the inner by the os unguis and os planum; the inferior by the ſuperior maxilla, os malæ, and palati; the outer by the os malæ, and ſphenoid bone.

The form of the cavity is ſubject to conſiderable variety.

It is only in comparatively modern times that the orbits have been deſcribed in their true connection and relations. Beſides the few remarks which Winſlow has made on the ſubject in the “Memoires de l'Acad. des Sciences de Paris,” 1721; much information may be derived from the 1ſt chap. of Camper's “Diſſ. Phyſiol. de quibuſdam oculi partibus. L. B.” 1746: and from the 7th chap. of Zinn's immortal work “Deſcript. Anat. oculi humani.” Gœtting. 4to. 1755.

Cavities of the Noſe.

The bony hollows, on which the olfactory membrane is expanded, are placed between the orbits and below them. Fourteen bones contribute to their formation; *viz.* all the bones of the upper jaw, excepting the oſſa malæ, the ethmoid, ſphenoid, and frontal bones.

The extent of the cavity from its commencement in front to its termination at the back of the palate, is not very conſiderable: but it is greatly increaſed by the numerous cells of the cranium and face, which open into it at different parts. A broad perpendicular ſeptum divides it into a right and left cavity; but this diviſion is generally an unequal one, as the bony partition commonly inclines to one ſide or the other.

The *ſeptum narium* is formed by the naſal lamella of the ethmoid bone, and the vomer. The *entrance* of the noſe is conſtituted by the oſſa naſi and ſuperior maxillæ; and, as far as the bony compages is concerned, conſiſts of a ſingle heart-ſhaped aperture, common to both noſtrils. The upper and anterior part of this opening poſſeſſes a ſharp edge;

and there is a curved ſpinous proceſs projecting from its middle and lower part.

The termination of the naſal cavity, or its *poſterior opening* (*choana*,) inſtead of being common to both noſtrils, conſiſts of two apertures; one for each ſide. They are formed by the internal pterygoid plates of the ſphenoid bone, the oſſa palati and vomer. Their figure is ſomewhat oval, and the length exceeds the breadth.

The *bottom* or floor of the noſe, which is concave, is formed by the ſuperior maxillæ and oſſa palati. The *inner ſurface* of each noſtril is ſmooth, uniform, and perpendicular, as being formed by the ſeptum narium. The outer ſurface is very irregular, chiefly from the projection of the three conchæ or turbinated bones, which hang into the cavity.

By theſe projecting conchæ three cavities are formed in the noſtril, called the *canales* or *meatus narium*. The *inferior* is the largeſt, and is included between the floor of the noſtril, and the inferior turbinated bone. The *middle* is the ſpace left between the laſt mentioned part, and the middle concha; and the *ſuperior*, which is the ſmalleſt, is between the middle and ſuperior conchæ. The laſt of theſe does not open anteriorly; but the two former communicate with the noſtrils in front as well as behind.

The ſuperior ſurface or roof of the noſe is the leaſt extenſive of all; and is formed by the cribriform plate of the ethmoid bone only.

The ethmoidal and ſphenoidal cells open into the ſuperior meatus: the frontal and maxillary ſinuſes terminate in the middle; and the naſal duct ends in the lower meatus.

Caſſerius furniſhed the firſt accurate deſcription and delineation of the cavities of the noſe, in the human ſubject, and in different animals, ("De Fabrica naſi," in his "Pentæſtheſeion," p. 115. et ſeq. 1610.) Among modern writers on this ſubject, Aurivillius deſerves particular mention, ("Diſſ. de naribus internis," Upſal. 1760.) The reader may conſult likewiſe Duverney's "Œuvres Anat." vol. i tab. 14. Haller's "Tab. narium internar." in the 4th Faſcic. of his "Icones." Santorini's "Tab. poſthum." editæ à Girardo, tab. 4. Blumenbach's "Proluſio Anatom. de Sinibus Frontalibus."

General Enumeration of the Foramina, Fiſſures, Canals, &c. in the entire Cranium.

I. On the external ſurface.

a. On the *vertex*, or upper part of the head.
1. *Foramina parietalia* for a ſmall artery and vein.

b. In the *orbit*.
2. *F. ſupraorbitalia* for the frontal nerves and arteries.
3. *F. infraorbitalia*; the openings of the infraorbital canals for the arteries and nerves of the ſame name.
4. Superior openings of the lacrymal canals.
5, 6. *F. orbitalia interna* for the naſal branches of the ophthalmic nerves, and the ethmoidal arteries.
7. *F. optica* for the optic nerves and ocular arteries.
8. *Fiſſura orbitalis ſuperior (foramen lacerum orbitale)* for the 3d, 4th, and 6th pairs of nerves, the ophthalmic branch of the 5th pair, and the ocular veins.
9. *Fiſſura ſpheno-palatina*, at which the 2d branch of the 5th pair divides.
10. *Inferior orbital*, or *ſpheno-maxillary fiſſure* for the paſſage of the infraorbital nerve.

c. In the *palate*.
11. *Foramen inciſivum*, or *palatinum anterius*.
12. *Foramen palatinum poſterius* for the palatine artery and nerve.
13, 14. Two ſmaller palatine holes for more minute twigs of nerve or artery.

d. In the *ear*.
15. *Meatus auditorius externus*.
16. *Fiſſura glaſeri* for the chorda tympani, and origin of the externus mallei.

e. In the *baſis cranii*
17. *Foramen ſtilomaſtoideum* for the facial nerve, and an artery and vein.
18. *Foramen ovale* for the 3d branch of the 5th pair.
19. Opening of the *pterygoid canal* for the Vidian nerve.
20. *Foramen ſpinoſum* for the art. meningea media.
21. Entrance of the *carotid canal* for the carotid artery, and a branch of the 6th pair of nerves.
22. *Foramen lacerum in baſi cranii (f. jugulare)* for the jugular vein and par vagum.
23. *Foramen condyloideum anterius* for the nervous lingualis medius.
24. *Foramen condyloideum poſterius* for the paſſage of veins.
25. *Foramina maſtoidea* for the paſſage of veins.
26. *Foramen occipitale magnum* for the medulla ſpinalis, with its coverings; the vertebral arteries; and the nervi acceſſorii.

f. In the lower jaw.
27. *Foramen maxillare poſterius* for a branch of the inferior maxillary nerve, and an artery and vein.
28. *Foramen mentale* for the mental nerve.

II. On the inner Surface of the Skull.

a. in the *vertex*.
Foramen parietale, mentioned above.

b. In the baſis cranii.
29. *Foramen cæcum* for the attachment of the falx cerebri.
30. *Foramina laminæ criboſæ* for the olfactory nerves, and naſal branch of the ophthalmic nerve.
Foramen opticum, mentioned above.
Fiſſura orbitalis ſuperior, mentioned above.
31. *Foramen rotundum* for the 2d branch of the 5th pair.
Foramen ovale, mentioned above.
Foramen ſpinoſum, mentioned above.
32. *Termination of the carotid canal*.
33. *Foramen on the petrous bone* for a branch of the Vidian nerve.
34. *Meatus auditorius internus* for the 7th pair of nerves.
35. Opening of the aquæductus veſtibuli.
36. Opening of the aquæductus cochleæ.
Foramen lacerum in baſi cranii, mentioned before.
Foramen condyloideum anterius, mentioned before.
Foramen condyloid. poſter. mentioned before.
Foramina maſtoidea, mentioned above.
Foramina occipitale magnum, mentioned above.

National varieties in the Form of the Cranium.

It is only of late years that this ſubject, which offers a moſt important and intereſting field of inveſtigation, has been examined with that attention which it deſerves. With the exception of a few deſultory obſervations, which are ſcattered through the works of different writers, Daubenton's paper, "Sur la difference du grand trou occipital dans l'homme, et dans les autres animaux," in the memoirs of the Royal Academy of Sciences for 1764, contains the firſt attempt at any general remarks on the ſubject; and this, indeed, is more important in pointing out the differences between the human ſtructure and that of animals, than in defining the characters of the cranium in the different races of mankind. Camper has attempted a more ſyſtematic account of the national forms of the cranium. (See the 1ſt. vol. of his "Kleinere Schriften;" his "Naturgeſchichte des Ourang Outang;" and particularly the "Diſſertation phyſique ſur les differences reelles que preſentent les traits du viſage chez les hommes de differens pays et de différens ages," Utrecht, 1791, tranſlated from the original Dutch.) The obſervations of this illuſtrious anatomiſt on the preſent ſubject, as on all others which he has treated, are ingenious and intereſting; but cannot be conſidered as even approximating to a ſyſtematic account of the national varieties of the ſkull. He does not appear to have poſſeſſed a ſufficient collection of crania for this purpoſe; and the differences which he has pointed out, regarding merely the various degrees of prominence of the jaws, afford very inſufficient criteria for determining the numerous points of diſtinction which characteriſe the ſkulls of different nations. We are indebted to the celebrated Blumenbach of Göttingen for the moſt complete body of information on this ſubject: which he has been enabled moſt ſucceſsfully to illuſtrate, by means of a collection, containing above a hundred ſpecimens, of the crania of different nations from all parts of the globe. His admirable work, "De generis humani varietate nativâ," contains a ſhort ſketch of the various formations of the ſkull in different nations: but he has treated the matter at greater length, and with more minute detail in an expreſs work, where the various crania are repreſented of their natural ſize: the book is entitled, "Decades craniorum diverſarum gentium illuſtratæ," Göttingen, 1790, 1800, 4to. Four decades, containing repreſentations of forty crania, have hitherto arrived in this country. The following account will be chiefly derived from the two laſt-mentioned books.

It is ſufficiently obvious that there muſt be a cloſe connection between the external parts of the face, or the features, and the bony compages which lie under and ſupport theſe. So that we might venture to affirm, that a blind man, if he knew the vaſt difference which exiſts between the face of a Calmuck and that of a Negro, would be able to diſtinguiſh the crania of theſe two races of mankind by the mere touch. Nor could you perſuade any perſon, however ignorant of the ſubject, that either of theſe ſkulls belonged to a head, ſimilar to thoſe from which the divine examples of the ancient Grecian ſculpture were copied. Thus much is clear and undeniable, as to the general habit and appearance of the ſkull. A more careful anatomical inveſtigation of genuine ſpecimens of the crania of different nations promiſed to throw ſtill further light on the ſubject of the varieties of the human race. For, when freed from the ſoft parts, which are leſs conſtant and regular in their formation, they exhibit the firm and ſolid foundation of the head; they can be conveniently handled and examined; conſidered in various points of view, and compared with each other.

Such a compariſon will ſhew us, that the form of the cranium differs no leſs than the colour of the ſkin, or other characters, in different individuals; and that one kind of ſtructure runs by gentle and almoſt inobſervable gradations into another: yet that there is on the whole an undeniable, nay, a very remarkable, conſtancy of character in the crania of different nations, contributing very eſſentially to national peculiarities of form, and correſponding exactly to the features which characteriſe ſuch nations. Hence, anatomiſts have attempted to lay down ſome ſcale of dimenſions to which the various forms of the ſkull might be referred; and by means of which they might be reduced into certain claſſes. Of theſe endeavours, the *facial line* of Camper ſeems to claim the moſt attention.

The cranium, being placed laterally, two imaginary lines are drawn on its ſurface to interſect each other at a particular point. The firſt proceeds horizontally through the meatus auditorius externus, and the floor of the noſtrils. The other, or the proper *facial line,* is continued from the moſt prominent portion of the forehead above the noſe, to the front of the alveolar margin of the upper jaw-bone. From the angle formed at the junction of thoſe two lines, this excellent anatomiſt conceived that we might eſtimate the differences of the cranium in animals, as well as in the various races of mankind. (A further account of the reſults of its application will be given in the diviſion of this article on the *characters which diſtinguiſh the human cranium from that of animals.*)

This criterion is expoſed to ſome very ſerious and eſſential objections. It is ſufficiently obvious, that the *facial line* can at moſt be applicable to ſuch varieties only of the human race as differ from each other in various degrees of prominence of the jaws; and that it will not at all exhibit the characters of thoſe which vary in the oppoſite way, *viz.* in the greater or leſs breadth of the face. It often happens that crania of the moſt different nations, which differ *toto cœlo* from each other on the whole, have the ſame facial line; and, on the contrary, that ſkulls of the ſame nation, which agree in general character, differ very much in the direction of this line. Thus, in the *decades* of Blumenbach, we have repreſented the crania of a Negro and of a Pole, which poſſeſs exactly the ſame facial line. Yet the general character of the two ſkulls is moſt widely different, when the narrow and almoſt keel-ſhaped head of the Ethiopian is compared to the broad ſquare form of the Lithuanian. (Decas Altera, tab. 10. Decas Tertia, tab. 22.) There are, on the contrary, in the ſame work two Negro crania of very different facial lines, which, when viewed in front, betray their Ethiopic origin moſt inconteſtably, by the ſame characters of a narrow and compreſſed cranium and arched forehead. (Decas Prima, tab. 7 and 8.) Laſtly, Camper himſelf has employed his two lines, in the plates ſubjoined to his work, in ſo arbitrary and inconſtant a manner, changing frequently the point of contact, on which their whole utility muſt depend, that he clearly appears to be heſitating and uncertain in their employment.

Blumenbach ſtates, that in the examination and claſſification of his immenſe collection of the crania of different nations, he finds it every day more and more difficult, amidſt ſuch numerous differences in the proportion and direction of various parts, all of which contribute more or leſs to the national character, to reduce theſe to the meaſurements or angles of any ſingle ſcale. Since, however, in diſtinguiſhing the characters of different crania, ſuch a view will gain the preference to all others, as offers at one glance the moſt numerous and important points, and ſuch as contribute eſpecially to the compariſon of national characteriſtics, he has found by experience that to be the beſt adapted to this purpoſe, which is obtained by placing the different crania (including the lower jaws), with the zygomas, in the ſame perpendicular line, on a table in a row, and contemplating them from behind. When crania are thus arranged, thoſe circumſtances which contribute moſt to the formation of the national character, the direction of the jaws and cheek-bones, the breadth or narrowneſs of the head, the arched or flat form of the forehead, are all diſtinctly perceived at one view. This method of conſidering the cranium is called by Blumenbach *norma verticalis.* It is exhibited in the three firſt figures of the ſecond plate of the anatomy of the cranium,

nium, where three heads are repreſented in this point of view, in order to illuſtrate the ſubject. The middle of the three (*fig.* 1.), diſtinguiſhed by the ſymmetry and beauty of all its parts, is that of a Georgian female; the two outer ones are examples of heads differing from this in the oppoſite extremes. That which is elongated in front (*fig.* 2.) is the head of a Negreſs, from the coaſt of Guinea; the other, which is expanded laterally, and flattened in front (*fig.* 3.), is the cranium of a Tungooſe, from the north-eaſt of Aſia. The margin of the orbits and the zygoma are elegantly contracted in the Georgian; and the jaws are hidden by the ſymmetrical expanſion of the forehead. In the Ethiopian, the maxillary bones, and indeed the whole face, are compreſſed laterally, and project in front. In the Tungooſe, on the contrary, the oſſa malæ, oſſa naſi, and glabella, are ſituated on the ſame horizontal level, and are enormouſly expanded on either ſide.

The national varieties in the form of the cranium may be conſidered in the five chief diviſions, under which the different nations of mankind have been diſtributed by Blumenbach. The firſt of theſe comprehends the inhabitants of Europe; together with the weſtern Aſiatics, or thoſe which are found on this ſide of the Caſpian ſea, and the rivers Ob and Ganges; and the northern Africans: in a word, the inhabitants of the world as known to the ancients. In this, which Blumenbach calls the *Caucaſian* variety of the human race, the form of the cranium is ſomewhat globular; the forehead moderately expanded; the cheek-bones narrow, and not prominent, but deſcending in a ſtraight line from the external angular proceſs of the os frontis. The alveolar margin of the jaws is rounded; the front teeth are placed perpendicularly in both jaws. The angle formed by the facial line is 80 degrees.

As a ſpecimen of this variety, we have ſelected from the third decade of Blumenbach's work the cranium of a Georgian woman; which, on account of the exact ſymmetry and beauty of its formation, may be regarded as the model of a perfect head. (*Anatomy of the Cranium, Plate* I. *fig.* 1.) The form of this head is of ſuch diſtinguiſhed elegance, that it attracts the attention of all who viſit the collection in which it is contained. We preſent the reader with the deſcription of this cranium, in the words of Blumenbach. "Calvaria ſubgloboſa, verſus tempora paulo compreſſior; frons modicé explanata; oſſa jugalia anguſtiora, inde a proceſſu malari oſſis frontis leniter utrinque deſcendentia et retrorſum flexa; arcus ſuperciliares æquabiles nullo ad glabellam interſinio diſtincti, ſed eo loco molli potius tubere cum naſi dono confluentes; limbus alveolaris æquabiliter arcuatus; mentum pleniuſculum, pulchré rotundatum; verbo, in univerſo capitis hujus oſſei ambitu nihil aſperi, nihil præter modum proſilientis, ita ut perfecté medium teneat locum inter bina faciei gentilitiæ in humano genere extrema; Mongolicum nempe alterum, facie complanatâ et quaſi repreſsâ, ac oſſium jugalium extrorſum utrinque directa eminentia inſigne; alterum Æthiopicum, fronte contra tuberoſo et fornicato, ac mandibulis anguſtis ſed antrorſum porrectis, conſpicuum."

The ſymmetry and beauty of this Georgian head are further evinced by comparing it with the proportions obſerved in the invaluable remains of the ancient Grecian ſculpture. It correſponds exactly with the marble ſtatue of a nymph, in the collection of the late Mr. Townley, of which Blumenbach poſſeſſed a plaſter caſt. It tends alſo to confirm the teſtimony of the numerous travellers who have unanimouſly concurred in extolling the beauty of the inhabitants of Georgia, and the neighbouring countries. The expreſſions of Chardin are ſo warm and animated on this ſubject, that the reader will not be diſpleaſed by ſeeing the original paſſage. "Le ſang de Géorgie eſt le plus beau de l'orient, et je puis dire du monde. Je n'ai pas remarqué un viſage laid en ce païs là, parmi l'un et l'autre ſexe; mais j'y en ai vu d'angeliques. La nature y a répandu ſur la plupart des femmes, des graces qu'on ne voit point ailleurs. Je tiens pour impoſſible, de les regarder ſans les aimer. L'on ne peut peindre de plus charmans viſages, ni de plus belles tailles, que celles des Géorgiennes." (Vol. i. p. 171. Ed. of 1735.)

Another ſpecimen of this variety (the cranium of a Turk) has been inſerted in the firſt plate of the anatomy of the cranium, on account of a ſingularity in its form, ariſing probably from artificial cauſes. (*Anatomy of the Cranium, Plate* I. *fig.* 2.) The cranium is here completely globular. The occiput can hardly be ſaid to exiſt, as the foramen magnum is placed nearly at the poſterior part of the baſis cranii. The forehead is broad, and the glabella prominent. The proportions of the face are, on the whole, ſymmetrical and elegant. The alveolar portion of the upper jaw-bone is ſingularly ſhort; it does not meaſure more than the breadth of the little finger under the noſe.

The cranium of a Turk, in the poſſeſſion of the writer of this article, exactly reſembles the plate of Blumenbach, (Decas Prima, tab. 2.) from which the engraving in the preſent work was copied. It correſponds alſo with the form of the head, as obſervable in the living ſubject, and with the moſt faithful delineations of ſuch perſons. This peculiarity of form has been obſerved by ſeveral authors: it is indeed ſo ſtriking, that it could hardly have eſcaped obſervation. "It appears," ſays Veſalius, "that moſt nations have ſomething peculiar in the form of the head. The crania of the Genoeſe, and ſtill more remarkably thoſe of the Greeks and Turks, are completely globular in their form. This ſhape, which they eſteem as elegant, and adapted to the turbans, which they wear on the head, is produced by the midwives, at the ſolicitation of the mothers." (De Corporis humani Fabricâ, p. 23. ed. of 1555.) This ſtatement is confirmed by a letter from baron Aſch to Blumenbach; in which he ſays, that the midwives at Conſtantinople commonly inquire of the mother, after parturition, what form ſhe would like to have given to the head of the child; and that they commonly prefer that which reſults from ſubjecting the forehead and occiput to a cloſe compreſſion, as they think that their turbans fit better on the head, when of that ſhape. (Decas Prima, p. 16.)

The other nations, included under this firſt diviſion, do not ſeem to be diſtinguiſhed in general by any remarkable peculiarities; although ſome ſlight characteriſtics have been pointed out. The cranium is broad and ſquare, and the face flattened, in the Laplander; ſo that he approaches in that reſpect to the Mongolian variety. According to Veſalius (*loco citato*), the Germans are generally conſpicuous for the breadth of the head, and flattened form of the occiput; becauſe, ſays he, the children always lie on their backs. The aſſigned cauſe does not appear adequate to the production of the effect; yet, that ſuch a form does belong, in ſome caſes, to the German cranium, is proved by a ſkull in the poſſeſſion of the writer of this article, which, in its globular form, in the flattened ſtate of the occiput, and in the approximation of the great occipital foramen to the poſterior part of the baſis cranii, exactly reſembles the Turkiſh cranium. Soemmerring, however, whoſe authority on this point cannot be diſputed, ſtates that there is no well-marked difference between the German, Swiſs, French, Swediſh, and Ruſſian crania, according to the ſpecimens in his poſſeſſion; except that the orbits are contracted in the Ruſſian, and their margins quadrangular, and the teeth are ſmall. (De Corporis humani Fabricâ, tom. i. p. 63.)

It is well known that the inhabitants of the northern diviſion of our own iſland are characteriſed by the height of their cheek-bones.

The ſecond, or *Mongolian variety*, includes thoſe Aſiatics, which do not come under the firſt diviſion, and the inhabitants of the northern parts of America. The head is of a ſquare form; and the cheek-bones ſtand out widely to either ſide. The glabella, and oſſa naſi, which are flat and very ſmall, are placed nearly in the ſame horizontal line with the oſſa malarum. There are ſcarcely any ſuperciliary ridges: the entrance of the noſtrils is narrow; the malar foſſa forms but a ſlight excavation. The alveolar edge of the jaws is obtuſely arched in front; the chin rather prominent. This formation is moſt ſtrikingly exhibited in the Mongolian tribes, which are widely ſcattered over the continent of Aſia, and which have generally, but erroneouſly, been included with ſome of very different origin and formation under the name of Tartars; whereas the laſt-mentioned tribes, properly ſo called, belong to the firſt diviſion of the human race. The Calmucks, and other Mongolian nations, which overran the Saracen empire, under Zengis-Khan, about the middle of the thirteenth century, and had entered Europe, are deſcribed in the "Hiſtoria Major," of Matthew Paris, under the name of *Tartars*, (p. 530, London, 1686, folio); whereas that appellation properly belongs to the weſtern Aſiatics, who had been vanquiſhed by the Monguls. The error, however, ariſing from this ſource, has been propagated down to the preſent day, ſo that in the works of the moſt approved naturaliſts, as Buffon and Erxleben, we find the characters of the Mongolian race aſcribed to what they call the Tartars. The miſtake has not even been detected by the moſt celebrated and claſſical modern hiſtorians; as Dr. Robertſon ſpeaks of Zengis as the emperor of the Tartars ("Hiſtory of America," vol. i. p. 45.) The reader, who wiſhes for further information on this ſubject, may conſult J. E. Fiſcher *conjecturæ de gente et nomine Tatarorum*, in his "Quæſtiones Petropolitanæ," p. 46 *et ſeq.*

We have ſelected the cranium of the Calmuck from the third decade of Blumenbach to exemplify this variety. (*Anatomy of the Cranium*, *Pl.* 1. *fig.* 4.) The whole formation and proportions of this cranium correſpond exactly to the well known Calmuck phyſiognomy; and the repreſentation perfectly reſembles that of the ſkull delineated by Fiſcher ("Diſſ. de modo, quo oſſa ſe vicinis accommodant partibus." Lugd. Bat. 1743. 4to. tab. 1.) The ſtrong characters, which are ſo clearly exhibited in this cranium, are altogether different from thoſe of the head, which Camper has exhibited for that of a Calmuck, in his work on the facial line. The laſt-mentioned engraving repreſents a head, in which the negro character, the very oppoſite extreme to that of the Calmuck, is ſo unequivocally exhibited, that we cannot doubt that the drawing was taken from an African head. The work of Camper contains therefore, beſides European ſkulls, only two African ones; it muſt conſequently be completely inadequate to give any correct ſyſtematic account of the ſubject.

The third, or *Ethiopian variety*, includes the Africans, which do not come within the firſt diviſion. The cranium is narrow, being compreſſed at the ſides, where the temporal foſſa is of immenſe extent. The forehead ſtrongly arched; the cheek-bones project anteriorly; the noſtrils are large; the malar foſſa is conſiderable and deep. The alveolar edges of both jaws ſtand very much forwards; they are narrow, elongated, and of an elliptical figure. The front teeth of the upper jaw are oblique in their poſition. The lower jaw is large and ſtrong; but the chin, inſtead of projecting as far as the teeth, as it does in the European, recedes conſiderably, as in the monkey. The ſubſtance of the cranium is generally thick, and the ſkull is conſequently heavy. The facial angle is about 70 degrees. A more detailed compariſon of the Negro cranium to that of the European may be ſeen in Soemmerring ("De corporis humani fabrica," tom. 1. § 65.) An African head is repreſented from the decades of Blumenbach in the firſt plate of the *Anatomy of the Cranium*, *fig.* 3. A ſlight compariſon of the negro with the European ſkull will ſuffice to ſhew, that the cranium is much more capacious in the latter than in the former caſe, conſequently that it muſt poſſeſs a larger brain. The lateral compreſſion of the Ethiopian head, together with the narrow arched forehead compared to the almoſt globular European cranium, with its broad expanded frontal portion, ſufficiently account for this difference. At the ſame time the bones of the face are proportionally larger in the African; the foramina for the tranſmiſſion of the nerves are more ample; and, according to Soemmerring, the nerves ariſing from the baſis of the brain are more conſiderable. (Ueber die korperliche Verſchiedenheit des Negers vom Europaer, § 56.)

The reſult of theſe obſervations, together with the unequivocal ſimilarity in external form between the African cranium, and that of the monkey, leads us inevitably to the inference that the Negro approximates in ſtructure to thoſe animals. The facts, which we poſſeſs on this ſubject, confirm the concluſion which would naturally be drawn from theſe premiſes, that the mental faculties of the Negro are inferior to thoſe of the white nations. Let it not however be conceived that theſe remarks are intended to degrade the African to a level with brutes, or to juſtify thoſe who conſider them merely as a ſpecies of monkey. He is diſtinguiſhed from all animals by the ſame grand and conſtant characters which belong to every variety of the human race. We merely ſtate the obvious inferences deducible from acknowledged facts; and conſider that a difference in mental powers cannot afford any ſtronger argument in proof of a diverſity of ſpecies, than the numerous diſtinctions in bodily ſtructure. Indeed, when we find the different races of mankind characterized by ſuch numerous differences in bodily ſtructure, it would be a matter of ſurpriſe if no diverſity could be diſcovered in their mental endowments.

The deſcription, which we have given above, of the Negro cranium muſt be underſtood in a general ſenſe, and not as univerſally and unexceptionably applicable. Travellers inform us that ſeveral Africans differ from the European features and phyſiognomy only in colour; ſo that the peculiar formation of the cranium, on the faith of which ſome philoſophers would claſs theſe people as a diſtinct ſpecies, is by no means a conſtant character.

This diverſity of features is proved by delineations of Africans, executed by the moſt ſkilful artiſts; and by the views, which Blumenbach has exhibited, of ſix African heads, all differing from each other. ("Decas prima," tab. 6, 7, 8. "Decas altera," tab. 17, 18, 19). Theſe drawings fully juſtify his concluſion; "genuinos Æthiopes, ſi craniorum formam ſpectes, non minus certè, imo vero magis paſſim inter ſe ipſos ab invicem differre, quam nonnulli eorum a multorum Europæorum capitis forma differunt." "Decas altera," p. 13.

In the two following varieties the form of the cranium is not ſo ſtrongly characterized, as in the three which we have already conſidered. They form indeed two intermediate gradations, between the European and the Mongolian, on one ſide, and the African on the other.

The fourth, or *American variety*, includes all the Americans, excepting the inhabitants of the northern part of the continent, which we have claſſed with the Mongolian diviſion.

In this variety the cheeks are broad, but the malar bones are more rounded and arched than in the Mongolian; and not expanded to ſuch an extent on either ſide, nor poſſeſſing ſuch an angular form. The orbits are generally deep. The form of the forehead and vertex is influenced in many inſtances by the efforts of art. The cranium is generally ſmooth.

The two crania, which are exhibited in the firſt plate of the *Anatomy of the Cranium*, (*figs.* 5 & 6,) in illuſtration of this variety, are taken from the 10th and 20th plates of Blumenbach's work. Both of them diſplay the effects of art in the form of the forehead; but the operation of this cauſe is moſt unequivocal in that which wants the lower jaw. Two crania, exactly ſimilar to this latter one, are delineated in the ("Memoires de l'Academie des Sciences de Paris," 1740, by Hunauld; and in the "Journal de Phyſique," of April 1789, by Arthaud.)

The concurring reports of ſeveral travellers concerning the methods employed by the Caribs to effect this alteration in the ſhape of the cranium, leave no doubt as to the truth of the fact. Hence we cannot help admiring the ſceptical diffidence of various moderns, who have queſtioned the poſſibility of impreſſing theſe unnatural formations on the cranium. (Sabatier in his "Traité complet d'Anatomie." Camper in his "Diſſertation ſur les differences," &c. and Arthaud in the "Journal de Phyſique," 1789.) It ſhould appear from the relation of travellers, that the Caribs practiſe different methods of accompliſhing their object; as by tying a plate of wood on the forehead; or by compreſſing the head between two plates; (Thibault de Chanvalon "Voyage à la Martinique," p. 39.) or by preſſure with the hand. The former is probably the moſt common method. "The Caribs," ſays Labat in his "Voyage aux iles de l'Amerique," tom. ii. p. 72, are all well made and proportioned; their features are ſufficiently agreeable, excepting the forehead, which appears rather extraordinary, as it is very flat, and, as it were, depreſſed. Theſe people are not born ſo, but they force the head to aſſume that form, by placing on the forehead of the newly born child, a ſmall plate, which they tie firmly behind. This remains until the bones have acquired their conſiſtence; ſo that the forehead is flattened to that degree, that they can ſee almoſt perpendicularly above them without elevating the head." To remove all further doubt on the ſubject, the inſtruments and bandages, by which the preſſure is made, are delineated and deſcribed by Dr. Amic of Guadaloupe, in the 39th vol. of the Journal de Phyſique.

The fifth, or *Malay variety*, including the inhabitants of the numerous Aſiatic iſlands, and thoſe of the great Pacific ocean, conſtitute an intermediate link between the European and Negro. The cranium is moderately narrowed at its upper part; the forehead rather expanded; and the upper jaw ſlightly prominent.

The characters which diſtinguiſh the crania of the different varieties are ſufficiently ſtriking and conſtant to be obſerved in very young ſubjects. This is ſhewn by the three laſt plates of the third decade of Blumenbach, which repreſent ſpecimens of the three firſt varieties.

Cauſes of the peculiar national forms of the Cranium.

We cannot, at preſent, deliver any ſatisfactory account of the cauſes of thoſe differences which unqueſtionably prevail in the form of the cranium in the different varieties of the human ſpecies; much leſs are we able to underſtand the manner, in which any aſſigned cauſe may be ſuppoſed to operate in producing its effect. Yet we think it right to lay before the reader Blumenbach's remarks on this point, as they tend, in ſome degree, to elucidate the ſubject.

The bones are the moſt ſolid parts of the human body; and form a kind of firm ſupport and foundation on which the ſofter ſtructures reſt. Yet phyſiological experiments, and the phenomena of diſeaſe prove, that they are much more ſubject to change, than the ſofter parts of the body. Their elements are continually melted down, and removed in an imperceptible manner by the abſorbents; while the loſs thus occaſioned is repaired by the depoſition of other particles newly ſecreted from the blood. This continual change in the bony materials of our body, which is going on from the firſt period of their formation, occaſions them to accommodate themſelves to the neighbouring parts, and to become, as it were, formed and faſhioned by their action.

The conformation of the head in the more advanced periods of life affords the moſt unequivocal proof of this circumſtance. The internal ſurface of the cranium exhibits a mould of the lobes and convolutions of the brain, to which it was adapted; and the external ſurface diſplays the moſt manifeſt impreſſions from the actions of the muſcles, as well as traces of the form of the features, the general expreſſion and configuration of which may be eaſily conjectured from the view of the denuded cranium.

If then it can be proved that climate has a great effect in modifying the form of the face, (and that it has that effect can be clearly ſhewn, ſee Blumenbach's "De generis humani varietate nativa," § 57. ed. 3.), the ſame cauſe muſt exert a powerful influence on the cranium, and particularly on the bones of the face, although in a leſs direct way.

Beſides the chief and leading cauſe, other acceſſary ones may contribute to the ſame effect. Thus there is we think no inconſiſtency in allowing that conſiderable and long continued preſſure may have an effect on the bones of the face. The ſkull of a New Hollander in the poſſeſſion of Blumenbach ("Decas tertia," tab. 27.) is characterized by a remarkable flatneſs of the upper jaw, where it contains the inciſor and canine teeth. This formation can only be attributed to the whimſical cuſtom which thoſe barbarians have, of wearing ornaments in a perforation of the ſeptum naſi, of ſuch magnitude as to obſtruct the noſtrils, and prevent them from breathing through thoſe openings.

It happens, however, much more frequently that the bones of the ſkull receive a peculiar, and, as it may be called, national form, from various artificial cauſes. Not to mention the flattened occiput of the Germans in the time of Veſalius, who attributed it to the manner in which children were placed in their cradles, there can be no doubt, as we have already ſtated, that the form of the forehead in the Carib cranium is owing to artificial preſſure. A ſimilar rage for improving the ſhape of the head has been very prevalent in the continent of America. "The Indians," ſays Adair, "flatten their heads in divers forms; but it is chiefly the crown of the head they depreſs, in order to beautify themſelves, as their wild fancy terms it: for they call us *long-heads*, by way of contempt." (Hiſtory of the American Indians, p. 8.) The method by which they accompliſh their purpoſe is thus deſcribed by the ſame author: "They fix the tender infant on a kind of cradle, where his feet are tilted above a foot higher than a horizontal poſition; his head bends back into a hole made on purpoſe to receive it, where he bears the chief part of his weight on the crown of the head, upon a ſmall bag of ſand, without being in the leaſt able to move himſelf. By this preſſure, and their thus flattening the crown of the head, they conſequently make their heads thick, and their faces broad." (p. 9.)

Various other methods have been practiſed, both by manual preſſure, bandages, and other inſtruments, for reducing the cranium to certain particular forms, both in ancient times, and in European as well as other more remote nations. We know that ſuch cuſtoms have exiſted formerly, or do exiſt at preſent in ſome parts of Germany, in the Netherlands, among the French and Italians, the inhabitants of the Grecian Archipelago, the Turks, the Macrocephali near the Euxine ſea, the modern Sumatrans, the inhabitants of the Nicobar iſlands, and particularly in many parts of America, as the inhabitants of Nootka Sound, the Chactaws of Georgia, the tribes of Carolina, the Caribs, the Peruvians, and the Maroon Negroes of the Antilles. (For the numerous quotations in which this fact is ſtated of the above-mentioned nations, the reader is referred to Blumenbach "De Gen. Hum. Var. Nat." p. 216, 218.) It is a matter of ſurpriſe that any perſon ſhould have dared to call in queſtion the truth of a fact which is ſupported by the concurrent teſtimony of ſo many eye-witneſſes. The practice in queſtion has given riſe to the names by which ſeveral tribes both in North and South America are diſtinguiſhed. "The word *Omaguas* as applied to a nation of Peru, as well as that of *Cambevas,* in the language of Brazil, ſignifies *flat-head:* for theſe people have the ſtrange cuſtom of preſſing the forehead of their newly-born children between two plates, in order to make them, as they ſay, reſemble the full moon." (Condamine in the "Memoires de l'Acad. des Sciences de Paris," 1745. p. 427.) Hence alſo the "têtes de boule," and "têtes plates," of Charlevoix. ("Hiſtoire de la Nouvelle France," tom. 3. p. 187, 323.) In further proof of theſe practices, we find that they have been prohibited by the Spaniſh eccleſiaſtical councils. J. S. de Aguirra, in the "Collectio maxima conciliorum omnium Hiſpaniæ et novi orbis." Romæ, 1755. fol) relates a decree which paſſed in the third ſynod of the dioceſe of Lima, againſt the Indian method of deforming their children's heads. "Cupientes penitus exſtirpare abuſum, et ſuperſtitionem, quibus Indi paſſim infantum capita formis imprimunt, quas ipſi vocant *Caito, coma, opalta;* ſtatuimus & præcipimus," &c. &c. recounting various puniſhments againſt the delinquents; as, for inſtance, that a woman who has committed ſuch an offence, "frequentet doctrinam per continuos decem dies mané & veſperi pro primâ culpâ; pro ſecundâ vero, per viginti," &c.

Nevertheleſs, however clearly the fact itſelf may be proved, people will ſtill be inclined to doubt of what has been often aſſerted ſince the time of Hippocrates; *viz.* that theſe peculiar forms of the head, produced in the firſt inſtance by artificial preſſure continually practiſed for a long ſeries of generations, have paſſed at length, in the progreſs of time, by a kind of hereditary deſcent, to the offspring, ſo as to have become a ſecond nature. There is a well known paſſage in the celebrated work of Hippocrates, "De aeribus, aquis & locis," concerning the Macrocephali, a nation ſituated near the Euxine ſea. He ſtates that no other people have the cranium of ſuch a form as theſe. It was the great object of their ambition to have the head as long as poſſible: hence aroſe the practice of moulding with their hands the tender heads of their children. When in its plaſtic ſtate it might be compared to the "udum & molle lutum," ſo as to compel it to aſſume an elongated form, and of compreſſing it by means of appropriate bandages and inſtruments, ſo as to prevent its growth, except in the direction which they deſired. When this cuſtom had been long continued, the peculiar form remained without any farther efforts.

The father of medicine has endeavoured to explain this ſingular phenomenon by his hypotheſis of generation, which is nearly ſimilar to that of Buffon. He ſuppoſes the genital fluid to be collected from all parts of the body; and hence that the members of the fœtus are faſhioned according to thoſe of the parents, from whom this fluid is derived: ſo that a Macrocephalous father would beget a ſon of the ſame formation, &c.

The opinion which ſuppoſes that artificial forms of the cranium may ultimately be tranſmitted to the offspring, ſo as to conſtitute national characters, has been contradicted by ſome phyſiologiſts. We cannot at preſent perhaps determine the queſtion ſatisfactorily on either ſide. The tranſmiſſion of other national marks, as peculiar forms of the features, and of organic diſeaſes, as defects of pronunciation, not to mention various inſtances in which caſual mutilations have paſſed to the offspring, will induce us to reflect a little before we adopt implicitly the negative ſide of the queſtion.

We have one remark only to add on this part of the ſubject; *viz.* that the differences in the form of the cranium are by no means ſufficient to authoriſe us in aſſigning the different races of mankind, in which they occur, to ſpecies originally different; for they are not more conſiderable, nor even ſo remarkable as ſome variations which occur in animals confeſſedly of the ſame ſpecies. Thus the head of the wild boar is widely different from that of the domeſtic pig. The different breeds of horſes and dogs are diſtinguiſhed by the moſt ſtriking diſſimilarities in the head: in which view the Neapolitan and Hungarian horſes may be contraſted. The wild original of the cow poſſeſſes large lacrymal foſſæ, which are completely loſt in the domeſticated animal. The very ſingular form of the head in the Paduan fowl is a more remarkable deviation from the natural ſtructure than any variation which occurs in the human cranium.

National Peculiarities in the Form of the Teeth.

In the year 1779 Blumenbach diſcovered a peculiarity in the form of ſome of the teeth in two Egyptian mummies. The inciſors, inſtead of poſſeſſing their ordinary thin cutting edges, were thick in their bodies, and reſembled truncated cones: and the canine teeth were only diſtinguiſhable from the bicuſpides by their ſituation. The ſame circumſtances have been obſerved in other ſpecimens; as in a mummy at Cambridge, deſcribed by Middleton ("Monumenta Antiquitatis," in his Works, vol. iv. p. 170.); in another at Caſſell, (Brückmann's "Deſcription," Brunſwick, 1782, 4to.); and in a third at Stutgard ("Storr, prodromus Methodi Mammalium," p. 24.) Blumenbach diſcovered the ſame ſtructure in another head of a young mummy, which he opened in London. ("Philoſophical Tranſactions," 1794. part 2.) There muſt, he obſerves, be great differences in the crania of various mummies, when it is conſidered, that the practice of treating the dead body in this manner prevailed in Egypt for ſo many ages, during which great viciſſitudes occurred in the dominion and inhabitants of the country; and conſequently that we cannot reaſonably expect to find this formation of the teeth in every ſpecimen. Yet it conſtitutes a ſingular variety, and deſerves mention, as it may aſſiſt in diſtinguiſhing the mummies of ſome particular age or nation. It is difficult to aſſign a cauſe for this peculiarity of conformation. Blumenbach aſcribes it to the kind of food, which, on the authority of Diodorus Siculus, he ſtates to have conſiſted chiefly of vegetables, roots, &c. This, he ſays, would occaſion great mechanical abraſion; which, according to him, is attended with an increaſed thickneſs of theſe organs, both in man and animals. If he means that the teeth grow thicker by this cauſe, after their firſt formation, the reader will perceive that the explanation muſt completely fail; as ſuch a growth is quite incompatible with every fact which we poſſeſs concerning the ſtructure and economy of theſe organs.

A ſimilar formation of the teeth was noticed by Winſlow in the cranium of a Greenlander from the iſle of Dogs, (*Hond-Eyland*) on the weſt coaſt of Greenland. "The inciſors, ſays this anatomiſt, are flat from before backwards, and ſhort; inſtead of having a cutting edge; hence they reſemble grinders more than cutting teeth. The gentleman, who preſented me with this cranium, ſaid that the inhabitants of Hond-Eyland eat their meat raw. They move their jaws in a very ſingular manner, and make ſeveral grimaces while chewing and ſwallowing. It was the obſervation of this ſingular ſpectacle that induced him to ſeek for an opportunity of diſcovering whether theſe iſlanders poſſeſſed any peculiarity of conſtruction in their jaws or teeth." "Memoires de l'Acad. des Sciences de Paris," 1722. p. 323.

This account is confirmed by two Eſkimaux crania in the poſſeſſion of Blumenbach, from Labrador, "Decas Cranior. Tertia." tab. 24. 25, which exhibit the ſame thickened form and worn appearance of the teeth. It is well known that the Eſkimaux are derived from the ſame race with the Greenlanders, and that their name has its origin from their practice of eating raw fleſh.

We doubt much whether there be any real original difference in the form of the teeth in the inſtances juſt mentioned: and are rather inclined to refer the obſerved peculiarity of form to the mechanical attrition, which it appears that the teeth had experienced in all caſes. We know very well that the inciſor teeth are wedge-ſhaped, and increaſe gradually in thickneſs from their cutting margin to the gum. Hence, if one of theſe organs be half worn away, it will entirely loſe its natural appearance as a cutting tooth, and will reſemble in form the teeth found in the crania above-mentioned.

The aſſertion of Buffon, Erxleben, and others, that the teeth of the Calmucks are longer, and ſeparated by wider intervals from each other, is contradicted by the ſpecimens of their crania in the poſſeſſion of Blumenbach.

Some other peculiar ſhapes of the teeth are produced by artificial means. Thus ſome tribes of Negroes file them ſo as to make them conical and ſharp pointed (Churchill's "Collection of Voyages," vol. v. p. 139. 143. 385. Philoſ. Tranſ. vol. 73. pt. 1, p. 92): ſome of the Malays deſtroy a great part of the enamel (Forreſt's "Voyage to New Guinea, p. 237. Marſden's "Hiſtory of Sumatra, p. 46); or make grooves on its ſurface, (Hawkeſworth's "Collection of Voyages," vol. iii. p. 349, of the Javaneſe). Blumenbach ſtates, that he has ſeen ſome Chineſe and Javaneſe, who had carefully removed the enamel from the edge of the teeth by means of a ſtone.

Compariſon of the Human Skull with that of Animals.

A very ſtriking difference between man and all other animals conſiſts in the relative proportions of the cranium and face; which are in general indicated by the direction of the facial line.

The two organs, which occupy moſt of the face, are thoſe of ſmelling and taſting (including the inſtruments of maſtication, &c.) In proportion as theſe parts are more developed; the ſize of the face compared to that of the cranium, is augmented. On the contrary, when the brain is large, the volume of the cranium is increaſed in proportion to that of the face. A large cranium and ſmall face indicate therefore a large brain with inconſiderable organs of ſmelling, taſting, maſticating, &c.: while a ſmall cranium with a large face ſhews that theſe proportions are reverſed. The nature and character of each animal muſt depend in great meaſure on the relative energy of its different functions: it is in a manner ſubdued and maſtered by its moſt powerful ſenſations. We meet with examples of this daily in the human ſpecies; but the differences which can be obſerved between one man and another in this reſpect, muſt be much leſs than thoſe which occur between animals of different ſpecies. The brain is the common centre of the nervous ſyſtem: all our perceptions are conveyed to this part, as to a ſenſorium commune; and this is the organ by which the mind combines and compares theſe perceptions, and draws inferences from them—by which in ſhort it reflects and thinks.

We ſhall find that animals partake in a greater degree of this latter faculty, or at leaſt approach more nearly to it, in proportion as the maſs of medullary ſubſtance, forming their brain, exceeds that, which conſtitutes the reſt of the nervous ſyſtem; or, in other words, in proportion as the organ of the mind exceeds thoſe of the ſenſes. Since then the relative proportions of the cranium and face indicate alſo thoſe of the brain, and the two principal external organs, we ſhall not be ſurpriſed to find that they point out to us, in great meaſure, the general character of animals; the degree of inſtinct and docility which they poſſeſs: and hence the ſtudy of theſe proportions is of great importance to the naturaliſt. *Man combines by far the largeſt cranium with the ſmalleſt face*: and animals deviate from theſe relations in proportion as they increaſe in ſtupidity and ferocity.

One of the moſt ſimple methods (though ſometimes indeed inſufficient) of expreſſing the relative proportions of theſe parts, is the facial line, which we have already deſcribed. In man only is the face placed perpendicularly under the front of the cranium; ſo that the facial line is perpendicular. Hence the angle formed between this line, and the horizontal one, which paſſes through the noſe and meatus auditorius, is moſt open, or approaches moſt nearly to a right angle in the human ſubject. The face of animals is placed in front of the cranium inſtead of under it: that cavity is ſo diminiſhed in ſize, that its anterior expanded portion, or forehead, is ſoon loſt, as we recede from man. Hence the facial line is oblique: and the facial angle is acute: it becomes more and more ſo as we deſcend in the ſcale from man; and in ſeveral birds, in moſt reptiles and fiſhes, it is loſt altogether, as the cranium and face are completely on a level, and form parts of one horizontal line.

The idea of ſtupidity is aſſociated, even by the vulgar, with the elongation of the ſnout, which neceſſarily lowers the facial line, or renders it more oblique: hence the crane and ſnipe have become proverbial. On the contrary, when the facial line is elevated by any cauſe, which does not increaſe the capacity of the cranium, as in the elephant and owl, by the cells, which ſeparate the two tables, the animal acquires a particular air of intelligence, and gains the credit of qualities, which he does not in reality poſſeſs. Hence the latter animal has been ſelected as the emblem of the goddeſs of wiſdom; and the former is diſtinguiſhed in the Indian language by a name which indicates an opinion that he participates with man in his moſt diſtinguiſhing characteriſtic, the poſſeſſion of reaſon.

The invaluable remains of Grecian art ſhew that the ancients were well acquainted with theſe circumſtances: they were aware that an elevated facial line formed one of the grand characters of beauty; and indicated a noble and generous nature. Hence they have extended the facial angle to 90 degrees in the repreſentation of men on whom they wiſhed to beſtow an auguſt character. And in the ſtatues of their gods and heroes they have carried it beyond a right angle, and made it 100°.

The facial line of the European forms an angle of	80°
Negro - -	70°
Orang-utang - -	58°
Monkey - - -	42°

Theſe are repreſented in the ſecond plate of the *Anatomy of the Cranium* (*figs*. 4, 5, 6, 7, & 8). In ſome other mammalia the angle is no more than about 20°.

The boundaries of the facial angle in the human ſubject are therefore 70° and 80°. A ſmaller angle than the former conſtitutes an approach to the monkey. Yet it may be extended beyond the latter, as the Greeks have done in their repreſentations of the deity: here however 100° ſeems to be the *ne plus ultra*; beyond which the proportions of the head would appear deformed.

That angle, according to Camper, conſtitutes the moſt beautiful countenance, and hence he ſuppoſes the Greeks adopted it. "For," ſays he, "it is certain that no ſuch head was ever met with; and I cannot conceive that any ſuch ſhould have occurred among the Greeks, ſince neither the Egyptians, from whom they probably deſcended, nor the Perſians, nor the Greeks themſelves ever exhibit ſuch a formation on their medals, when they are repreſenting the portrait of any real character. Hence the antient model of beauty does not exiſt in nature, but is a thing of imaginary creation; it is what Winkelmann calls "*beau ideal*.""

A vertical ſection of the head, in the longitudinal direction, ſhews us more completely the relative proportions of the cranium and face. In the European, the area of the ſection of the cranium is four times as large as that of the face; the lower jaw not being included. The proportion of the face is ſomewhat larger in the Negro; and it increaſes again in the orang-utang. The area of the cranium is about double that of the face in the monkeys; in the baboons, and in moſt of the carnivorous mammalia, the two parts are nearly equal. The face exceeds the cranium in moſt of the other orders of mammalia. In the ruminant animals the area of the face is about double that of the cranium, and it is nearly four times as large in the horſe.

The outline of the face, when viewed in ſuch a ſection as we have juſt mentioned, forms in the human ſubject a triangle; the longeſt ſide of which is the line of junction between the cranium and face. This extends obliquely backwards and downwards from the root of the noſe towards the foramen occipitale. The front of the face, or the anterior line of the triangle is the ſhorteſt of the three. The face is ſo much elongated, even in the monkeys, that the line of junction of the cranium and face is the ſhorteſt ſide of the triangle; and the anterior one is the longeſt. Theſe proportions become ſtill more conſiderable in the other mammalia.

The *great occipital foramen* holds a very different ſituation in animals from that which it poſſeſſes in the human ſubject; and its poſition again differs conſiderably in the various ſpecies. Theſe differences ariſe chiefly from the ordinary attitude of the body, and from the form of the head. The head and neck of man being directed vertically, his head is placed in a ſtate of equilibrium on the vertebral column, in order to facilitate its motions, and to maintain it firmly on the point of ſupport, which it poſſeſſes in the natural attitude of the body. Hence the great occipital hole is placed in the human ſubject nearly in the centre of the baſis cranii; and is very little more diſtant from the front of the jaws, than from the poſterior extremity of the occiput. The poſition of the head is ſo favourable for its being held in a ſtate of equilibrium, that if the vertical line of the trunk and neck were continued upwards, it would paſs through the top of the head.

The occipital hole differs therefore conſiderably from that of animals in its direction. Let us draw a line according to the courſe or level of this opening: it will paſs from the poſterior edge of the foramen, along the ſurface of the condyles, and if continued anteriorly, will terminate juſt under the orbits. It forms in ſhort almoſt an horizontal line, which interſects, nearly at right angles, the vertical line of the body and neck, when the head is held ſtraight, without being inclined forwards or backwards.

In this attitude, the face is in a vertical line parallel to that of the body and neck; and conſequently the jaws hardly extend in front beyond the forehead. They are very ſhort in compariſon with thoſe of moſt animals: for the length of the lower maxillary bone of man, meaſured from the chin to the poſterior edge of the condyle is only half the length of the whole head, as taken from the chin to the occiput; and ſcarcely the ninth part of the height of the body from the anus to the vertex: and about the eighteenth part of the whole length of the body from the top of the head to the feet. This latter point of compariſon is however ſcarcely applicable to the ſubject; inaſmuch as there is hardly any other animal but man, which has the hind legs as long as the trunk, neck, and head taken together, and meaſured from the vertex to the pubis.

The principal conſtituent parts of the human ſtructure are the ſame with thoſe of animals; but there is as much difference in the mode of union, and form of the bones, as in the attitude of man, compared to that of animals. Let us ſuppoſe a man to aſſume the attitude of a quadruped, and that he ſhould attempt to walk on all fours; he will find himſelf in a very unnatural poſition. The motions of his arms, legs, hands, feet, and head, will be very laborious; and it will be impoſſible for him to acquire a firm gait and regular progreſſion. The obſtacles, which he experiences, ariſe from the conformation of the pelvis, hands, feet, and head: the latter only come within the ſcope of the preſent article.

In proportion as the volume of the brain increaſes in compariſon to that of the whole body, ſo does the occiput become more convex and prominent; the foramen magnum is removed further from the back of the head; and the level of this opening approaches the horizontal direction. Hence, as we have already remarked, it is but little further in man from the extremity of the jaws than from the back of the head, and its direction is nearly horizontal. This poſition of the opening, which places the head in a ſtate of equilibrium upon the neck, and brings the face forwards in the natural erect poſture, would, if man went on all fours, prevent him from elevating the head ſufficiently to ſee before him, becauſe the motion of the head would be ſtopped by the projection of the occiput meeting the vertebræ of the neck.

In moſt animals the great occipital foramen is placed at the back of the head ; the jaws are conſiderably elongated ; the occiput forms no projection beyond this opening, the level of which is in a vertical line, or at leaſt very ſlightly inclined. Hence the head is connected to the neck by its back part, inſtead of being articulated, as in man, by the middle of its baſis ; and, inſtead of being in equilibrium, it hangs to the front of the neck. This ſtructure beſtows on quadrupeds the power of uſing their jaws for ſeizing what is before them ; of elevating them to reach what may be above the head, although the body be placed horizontally ; and of touching the ground with the mouth by depreſſing the head and neck as low as the feet. The latter motion could not be performed by man, even if he were in the attitude of a quadruped ; for if he lowered the head to the ground, he would only touch it with the forehead or vertex.

In ſeveral animals there is ſome diſtance between the foramen magnum, and the poſterior extremity of the occiput ; but this interval is no where ſo conſiderable as in the human ſubject, and in proportion as it is increaſed does the direction of the occipital foramen approach more to the horizontal one.

Animals of the monkey kind approach more nearly to the human ſtructure in the poſition and direction of the occipital foramen than any others. In the orang-utang it is twice as far from the jaws as from the back of the head ; and it is conſiderably inclined downwards, ſo that a line drawn in its level paſſes below the lower jaw, inſtead of going juſt under the orbit as in man.

The difference in the direction of the foramen may be eſtimated by noting the angle formed by the union of a line drawn in the manner above-mentioned, according to the direction of the opening, with another line paſſing from the poſterior edge of the foramen to the inferior margin of the orbit. This angle is of 3° in man, and of 37° in the ourang-utang. The length of the jaws in this animal muſt exceed that of the human ſubject in the ſame proportion : the lower maxilla is one fourth of the length of the trunk and head, taken from the vertex to the anus, while in man it is only one ſeventh.

The occipital angle is of 47° in the lemur ; it is ſtill greater in the dog ; and in the horſe it is of 90°, or a right angle, the poſition of the opening being completely vertical.

The *want of the intermaxillary bone* has been ſet down by Camper as one of the grand characteriſtics which diſtinguiſh the human head from that of other animals. The ſuperior maxillary bones of the human ſubject are united to each other, and contain the whole of the upper ſeries of teeth. They are, however, ſeparated in brutes by a third bone of a wedge ſhape, which contains the inciſor teeth, and therefore was called *os inciſivum.* It is united by peculiar ſutures to the neighbouring bones.

That man poſſeſſes nothing analogous to the intermaxillary bone of brutes is ſo clear, that we muſt be ſurpriſed how ſo excellent an anatomiſt as Vicq-d'Azyr could diſcover any analogy in the human jaw to the ſtructure of quadrupeds. "Memoires de l'Acad. des Sciences de Paris," 1780. The tranſverſe ſlit behind the inciſor teeth, which is conſtantly obſervable in the young ſubject, and ſometimes diſtinguiſhable in the adult, was very well known to the older anatomiſts. But that this fiſſure could not deſerve the name of a ſuture, was very correctly obſerved more than two hundred years ago by the acute Fallopius. (See its deſcription in the account of the bones of the face.)

Whether all other mammalia, beſides the human ſubject, poſſeſs this bone, is not ſo decidedly aſcertained, as that man has it not. Blumenbach mentions, that it does not appear in ſeveral crania of the genus ſimia, which he examined. "De Gen. Hum. var. Nat." p. 38. Neither Tyſon nor Daubenton found it in the ourang-utang. However this queſtion may be decided, there can be no doubt that the crania of all the quadrumanous mammalia, which are the moſt anthropomorphous animals, as well as of all other quadrupeds, are diſtinguiſhed from the human ſkull by the great length and projection of the jaws.

The teeth of the human ſubject differ from thoſe of all mammalia in being placed cloſe to each other, and arranged in an uniform and unbroken ſeries. The lower inciſors are perpendicular, which is altogether a peculiar character of the human head. The cuſpidati do not project beyond the others, nor are they ſeparated by any intervals from the neighbouring teeth. The molares are furniſhed with peculiar blunt prominences or tubercles very different from thoſe of any of the monkey kind.

The lower jaw of the human cranium is characterized by three very remarkable circumſtances : its peculiar ſhortneſs ; the prominence of the chin, which ariſes from the perpendicular poſition of the lower inciſor teeth ; and by the form, direction, and mode of articulation of the condyles, which circumſtances differ from the ſtructure of all other animals, and clearly ſhew that man is deſigned by nature to be an omnivorous animal.

CRANIUM, in *Natural Hiſtory*, the name of a ſpecies of the *Anomia*, with a ſmooth ventricoſe ſhell, tranſverſely ſtriated, found in the Norwegian ſea. Alſo, a ſpecies of *Alcyonium*, tuberiform, white, and ſetoſe ; found in the ſame ſea with the former.

CRANK, a contrivance in machines, in manner of an elbow, only of a ſquare form ; projecting out from an axis, or ſpindle ; and ſerving, by its rotation, to raiſe and fall the piſtons of engines for raiſing water, or the like.

CRANK, in *Sea Language*. A ſhip is ſaid to be *crank-ſided*, when, for want of a ſufficient quantity of ballaſt or cargo, ſhe cannot bear her ſails, or can bear but ſmall ſail without danger of overſetting.

She is ſaid to be *crank by the ground*, when her floor is ſo narrow, that ſhe cannot be brought on ground without danger.

CRANK is alſo an iron brace which ſupports the lanthorns on the poop-quarters, &c.

CRANMER, THOMAS, in *Biography*, the moſt eminent prelate that ever filled the ſee of Canterbury, was born July 2, 1489, at Aſlacton, in Nottinghamſhire. At the age of 14 he was admitted to Jeſus College, Cambridge. By his great diligence in his academical ſtudies, and by his zeal in the purſuit of biblical knowledge, he acquired very high reputation, and quickly obtained a fellowſhip and the degree of M. A. The former he ſoon loſt by marrying ; but his wife dying within a year of his entering the holy ſtate, he was again admitted fellow of his college, a rare circumſtance, and at the ſame time a ſignal proof of the reſpect and affection in which he was held by his friends. By Cardinal Wolſey he was offered a fellowſhip at Oxford, which he did not accept ; and in 1523 he took the degree of D.D., and was appointed theological lecturer and examiner : in both capacities he rendered the moſt eſſential ſervices to the intereſts of learning and religion. He had not, however, long retained theſe offices before the plague obliged him to retire for ſafety to Waltham Abbey, where, meeting with Dr. Fox, the king's almoner, and Dr. Stephen Gardiner, the ſecretary, the converſation turned on the ſubject of the king's divorce from Queen Catharine. In giving an opinion on this ſubject, he ſaid the queſtion muſt be reduced to this ; "Whether a man may marry his brother's wife;" which might be diſcuſſed and decided by the authority of ſcripture, in this country as well as at Rome. When Henry was informed of this reply, he not only applauded Cranmer's ſagacity, affirming that "he had got the right ſow by the ear," but deſired to be introduced to him. He immediately appointed him one of his chaplains, and commanded him to write in juſtification of the intended divorce. The doctor quickly produced a work which completely coincided with the monarch's views, by proving from the ſcriptures, and by an appeal to the deciſions of general councils and ancient writers, that the pope poſſeſſes no power to diſpenſe with the word of God. Cranmer argued the point ſo ſucceſsfully at Cambridge, and made ſo many converts to his opinion, that he was ſent by his ſovereign to debate the matter on the continent with the divines of France, Italy, and Germany. While on this miſſion he married a ſecond wife at Nuremberg; and on his return in 1533, he was raiſed to the high office of archbiſhop of Canterbury, with the ſole view, no doubt, of ſanctioning the conduct of the king; and accordingly in the following May, he pronounced the ſentence of divorce between Henry VIII. and Catharine, and confirmed the king's marriage with Anne Boleyn. Theſe acts excited the vengeance of the pope, who threatened to excommunicate the archbiſhop: but he had already ſet at defiance his power, by refuſing to accept his office, unleſs it were beſtowed immediately by his own ſovereign without the intervention of his holineſs. He therefore heard the denunciations uttered againſt him without anxiety, and exerted all his powers in behalf of the Reformation. In the ſame year he was very inſtrumental in procuring an act of parliament which aboliſhed for ever the pope's ſupremacy in theſe realms, and which declared the king ſupreme head of the church. His next objects were, the tranſlation of the ſcriptures into Engliſh, and the diſſolution of monaſteries, which had long been regarded as incompatible with thoſe principles of virtue and religion, in behalf of which they had been originally inſtituted. In theſe efforts the primate was ſucceſsful, and having already joined the king in ſo many of his projects, he was obliged to follow him ſtill farther, and in 1536 he pronounced a ſecond divorce between Henry and Anne Boleyn. In all the changes and reforms introduced by the king, his ſole object was the acquiſition of new power and increaſed wealth, and when he had ſecured his wiſhes in theſe reſpects, he began to counteract farther innovations, and cauſed an act to be paſſed which impeded the progreſs of reformation during the remainder of his reign. By a proviſion in this law, the archbiſhop was obliged to baniſh his wife to her native home. With this act of violence Cranmer did not comply without exhibiting a manly oppoſition, which extorted the admiration and reſpect of the monarch, though his enemies fondly imagined it would effect his ruin. In 1540 he was appointed a commiſſioner for inſpecting into matters of religion, and for explaining ſome of its chief doctrines: the reſult of this commiſſion was the circulation of a work, chiefly compoſed by Cranmer, entitled "A neceſſary Erudition of any Chriſtian Man." After the death of Thomas Cromwell, earl of Eſſex, in whoſe behalf he interceded with all the warmth of friendſhip, though ineffectually, he retired from court, and gave himſelf up to his own affairs as an eccleſiaſtic. The high rank to which he had attained, rendered him an object of envy to thoſe leſs honoured, and who eagerly ſought his ruin; but in every change he was protected by the king, who eventually appointed him one of the executors of his laſt will, and one of the regents of the kingdom.

Upon the demiſe of Henry, in 1546, Cranmer crowned the young king, and was, during the ſhort reign of that ſovereign, very zealous in promoting the reformation. He took a very active part in compoſing, correcting, and eſtabliſhing the liturgy, and in compiling the 39 articles. At this period, it cannot be denied, the archbiſhop exerciſed his power with cruelty, and without that regard to the rights of conſcience in others, which he had formerly claimed for himſelf. He ſanctioned, and was even the abettor of perſecution, in the caſes of Gardiner biſhop of Wincheſter, and Bonner biſhop of London; and by his authority and approbation other conſiderable men of the Romiſh church were impriſoned and perſecuted, on account of their opinions and attachment to rites and ceremonies, againſt which he had ſet his face. It does not appear what part he took in the perſecution of Lambert and Aſkew during the reign of Henry, who were cruelly murdered for avowing doctrines to which Cranmer himſelf afterwards adhered; but his conduct in regard to Joan Bocher and George Van Paris cannot be too ſtrongly reprobated. Theſe, ſays Mr. Gilpin, were accuſed, one for maintaining, and the other for denying the divinity of Chriſt. The woman was highly reſpected, and zealouſly attached to the reading and explaining of thoſe ſcriptures which Cranmer had cauſed to be put into her hands, in common with thoſe of her countrymen. He was the cauſe, therefore, as well as the inſtrument of her cruel death. The good woman ſaw, or thought ſhe ſaw, that Jeſus of Nazareth was a man, like other men, only in the high degree of inſpiration which he had from his Almighty Father. Being exhorted to abjure ſo damnable a doctrine, ſhe refuſed, and preferred death rather than life on ſuch ignominious terms, and ſhe was accordingly committed to the flames. To the honour of the young king, and the diſgrace of his miniſter, let it be noted, that the mind of the former revolted againſt the ſigning of the warrant for Bocher's execution, and it was only by Cranmer's perſuaſions and importunity that he was brought to yield. Even then he deprecated the act, and with tears declared, that if he did wrong, the archbiſhop muſt anſwer for it at the tribunal of heaven.

In the year 1553, he ſhewed himſelf adverſe to the ſettlement of the crown on Lady Jane Grey, though he was at length perſuaded to ſet his hand to it; and on the death of Edward he avowedly eſpouſed her cauſe, and became a member of her council. The triumph of Mary forewarned him that he had little to hope for. Clemency, and even juſtice, were well nigh baniſhed from the new court, and the friends of Cranmer urged him to ſeek for ſafety by retiring to a foreign country. But feeling that the dignity of his character, and the cauſe of the reformation required him to make a ſtand, he replied it would not be fit for him to leave his poſt, and thus, as it were, diſavow the changes that had been made, by his means, in religion, during the late reign. It was now, probably, that the prediction of Chriſt to Peter muſt meet the mind of Cranmer: "They that take the ſword ſhall periſh by the ſword."

He had been a perſecutor, and muſt fall by the ſame mercileſs means. He was tried on a charge of high treaſon, in joining the party of Lady Jane; of this he was convicted, when his ſee was declared vacant, and the fruits of it ſequeſtered. He ſupplicated for pardon, which was granted, but only that he might be tried on the charge of hereſy, of which he was alſo convicted. As yet the pope's authority had not been re-eſtabliſhed in England, and it was thought neceſſary to repeat the mock trial, on an indictment charging him with blaſphemy, perjury, incontinency, and hereſy. On this occaſion Cranmer refuſed every teſtimony

mony of reſpect to the repreſentative of the pope, and defended himſelf with ability, and much firmneſs. But reaſon had no effect with judges who were endeavouring to baniſh reaſon from the world: he was condemned, and moſt cruelly treated, eſpecially by Bonner, whoſe name has been tranſmitted to poſterity with the infamy it merits. The archbiſhop bore all with an undaunted heroiſm, till the proſpect of death overcame his virtuous reſolution; then he ſigned a recantation of his religious principles. His enemies having thus obtained a ſignal victory, loſt no time in printing and diſperſing every where the recantation, determined, at the ſame time, to take away his life. On the 24th of February, a writ was ſigned for burning Cranmer, and on the 24th of March he was brought to St. Mary's church, Oxford, to hear a diſcourſe, previouſly to the fatal tragedy. Dr Cole, provoſt of Eton, was appointed to preach on the occaſion; while he was haranguing the audience, the unfortunate priſoner expreſſed the greateſt contrition for having been betrayed into the daſtardly act of recantation, but the ſpectators ſuppoſed that the tears which he ſhed were on account of his former hereſy. At length, Cole, with a malignant countenance, deſired him to make an open profeſſion of his faith; when Cranmer avowed his belief in all that had been taught by Chriſt and his apoſtles, in the New Teſtament, and by the prophets in the Old. "And now," added he, "I come to that which hath ſo much troubled my conſcience, more than any thing I ever did or ſaid in my whole life; and that is the ſetting abroad a writing contrary to the truth, which I here now renounce, as things written with my hand contrary to the truth which I thought in my heart; and written for fear of death, and to ſave my life if it might be. And foraſmuch as my hand offended, contrary to the dictates of my heart, my hand ſhall be firſt puniſhed." Aſtoniſhed and enraged at this unexpected declaration, the bigotted and ſavage mob dragged him to the place of martyrdom, where he was quickly faſtened to the ſtake; here his reſolution was undaunted, and he nobly obliterated the ſtain which had been made upon his character by recantation. "This is the hand that wrote it," ſays he, "and therefore it ſhall firſt ſuffer puniſhment." He accordingly ſtretched his right hand into the flame, where he kept it unmoved till it was conſumed. In a ſhort time the fire attacked his vital parts, and he died repeating the words of the martyr Stephen, "Lord Jeſus, receive my ſpirit." Such was the end of Thomas Cranmer, in the 67th year of his age: that he was a great and good man in many reſpects none will deny; but it would be fooliſh, and to poſterity unjuſtifiable, to attempt to conceal his faults. He was, ſays Mr Hume, "undoubtedly a man of merit, poſſeſſed of learning and capacity, and adorned with candour, ſincerity, and beneficence, and all thoſe virtues which were fitted to render him uſeful and amiable in ſociety. His moral qualities procured him univerſal reſpect, and the courage of his martyrdom, though he fell ſhort of the rigid inflexibility obſerved in many, made him the hero of the Proteſtant party." There are, however, others who can better appreciate the worth of the archbiſhop than our hiſtorian. Mr. Gilpin, ſpeaking of the noble ſtand which Cranmer made againſt the king with regard to the ſix articles, ſays, "The good archbiſhop never appeared in a more truly Chriſtian light, than on this occaſion. In the midſt of ſo general a defection, he alone made a ſtand. Three days he maintained his ground, and baffled the arguments of all oppoſers. But argument was not their weapon, and the archbiſhop ſaw himſelf obliged to ſink under ſuperior power. Henry ordered him to leave the houſe. The primate refuſed. "It was God's buſineſs," he ſaid, "and not man's:" and, when he could do no more, he boldly entered his proteſt. Such an inſtance of fortitude is ſufficient to wipe off many of thoſe courtly ſtains which have faſtened on his memory." His behaviour as a Chriſtian, in the forgiveneſs of injuries, which is the touchſtone of pure principles, was exemplified in the cauſe of the duke of Norfolk. "The laſt act of this reign," ſays Gilpin, "was an act of blood, and gave the archbiſhop a noble opportunity of ſhewing how well he had learned to forgive an enemy." Henry had ordered the duke of Norfolk to be attainted contrary to juſtice. No man had been more the enemy of Cranmer than the duke; yet, ſo far was he from exulting in the opportunity of vengeance, that he viewed the meaſure with horror, and oppoſed the bill with all his might; and, when his oppoſition was vain, he left the houſe with indignation, and retired to Croydon.

To men of learning, Cranmer was a generous patron and friend; he maintained an intimate and conſtant correſpondence with moſt of the diſtinguiſhed ſcholars in Europe. He was a great economiſt of his time, riſing generally, at all ſeaſons, at five in the morning, and employing every hour with induſtry and care. In his manner he was pleaſing and amiable; mild and cheerful in his temper; and given to hoſpitality, often beyond the ample means which he enjoyed. As a preacher, he is ſaid to have been plain, practical, and impreſſive; and the character of his writings is that they are more ſenſible and nervous, than elegant and poliſhed. He left behind him a widow and children, that had been amply provided for by Henry VIII., who, without any ſolicitation, gave him a conſiderable grant from the abbey of Welbeck in Nottinghamſhire, which his family enjoyed after his deceaſe. King Edward made ſome addition to his private fortune, and his heirs were reſtored in blood by an act of parliament, paſſed in the reign of Elizabeth. The writings of the archbiſhop are not ſtamped with the marks of great ſuperiority; though ſome have been tranſlated into Latin by Young and ſir John Cheke. Some poſthumous pieces were publiſhed by Strype and Burnet, and there remain, in the library at Lambeth, two large volumes of MSS. chiefly collections from the Scriptures, and the writings of the Fathers. Cranmer was, according to Burnet, very anxious in obtaining the ſenſe of ancient writers upon all the topics of religion, by which he might be directed in the cauſe of the reformation. Biog. Brit.

CRANNICHFELD, in *Geography*, a ſmall town of Germany, in the duchy of Saxe-Gotha, ſituated on the river Ilm, and ſurrounded on all ſides by mountains. It has 250 houſes, and 1300 inhabitants, moſt of whom are tradeſmen and manufacturers, chiefly baſket-makers and ſtocking-weavers.

CRANNY, in the *Glaſs Trade*, a round iron, whereon the workmen in the glaſs-houſes roll the glaſs, to make the neck of it ſmall.

CRANON, in *Ancient Geography*, a town of Theſſaly, in the valley of Tempe; eaſt of Pharſale, and weſt of the lake Bœbeis, 100 ſtadia ſouth-weſt of Gyrtona.—Alſo, a town of Greece, in Athamania, towards the ſource of the Achelous.

CRANSAC, in *Geography*, a ſmall town of France, in the department of the Aveyron, fifteen miles from Rhodez, famous for its mineral waters. The ſprings are in the midſt of arid mountains which emit clouds of black ſmoke of rather a diſagreeable ſmell. They have not all the ſame properties. That which is called the new ſpring is moſt frequently uſed. The water is cold, limpid, and without ſmell; it taſtes like a ſlight ſolution of ſulphate of iron. It appears that it holds little ſaline matter, ſince it has been found that

367 grammes (twelve ounces) of this water give only 1 gramme 6 decigrammes (eighteen grains) of ſaline reſidue in which there is ſulphate of iron.

A ſenſible analogy has been obſerved between the water of Cranſac, and that of Paſſy near Paris, with reſpect to their component parts, as well as to their effects. Phyſicians therefore preſcribe the two waters indiſcriminately.

Cranſac water is reckoned good for the ſtomach. It is ordered in caſes of green-ſickneſs, liver complaints, cutaneous affections and diſeaſes of the bladder. It is extremely purgative at firſt, and even creates vomiting, but at the end of four or five days it operates leſs violently, and is generally beneficial. It muſt be uſed cold.

CRANSTON, a townſhip of America, being the ſouth-eaſternmoſt of Providence county, in Rhode Iſland, ſituated on the weſt bank of Providence river, five miles ſouth of the town of Providence. The compact part of the town contains 50 or 60 houſes, a baptiſt meeting-houſe, handſome ſchool-houſe, a diſtillery, and a number of ſaw and griſt mills; and is called Pawtuxet, from the river on both ſides of whoſe mouth it ſtands, and over which is a bridge connecting the two parts of the town. The whole townſhip contains 1877 inhabitants.

CRAN-TARA, an implement uſed in war among the ancient Britons. It was a ſtick burnt at the end and dipped in the blood of a goat, which, after ſtriking the ſhield and ſounding the horn, was ſent by a ſwift meſſenger to the neareſt hamlet, where he delivered it, without ſaying one word, except the name of the place of rendezvous. This crantara, which was well underſtood to denounce deſtruction by fire and ſword to all who did not obey this ſummons, was carried with great rapidity from village to village; and the prince, in a little time, found himſelf ſurrounded by all his warriors, ready to obey his commands.

CRANTIA, in *Ancient Geography*, a maritime town of Spain.

CRANTOR, in *Entomology*, a ſpecies of *Sphinx;* which ſee.

CRANTOR, the *Moraliſt*, in *Biography*, the laſt celebrated philoſopher of the Old Academy, the intimate friend of Arceſilaus, a native of Soli in Cilicia, who flouriſhed about 300 years B. C., and died about the 270th year B. C. He ſtudied under Xenocrates and Polemo; and adhering to the Platonic ſyſtem, he was the firſt who wrote commentaries on the works of Plato; but as he died before Polemo and Crates, he could not ſucceed them in the Academic chair. Crantor was highly celebrated for the purity of his moral doctrine, as we may infer from the praiſes that are beſtowed by the ancients upon his diſcourſe "On Grief," which Cicero (Acad. Queſt. l. iv. c. 44. Tuſc. Qu. l. iii. c. 6.) calls "a ſmall but golden piece, adapted to heal the wounds of the mind, not by encouraging ſtoical inſenſibility, but by ſuggeſting arguments drawn from the pureſt fountains of philoſophy." That Crantor acquired great reputation as a moral preceptor is intimated by Horace. (Ep. l. i. ep. 2. v. 3.)

> "Qui, quid ſit pulchrum, quid turpe, quid utile, quid non,
> Planius et melius Chryſippo et Crantore dicit."
>
> "Who better taught fair virtue's ſacred rules,
> Than Crantor and Chryſippus in the ſchools."
>
> Diog. Laert. lib. iv. 24.

CRANTZIA, in *Botany*, Swartz. Vahl. See TRICERA.

CRANTZPERG, in *Geography*, a caſtellated town of Germany, in the circle of Bavaria; 16 miles N.N.E. of Munich.

CRANZIA, in *Botany*, Schreb. See SCOPOLIA.

CRAON, in *Geography*, a ſmall town of France, in the department of Mayenne, chief place of a canton, in the diſtrict of Chateau Gonthier. It has 1494, and the canton itſelf 12,746 inhabitants. The latter compriſes 15 communes, on a territorial extent of 240 kiliometres.—Alſo, a caſtle, and formerly a principality, in the department of Meurthe; 3 miles E. of Luneville.

CRAONNE, a ſmall town of France, in the department of Aiſne, 12 miles S.E. of Laon. It is the chief place of a canton, in the diſtrict of Laon, with a population of 830 individuals. The canton itſelf has 40 communes, and 12,148 inhabitants, upon a territorial extent of 207 kiliometres.

CRAP, in *Agriculture*, a name ſometimes given by farmers in ſome diſtricts to ray-graſs, rye-graſs, or red darnel (*lolium perenne*), and in others to buck-wheat (*polygonum fagopyrum*); the former of which is often very troubleſome among wheat crops.

CRAPACH, or KRAPACH, in *Geography*, is the name of that chain of mountains called the *Carpathian hills*, which form the weſtern boundaries of Hungary, and ſeparate Tranſilvania from Gallicia. They are now called, in the language of the country, *Tatra*.

CRAPE, a light tranſparent ſtuff, in manner of gauze; made of raw ſilk, gummed and twiſted on the mill; woven without croſſing, and much uſed in mourning.

Crapes are either *craped*, i. e. *criſped;* or *ſmooth:* the firſt *double*, expreſſing a cloſer mourning; the latter *ſingle*, uſed for that leſs deep. Note, White is reſerved for young people, or thoſe devoted to virginity.

The ſilk deſtined for the firſt is more twiſted than that for the ſecond; it being the greater or leſs degree of twiſting, eſpecially of the warp, which produces the criſping given it when taken out of the loom, ſteeped in clear water, and rubbed with a piece of wax for the purpoſe.

Crapes are all dyed raw. The invention of this ſtuff came originally from Bologna; but the chief manufacture of it is ſaid to be at Lyons.

Hiſtory tells us, that St. Bathilda, queen of France, made fine crape, *crepa*, of gold and ſilver, to lay over the body of St. Eloy. The Bollandiſts own they cannot find what this *crepa* was. Binet ſays, it was a frame to cover the body of the ſaint; but others, with reaſon, take it to be a tranſparent ſtuff, through which the body might be ſeen; and that this was the *crepa* whence our word crape was formed.

CRAPENO, in *Geography*, a town of Naples; 20 miles W. of Vieſte.

CRAPONNE, a town of France, in the department of the Upper Loire, 15 miles N. of Le Puy. It is the chief place of a canton, in the diſtrict of Le Puy, and contains 3293 inhabitants. The canton itſelf has but 6 communes, and a population of 7956 individuals, upon a territorial extent of 127 kiliometres and a half.—Alſo, a canal, in the department of the Bouches du Rhône, fed with the water of the river Durance; which, after having traverſed and fertilized the plain called *La Crau d'Arles*, falls into the Rhône at Arles. It is not navigable, but it ſerves to ſet a great number of mills in motion.

CRAPULA, a ſurfeit by over-eating and drinking. See SURFEIT.

CRASHAW, RICHARD, in *Biography*, an Engliſh poet, was the ſon of a clergyman, and educated firſt at the Charter-houſe, and then at Pembroke-hall and Peter-houſe, Cambridge, of which laſt he was a fellow in the year 1637. At college he was diſtinguiſhed for his talents in poetry, Latin as well as Engliſh; but being a man of ſtrict integrity, he ſubmitted,

mitted, in 1644, to expulſion from the univerſity with others, rather than take the covenant. From Cambridge he retired to France, where he embraced the Roman Catholic religion, not, as has been imputed to him, from ſordid motives, as his diſtreſſed circumſtances ſhortly after abundantly proved. By Cowley he was recommended to Henrietta Maria, who gave him letters of introduction to her friends at Rome, where he firſt acted as private ſecretary to a cardinal, and afterwards obtained a canonry at Loretto. Here he died of a fever about the year 1650. As a poet Craſhaw has much merit, though conceit and puerilities are too frequently mingled with his works. The ſubjects of his poems, of which a collection was made in 1646, were chiefly devotional. Of theſe ſome were ſelected and publiſhed, about twenty years ago, by Peregrine Phillips. They are ſtill but little known; nevertheleſs, the name of Craſhaw merits this ſhort notice, for, however neglected in the preſent day, he was the companion of Selden, and the idol of Cowley; and he was, moreover, the author of the fine Latin epigram on the Marriage of Cana, which has not always been juſtly appropriated, and which concludes, "Nympha pudica deum vidit et erubuit," "The modeſt water ſaw its God, and bluſhed." Biog. Brit.

CRASIS, in *Medicine*, a term uſed by the older writers, who adopted the humoral pathology, to denote the conſtitution or temperament of the blood, and other fluids. Thus, in thoſe diſeaſes, in which ſymptoms of what has been called putreſcency appeared, as in ſcurvy, malignant fever, &c. the hæmorrhages and purple ſpots were ſaid to ſhew a diſſolved craſis of the blood. This morbid condition has alſo been termed *dyſcraſy*.

CRASIS, in *Grammar*, is a figure, whereby two different letters are either contracted into one long letter, or a diphthong. Such, *e. g.* is οφις for οφιας; αληθη for αληθεα, &c. τυχȣς for τυχεος, &c. where ι and α are contracted into ι; ε and α into η; and ε and ο into ȣ. See CONTRACTION.

CRASPEDARIA, from κρασπεδον, *fringe*, in *Zoology*, a genus of animalcules, without any viſible limbs or tails; but with an apparent mouth, and a ſeries of fimbriæ round it in the manner of a fringe.

Of this genus there are three ſpecies: 1. The *craſpedarium* with a roundiſh body. 2. The *craſpedarium* with an oval body. 3. The *craſpedarium* with a cylindric body. They are ſpecies of the *Vorticella* in the claſs of *Vermes Infuſoria*. See VORTICELLA.

CRASPEDIA, in *Botany*, (from κρασπεδον, *a fringe*,) Schreb. 1350. Willd. 1574. Forſt. Fl. 58. Claſs and order, *ſyngeneſia polygamia ſegregata*.

Gen. Ch. *Cal.* common imbricated; proper perianth none. *Cor.* Florets in a few depreſſed bundles, tubular, hermaphrodite. *Stam.* Filaments five; anthers united in a hollow cylinder. *Piſt.* —— *Seeds* with a feathered down. *Receptacle* chaffy.

Sp. C. *uniflora*; Forſt. Prod. 306. A native of New Zealand.

CRASPEDITES SINUS, in *Ancient Geography*, a gulf of Aſia Minor, in Bithynia, according to Pliny; called the gulf of *Olbia* by Mela.

CRASPEDIUM, in *Botany*, Lour. Flor. Cochin. Claſs and order, *polyandria monogynia*.

Gen. Ch. *Cal.* five-leaved; leaves oval, acute. *Cor.* Petals five, wedge-ſhaped, with numerous linear ſegments; nectaries five, kidney-ſhaped, villous at the inner baſe of the petals. *Stam.* Filaments thirty, ſhort, inſerted into the receptacle. *Piſt.* Germ ſuperior; ſtyle tubular; ſtigma ſimple. *Peric.* Berry ſmall, one-celled. *Seed* ſolitary.

Sp. C. ——. A large tree. *Leaves* oval-oblong, crenulate, acute. *Flowers* greeniſh-yellow, in terminal cluſtered ſpikes. A native of Cochinchina. It is very nearly allied to elæocarpus, and perhaps ought to be referred to that genus.

CRASSAMENTUM *of the Blood*, in *Anatomy*, is one of the two parts into which blood, when left to itſelf, always ſeparates. This craſſamentum, which is alſo called *cruor*, conſiſts of the coagulating lymph and the red globules. See BLOOD.

CRASSINA, in *Botany*. See ZIMMIA.

CRASSIROSTRÆ, in *Ornithology*, the name of a genus of ſmall birds, diſtinguiſhed by the thickneſs of their beaks; as the ſparrow, greenfinch, and the like.

CRASSULA, in *Botany*, (a diminutive of *craſſus*, thick; alluding to the fleſhineſs of the leaves.) Linn. Gen. 392. Schreb. 533. Willd. 594. Juſſ. 207. Vent. 3. 273. Claſs and order, *pentandria pentagynia*. Nat. Ord. *Succulentæ*, Linn. Vent. *Sempervivæ*, Juſſ.

Gen. Ch. *Cal.* Perianth one-leafed, five-cleft; ſegments lanceolate, erect, acute, permanent. *Cor.* Petals five, generally narrowed into erect claws, which are ſometimes connivent near the baſe, ſo as to have the appearance of a tube, with a border conſiſting of five oval or lanceolate ſegments, and generally expanding. *Stam.* Filaments five, inſerted at the baſe of each petal; anthers roundiſh. *Piſt.* Germs five, ſuperior, oblong, acute, with a ſmall emarginate nectariferous ſcale at the baſe of each; ſtyles the length of the ſtamens; ſtigmas obtuſe. *Peric.* Capſules five, erect, oblong, acuminate, compreſſed, opening longitudinally at their interior ſide. *Seeds* ſmall, numerous.

Eſſ. Ch. Calyx one-leafed, five-cleft. Petals five; nectareous ſcales five, at the baſe of the germ. Capſules five. Seeds numerous. It differs from ſedum chiefly in the number of ſtamens.

* *Shrubby.*

Sp. 1. C. *coccinea*. Linn. Sp. Pl. 1. Mart. 1. Lam. 1. Willd. 1. Bot. Mag. 495. (Cotyledon; Comm. Rar. 24. tab. 24. Bradl. Succ. 5. 7. tab. 5. Breyn. Prod. 3. 30. tab. 20. fig. 1.) "Leaves egg-ſhaped, flat, cartilaginous-ciliated, connate-ſheathing at the baſe." *Stem* from one to three feet high, reddiſh, erect, cylindrical, branched. *Leaves* covering the ſtem almoſt from the bottom, oppoſite croſſwiſe, ſo cloſe together that they appear imbricated in four rows. *Flowers* ſcarlet, large, tubular, in a terminal umble or faſcicle; claws of the petals linear, cloſely connivent, and forming a tube at leaſt an inch long; ſegments of the calyx erect, linear-lanceolate, acute, ſlightly ciliated or toothed like the leaves. A native of Africa. 2. C. *capitata*. Lam. 5. "Leaves linear, acute, cartilaginous-ciliated, connate-ſheathing; heads of flowers generally three, cluſtered, terminal." *Stem* ſix or ſeven inches high, woody; branches numerous, erect, ſimple, leafy, almoſt ſmooth, channelled on two oppoſite ſides, with a few ſhort hairs at the edges of the channels. *Leaves* ſix or ſeven lines long, oppoſite, acute, flat or a little concave above, ſmooth, appearing jointed at the ſheath, which remains after they are fallen off. *Flowers* in two or three ſmall cluſtered heads at the extremity of each branch; petals narrow, almoſt linear in their upper part. A native of the Cape of Good Hope, deſcribed from a dried ſpecimen communicated by Sonnerat. 3. C. *flava*. Linn. Mant. 60. Mart. 3. Lam. 2. Willd. 3. Burm. Afr. 37. tab. 23. fig. 2. (Sedum africanum umbellatum; Pluk. Alm. 340. tab. 314. fig. 2.) "Leaves flat, connate-perfoliate, even-ſurfaced; flowers corymbous-panicled." β. Pluk. Alm. 340. tab. 314. fig. 3. "Leaves cartilaginous-crenulated." *Stem* ſix or ſeven inches high, erect, cylindrical, with two or three branches near the top, entirely covered with leaves except near the bottom, where the remaining ſheaths of the leaves give it the appearance of being jointed. *Leaves* nearly an inch and half long, lanceolate, very acute, erect, in pairs. *Flowers* yellowiſh, erect, peduncled, cluſtered, in a branched terminal corymb; petals erect, lanceolate, a little longer than the calyx, very acute. A native of the Cape of Good Hope. 4. C. *pubeſcens.* Linn. jun. 190. Mart. 46. Willd. 4. Thunb. Prod. 55. "Leaves connate, egg-ſhaped, acute, villous; ſtem branched; flowers in a corymb." *Stem* about ſeven inches high, red, filiform, erect, ſmooth, branched; branches ſomewhat whorled, in threes, ſubdivided, pubeſcent. *Leaves* thick, ſpreading, the length of the internodes, flattiſh above, gibbous underneath. *Corymb* compound, trichotomous. A native of the Cape of Good Hope. 5. C. *pruinoſa.* Linn. Mant. 60. Mart. 4. Lam. 3. Willd. 5. "Stem dichotomous; leaves awl-ſhaped, froſted-ſcabrous; flowers ſomewhat corymbed." A foot high. Whole plant covered with the appearance of a cryſtalline hoar-froſt; ſmall branches cylindrical, blood-red. *Leaves* oppoſite, fleſhy, flat above, the length of the internodes, ſlightly connate. *Corymbs* terminal, unequal, ſmall; petals white, lanceolate, ſpreading. A native of the Cape of Good Hope. 6. C. *ſcabra.* Linn. Sp. Pl. 14. Mart. 5. Lam. 4. Willd. 6. Dill. Elth. 177. tab. 99. fig. 117. (Cotyledon; Mart. Cent. 24. tab. 24.) "Leaves oppoſite, ſpreading, connate, ſcabrous, ciliated; ſtem ſcabrous, with cartilaginous aſperities pointing downwards." The habit of a meſembryanthemum. *Leaves* oblong, acute. *Flowers* yellowiſh-green, in a terminal cyme; anthers ſaffron-coloured; filaments white. A native of the Cape of Good Hope. 7. C. *veſtita.* Linn. jun. Supp. 188. Mart. 31. Willd. 8. Thunb. Prod. 8. "Leaves connate, deltoid, obtuſe; ſtem covered with leaves; flowers terminal, in a head." *Root* ſpindle-ſhaped, creeping. *Stem* three inches high, almoſt upright, naked at the baſe, branched; branches and branchlets alternately ſcattered. *Leaves* very gibbous underneath, quite entire, covered with a white meal, ſprinkled with minute green ſpots, imbricated in four rows. *Flowers* yellowiſh, ſeſſile. A native of the Cape of Good Hope. 8. C. *corallina.* Linn. jun. Supp. 188. Mart. 32. Willd. 7. Thunb. Prod. 56. "Leaves connate, deltoid, obtuſe; ſtem covered with leaves; flowers in an umbel." *Root* ſpindle-ſhaped. *Stems* ſeveral, dichotomouſly branched, erect; branches alternate, erect, divided, faſtigiate. *Leaves* entire, green at the baſe, mealy at the tip, with impreſſed greeniſh dots, in four rows, longer than the internodes. *Flowers* numerous, terminal; peduncles filiform, ſmooth, one-flowered, ſcarcely longer than the leaves. This and the preceding reſemble ſea corallines in the curious ſtructure of their leaves. 9. C. *argentea.* Linn. jun. Supp. 188. Mart. 30. Willd. 9. Thunb. Prod. 56. "Leaves connate, egg-ſhaped, entire, ſilvery; ſtem covered with leaves; corymb ſuprade-compound." *Stem* a foot high or more; branches cylindrical, ſmooth. *Leaves* fleſhy, blunt with a point, ſharp-edged. A native of the Cape of Good Hope. 10. C. *faſcicularis.* Lam. 6. "Leaves linear-lanceolate, cartilaginous-ciliated, ſheathing at the baſe; flowers faſcicled, tubular, ſeſſile; border ſmall, ſpreading." *Leaves* three lines long, erect, connate by pairs, with a remarkable ſheath at their baſe. *Flowers* nearly reſembling thoſe of craſſula coccinea, but a little ſmaller, eight or ten together in a ſeſſile terminal faſcicle, ſurrounded by lanceolate ciliated bractes; claws of the petals linear, forming a tube; calyx half the length of the corolla; ſegments lanceolate, acute, ciliated. A native of the Cape of Good Hope, found by Sonnerat. 11. C. *perfoliata.* Linn. Sp. Pl. 2. Mart. 6. Lam. 7. Willd. 10. Dill. Elth. 114. tab. 96. fig. 113. (Aloe; Comm. Prælec. 74. tab. 23.) "Leaves lanceolate-awl-ſhaped, ſeſſile, connate, channelled, convex underneath." *Stem* three feet high and more; Lam. (ten or twelve feet high, if it be not broken or injured; but it is weak and requires ſupport; Mill.) glaucous, leafy, nearly ſimple. *Leaves* from three to five inches long, an inch and half broad at the baſe, glaucous, rather ſtiff, ſpreading. *Flowers* greeniſh-white, in large terminal cluſters on a common thickiſh peduncle, which is four inches long and divided into ſeveral ſhort ramifications; petals oblong, obtuſe, with claws forming a ſhort tube. A native of Africa. 12. C. *perforata.* Linn. jun. Supp. 190. Mart. 51. Lam. 33. Willd. 11. Thunb. Prod. 56. "Leaves oppoſite-perfoliate, egg-ſhaped; ſtem ſimple; flowers peduncled, ſomewhat whorled." *Stems* a foot and half high, cylindrical, red, rather naked. *Leaves* ſomewhat acute, entire, even-ſurfaced. *Flowers* in a long terminal raceme, ſmall, cluſtered, on oppoſite common peduncles. A native of the Cape of Good Hope. 13. C. *fruticuloſa.* Linn. Mant. 60. Mart. 7. Lam. 8. Willd. 12. "Leaves oppoſite, awl-ſhaped, acute, ſpreading, a little recurved." β. C. caffra; Linn. Mant. 222. *Stem* a foot high, ſomewhat branched, the thickneſs of a finger, ſometimes throwing out lateral roots. *Leaves* ſeſſile, cylindrical, even-ſurfaced. *Flowers* white, ſmall; peduncles terminal, filiform, much longer than the leaves, furniſhed with a pair or two of bractes, nearly forming an umbel; calyx erect, half the length of the corolla; petals oblong-egg-ſhaped, without claws, concave, acute; anthers blood-red or brown; germs white, ſcabrous. A native of the Cape of Good Hope. 14. C. *ramoſa.* Mart. 9. Willd. 13. Thunb. Prod. 55. Hort. Kew. 1. 390. (C. dichotoma; Linn. jun. 188.) "Leaves awl-ſhaped, flat above, connate-perfoliate, even-ſurfaced, very widely ſpreading; peduncles elongated; flowers in cymes." *Stem* a foot high, filiform, ſmooth, leafy, branched at the bottom; branches alternate, long, ſmooth, ruſeſcent. *Leaves* longer than the internodes, entire, ſmooth. A native of the Cape of Good Hope. 15. C. *mollis.* Linn. jun. Supp. 189. Mart. 37. Willd. 14. Thunb. Prod. 55. Hort. Kew. 1. 391. "Leaves ſemi-cylindrical, acute, gibbous underneath, even-ſurfaced, nearly erect; cymes terminal, compound." *Stem* a foot high, almoſt the thickneſs of a gooſe-quill, angular, jointed, ruſeſcent, very finely tomentous. *Leaves* acute, ſmooth or very finely tomentous, ſoft, ſpreading. A native of the Cape of Good Hope. 16. C. *tetragona.* Linn. Sp. Pl. 4. Mart. 8. Lam. 9. Willd. 15. (Cotyledonoides; Bradl. Succ. 5. 18. tab. 11. fig. 41.) "Leaves awl-ſhaped, ſomewhat incurved, obſoletely tetragonal, ſpreading; ſtem erect, throwing out lateral roots." *Stem* arboreſcent, two or three feet high, erect, even-ſurfaced, reddiſh, branched. *Leaves* longer than the internodes, about the thickneſs of a gooſe-quill, acute, green, ſmooth, oppoſite in croſs pairs ſo as to form four very regular rows. *Flowers* very ſmall, white, in a terminal trifid much branched cyme; common peduncle ſlender, naked; anthers purpliſh. A native of Africa. 17. C. *muricata.* Willd. 16. Thunb. Prod. 55. "Leaves connate, three-ſided, ciliate-ſcabrous; branches tetragonal." A native of the Cape of Good Hope. 18. C. *imbricata.* Mart. 55. Willd. 17. Hort. Kew. 1. 393. "Leaves egg-ſhaped, acute, even-ſurfaced, imbricated in four rows; flowers axillary, ſeſſile." A native of the Cape of Good Hope. 19. C. *cultrata.* Linn. Sp. Pl. 9. Mart. 11. Lam. 11. Willd. 19. (C. anacampſerotis folio; Dill. Elth. 115. tab. 97. fig. 114.) "Leaves oppoſite, connate, inverſely egg-ſhaped, rather ſharp at the edges, oblique, quite entire." *Stems* cylindrical, a foot high or more, leafy on the upper part, a little branched, weak, inclining or procumbent unleſs ſupported. *Leaves* in diſtant pairs, about an inch and half long, and nine lines broad, fleſhy, almoſt flat, narrowed at the baſe, green, ſmooth. *Flowers* in an oblong panicle, ſmall, greeniſh-white, never expanding; common peduncle rather long, cylindrical, almoſt naked; petals ending in a remarkable point. A native of Africa. 20. C. *obvallata.* Linn. Mant. 61. Mart. 10. Lam. 10. Willd. 18. Thunb. Prod. 56. "Leaves oppoſite, ſomewhat lanceolate, ſharp-edged, approximate." Similar to the preceding in the ſharp edges of its leaves and the character of its flowers, but it has a ſhorter ſtem, and its leaves are nearer together. *Stem* three or four inches high, cloſely branched from the baſe. *Leaves* near two inches long, five or ſix inches broad, a little convex underneath. A native of the Cape of Good Hope. 21. C. *portulacea.* Lam. 12. "Leaves oval, fleſhy, reſembling thoſe of purſlane, oppoſite; ſtem arboreous, very thick." The habit of portulacaria afra (craſſula portulacaria; Linn.), but is much larger, and has not obtuſe leaves. *Stem* four feet high, thicker than a man's arm towards the baſe; branches cylindrical, fleſhy, ſmooth, panicled, leafy. *Leaves* about an inch and half long, an inch broad, rather acute, ſomewhat ſharp at the edges, a little ſhining yellowiſh-green. *Flowers* rather large, pale roſe-coloured, in a terminal peduncled cyme or umbel; calyx ſhort; petals narrow, linear-lanceolate, expanding; germs ſcabrous. A native of Africa. 22. C. *obliqua.* Mart. 56. Willd. 20. Hort. Kew. 393. (C. ovata; Mill.) "Leaves oppoſite, egg-ſhaped, oblique, quite entire, acute, diſtinct, ſomewhat cartilaginous at the edge." *Stem* near three feet high, much branched. *Leaves* of a lively green, half embracing the ſtem. A native of the Cape of Good Hope. 23. C. *ſpathulata.* Mart. 60. Willd. 21. Thunb. Prod. 57. Hort. Kew. 1. 395. "Leaves petioled, cordate-roundiſh, rather acute, crenate; corymbs forming a panicle." A native of the Cape of Good Hope. 24. C. *cotyledon.* Tree craſſula. Lam. 13. Jacq. Miſc. 2. 295. tab. 19. Bot. Mag. 384. (C. arboreſcens; Willd. 26. Mill.) "Leaves roundiſh, fleſhy, dotted above; ſtem arboreous." The habit of cotyledon orbiculata. *Stem* two feet high or more, very thick, erect, branched near the top; branches greyiſh or reddiſh, cylindrical, fleſhy, ſmooth, leafy. *Leaves* oppoſite, glaucous with purple edges, a little convex underneath, more than an inch and half in diameter. *Flowers* reddiſh-white, in a terminal panicled cyme; ſome of them are quadrifid. A native of Africa. A ſingularity of this ſpecies is its indiſpoſition to flower. Mr. Fairbairn informed the late Mr. Curtis, that he never ſaw it produce bloſſoms in Chelſea garden till the ſummer of 1797. Mr. Miller never ſaw it in flower; nor does it appear that the late Mr. Aiton ever did. Bot. Mag. 25. C. *punctata.* Linn. Sp. Pl. 14. Mart. 20. Willd. 22. (C. perfoſſa; Lam. 14?) "Leaves oppoſite, egg-ſhaped, dotted, ciliated; lower ones oblong." Linn. "Leaves connate-perfoliate, approximate, heart-ſhaped, dotted, quite ſmooth, purple at the edges." Lam. *Stem* cylindrical, even-ſurfaced, ſimple. *Leaves* oppoſite, in two rows, oblong, ſeſſile, fleſhy, ſprinkled with concave dots, convex underneath, very tenderly ciliated; floral leaves egg-ſhaped. *Corymbs* axillary, very ſhort, faſtigiate. *Corollas* campanulate, white, with a reflexed border; anthers purple. Linn. La Marck doubts whether Linnæus ſaw his plant, becauſe he makes no mention of the very peculiar growth of its leaves, and moreover deſcribes thoſe of his *punctata* as ciliated, growing in two rows, with the lower ones oblong; characters which he himſelf has not found. He gives the following deſcription of his *perfoſſa.* *Stem* from ſix to ten inches long, ſlender, feeble, unable to ſupport itſelf on account of the weight of the leaves, cylindrical, hard, ſmooth, ſimple. *Leaves* almoſt heart ſhaped, ſo connate that each pair ſeems to be only a ſingle elliptical leaf, a little pointed at each end, ſlightly concave and dotted above, ſomewhat convex underneath, glaucous, with a very ſmooth purple border. Theſe leaves, or pairs of leaves, are placed very near together, and ſeem ſtrung on the ſtem, which runs through their centre in the manner of an axis; the lower ones are the ſmalleſt. A native of Africa, cultivated in the botanic garden at Paris. 26. C. *lycopodioides.* Lam. 15. (C. pyramidalis; Linn. jun. Mart. 40. Willd. 38?) "Leaves ſmall, ovate-acute, margined, imbricated in four rows, entirely covering the ſtem and branches." Lam. "Leaves connate, egg-ſhaped, obtuſe, in four rows, incumbent; heads of flowers ſeſſile." Linn. jun. *Stems* from ſeven to ten inches high, the thickneſs of a gooſe-quill, ſomewhat branched, rather ſtiff. *Leaves* convex at the back, a little flattened at the ſides ſo as to produce the appearance of a border, ſeſſile, fleſhy, green. In habit rather reſembling a lycopodium than a craſſula. Lam. A native of Africa. 27. C. *marginalis.* Mart. 61. Willd. 23. Hort. Kew. 1. 396. "Leaves heart-ſhaped, perfoliate, acuminate, flat, ſpreading, dotted within the margin." A native of the Cape of Good Hope. 28. C. *lactea.* Mart. 62. Willd. 25. Hort. Kew. 1. 496. Smith Exot. Bot. tab. 33. "Leaves egg-ſhaped, attenuated at the baſe, connate, quite entire, with a row of dots within the margin; cymes panicled." Whole plant ſmooth. *Stem* much branched, cylindrical, leafy. *Leaves* crowded, croſſing each other in pairs, thick, pointed. *Flowers* white, in a terminal panicle; anthers roſe-coloured; ſcales at the baſe of the germ ſcarcely perceptible; petals, ſtamens, and germs often ſix. Dr. Smith. A native of the Cape of Good Hope. 29. C. *cordata.* Linn. jun. Supp. 189. Mart. 35. Willd. 34. Hort. Kew. 1. 396. "Leaves petioled, heart-ſhaped, obtuſe, quite entire; cymes panicled." A native of the Cape of Good Hope. 30. C. *rupeſtris.* Linn. jun. Supp. 389. Mart. 43. Willd. 27. Thunb. Prod. 56. "Leaves connate, egg-ſhaped, entire, ſmooth; corymb ſupra-decompound." *Stem* three inches high or more, cylindrical, branched. *Leaves* alternately oppoſite, acute, a little concave above, convex, and keeled underneath, approximating, longer than the internodes, green, with a reddiſh margin. *Flowers* in trichotomous faſtigiate corymbs; peduncles and pedicels ſmooth, white, tinged with purple; bracte minute, white, egg-ſhaped under each pedicel. A native of the Cape of Good Hope. 31. C. *lucida.* Lam. 16. "Leaves oppoſite, petioled, ſomewhat heart-ſhaped, finely crenate, ſhining above; ſtems branched, weak." *Stem* ſometimes a foot long, ſmooth; upper part of the branches green, and ſomewhat herbaceous. *Leaves* ſeldom more than ſix lines broad, fleſhy, flat above, with a ſlight furrow, which is continued along the petiole, bright green. *Flowers* white within, purpliſh on the outſide, ſmall, expanding, in a peduncled nearly terminal cyme; petals narrow, acute, much longer than the calyx. A native of Africa. 32. C. *pinnata.* Linn. jun. Supp 191. Mart. 13. Lam. 17. Willd. 28. Lour. Cochin 131. "Leaves pinnated; ſtem arboreous." *Stem* rufeſcent, even-ſurfaced, with alternate branches. *Leaves* alternate, unequally pinnated; leaflets ſeven or nine, petioled, heart-ſhaped, quite entire, acute, even-ſurfaced; petioles thickeſt at the baſe. *Flowers* red, in an axillary panicle, ſhorter than the leaves. A native of China.

** *Her-*

** *Herbaceous.*

33. C. *retroflexa.* Linn. jun. Supp. 188. Mart. 33. Willd. 30. Thunb. Prod. 55. “ Leaves connate, oblong, remote, flat ; ſtem ſimple ; cyme compound ; pedicels bent back.” *Root* annual. *Stem* a finger's length, filiform, zigzag, erect, ſmooth, purple. *Stem-leaves* two or four, obtuſe, ſpreading. It varies with orange-coloured, yellow, and white flowers. 34. C. *lineolata.* Mart. 53. Willd. 31. Hort. Kew. 1. 331. “ Leaves heart-ſhaped, ſeſſile ; peduncles nearly terminal, axillary, approximating, forming an umbel.” *Root* biennial. 35. C. *centauroides.* Linn. Sp. Pl. 5. Mart. 14. Lam. 18. Willd. 32. (Sedivides, Herm. Par. 169.) “ Stem dichotomous ; leaves ſeſſile, oblong-ovate, heart-ſhaped, flat ; peduncles axillary, one-flowered.” *Root* annual or biennial. *Stem* three or four inches high, nearly cylindrical, brachiate, ſomewhat pubeſcent. *Leaves* often oppoſite, fleſhy, acute, ſhining, marked with hollow dots. *Flowers* yellowiſh-red. A native of Africa. 36. C. *dichotoma.* Linn. Sp. Pl. 6. Mart. 15. Lam. 19. Willd. 33. (Sedum; Herm. Lugbd. 550. tab. 553.) “ Stem dichotomous ; leaves ſeſſile, ovate-oblong, channelled, recurved ; peduncles axillary, one-flowered.” Nearly allied to the preceding ; but its leaves are ſmaller, and its flowers larger. *Root* annual. *Stem* four or five inches high, ſlender, cylindrical, pale green, branched, and dichotomous near the top. *Leaves* oppoſite. *Flowers* purple on the outſide, yellow within ; each petal marked at the bottom with a blood-red, heart-ſhaped ſpot. A native of Africa. 37. C. *glomerata.* Linn. Mant. 60. Mart. 16. Lam. 20. Willd. 34. “ Stem dichotomous ; leaves lanceolate ; laſt flowers faſcicled.” *Root* annual. *Stem* three inches high, ſlender as a thread, reddiſh, very dichotomous, and forming a tuft with its branches. *Leaves* oppoſite, ſeſſile, green, ſomewhat fleſhy, expanding, ſhorter than the internodes. *Flowers* ſeſſile ; ſome almoſt ſeſſile in the forks of the ſtem ; others cluſtered, two or three together at the end of the branches ; bractes and diviſions of the calyx hiſpid, with ſhort hairs near the ſummit ; petals white, much ſhorter than the calyx. A native of the Cape of Good Hope. 38. C. *pulchella.* Mart. 54. Willd. 35. Hort. Kew. 1. 392. “ Stem dichotomous ; leaves ovate-oblong, fleſhy, reflexed ; flowers in the forks peduncled ; peduncles top-ſhaped.” *Root* annual. Nearly allied to the preceding, but differing in having its leaves ſhorter and reflexed ; its peduncles top-ſhaped, ſo as to look like an inferior germ ; its calyxes obtuſe, and its corollas rather longer than their calyx. A native of the Cape of Good Hope. 39. C. *ſtrigoſa.* Linn. Sp. Pl. 7. Mart. 17. Lam. 21. Willd. 36. “ Stem dichotomous, erect ; leaves inverſely egg-ſhaped, briſtly ; peduncles one-flowered.” *Root* annual. *Stem* ſix or ſeven inches high. *Leaves* oppoſite, ſomewhat fleſhy, quite entire ; lower ones peduncled. *Flowers* ſeveral together, terminal ; petals the length of the calyx. 40. C. *muſcoſa.* Linn. Sp. Pl. 8. Mart. 18. Lam. 22. Willd. 37. “ Stem proſtrate ; leaves oppoſite, egg-ſhaped, gibbous, imbricated ; flowers ſeſſile, ſolitary.” *Root* annual. *Stems* filiform, ſeldom branched, covered with leaves. *Leaves* ſmall, ſeſſile. *Flowers* very ſmall, axillary. A native of Africa. 41. C. *columnaris.* Linn. jun. Supp. 191. Mart. 28. Lam. 34. Willd. 39. (Euphorbium ; Burm. Afr. 19. tab. 9. fig. 2.) “ Stem an inch high ; leaves round, imbricated ; faſcicle roundiſh, terminal.” *Stem* thick, cylindrical, ſmooth. *Leaves* obtuſe, horizontal. *Flowers* white, numerous ; diviſions of the border linear, ſpreading. A native of the Cape of Good Hope. 42. C. *hæmiſpherica.* Willd. 40. Thunb. Prod. 57. “ Leaves connate, roundiſh, ciliated, hemiſpherically imbricated ; ſtem without leaves ; flowers in a thyrſe.” *Root* annual. A native of the Cape of Good Hope. 43. C. *alſoides.* Mart. 57. Willd. 41. Hort. Kew. 1. 394. “ Leaves egg-ſhaped, diſtinct, acute, ciliated ; ſtem ſimple, a little hairy ; raceme compound ; branches panicled.” *Root* biennial. *Stem* about ſix inches high. *Leaves* fleſhy, ſmooth ; ſprinkled with minute, red, impreſſed dots. *Flowers* in a terminal raceme ; peduncles diſtant, ſpreading, ſubdivided into trichotomous cymes ; diviſions of the calyx ſmooth, a line long ; petals white, greeniſh underdeath, twice the length of the calyx ; nectaries yellow ; filaments white ; anthers ſmall, roundiſh. A native of the Cape of Good Hope. 44. C. *capitella.* Linn. jun. Supp. 190. Mart. 45. Willd. 42. Hort. Kew. 1. 394. “ Leaves oblong-lanceolate, acute, connate, ciliated ; ſtem even-ſurfaced ; raceme elongated ; flowers faſcicled, nearly ſeſſile. *Root* biennial. *Stem* ſeven inches high, erect, cylindrical, ſmooth, ſometimes branched at the top. *Leaves* remote, longer than the internodes, ſmooth. *Flowers* white. A native of the Cape of Good Hope. 45. C. *cotyledonis.* Linn. jun. Supp. 19. Mart. 49. Willd. 43. Thunb. Prod. 56. “ Leaves connate, oblong, tomentous, ciliated ; ſtem almoſt leafleſs ; flowers in corymbs, aggregate. *Stem* ſimple, erect, ſlightly quadrangular, about a foot high, the thickneſs of a quill. *Root-leaves* faſtigiately oppoſite, much crowded, obtuſe, flat above, convex beneath, entire, a finger's length, erect ; ſtem-leaves in three pairs, ſmaller. *Flowers* white, pedicelled ; peduncles trichotomous, forming a decompound corymb ; bractes on the peduncles, faſtigiately oppoſite, connate-ſheathing, egg-ſhaped, obtuſe, preſſed cloſe, tomentous. A native of the Cape of Good Hope. 46. C. *barbata.* Linn. jun. Supp. 188. Mart. 29. Willd. 44. Thunb. Prod. 46. “ Leaves connate, jointed, bearded, hemiſpherically imbricated ; ſtem nearly cylindrical ; flowers in whorls.” *Root* biennial. *Stem* about ſeven inches high, nearly the thickneſs of a quill, erect, ſmooth. *Root-leaves* numerous, aggregate, thin, ſmooth, with bundles of hair at the edge ; ſtem-leaves in two pairs, remote. A native of the Cape of Good Hope. 47. C. *ciliata.* Linn. Sp. Pl. 10. Mart. 19. Lam. 23. Willd. 43. Dill. Elth. 116. tab. 98. fig. 116. “ Leaves oppoſite, oval, flattiſh, diſtinct, ciliated ; corymbs terminal.” *Root* perennial, ſlender, fibrous. *Stem* ſhort, divided into ſeveral leafy branches, ſome of which are lengthened into ſlender cylindrical ſhoots, nine or ten inches long. *Leaves* obtuſe, green, and ſmooth on both ſides, thickly fringed with white hairs. *Flowers* ſmall, yellow, collected into two or three ſmall terminal corymbs. A native of Africa. 48. C. *gentianoides.* Lam. 24. (Gentianella Africana, Pluk. Mant. 89. tab. 415. fig. 6.) “ Leaves oppoſite, ovate-acute, ſmooth ; ſtem ſimple, dichotomous near the top ; peduncles trichotomous.” *Root* fibrous. *Stem* two or three inches long, ſlender. *Leaves* in about three pairs, oval, a little pointed, concave above, ſucculent, quite ſmooth. *Flowers* pale blue, large for the ſize of the plant, in an umbellated terminal cyme ; bractes in pairs, at the foot of the peduncles, ſmall, narrow ; corolla monopetalous, campanulate, divided more than half way down ; ſegments narrowed at the baſe, oval upwards. A native of Africa, communicated to La Marck by Sonnerat.

Obſ. It has the corolla of a cotyledon, and the number of ſtamens of a craſſula. 49. C. *thyrſiflora.* Linn. jun. Supp, 190. Mart. 44. Willd. 46. Thunb. Prod. 55. “ Leaves perfoliate, egg-ſhaped, ciliated, ſpreading ; corymb compound, attenuated.” *Stem* about ſix inches high, erect, cylindrical, ſmooth. *Leaves* obtuſe, ſhorter than the internodes, ſmooth. *Flowers* white ; bractes at the foot of the peduncles and pedicels, like the leaves, but ſmaller. A native of the Cape of Good Hope. 50. C. *umbella.* Mart. 64. Jacq. Collec. iv. 172. Icon. Rar. 2. "Leaves perfoliate, roundiſh; racemes axillary and terminal; upper peduncles in whorls." *Root* perennial. Whole plant ſmooth. *Stem* one or two, about ſeven inches high, the thickneſs of a quill, nearly erect, cylindrical, fleſhy, pale fleſh-coloured, almoſt pellucid, ſimple. *Root-leaves* none; ſtem-leaves two, ſometimes only one, the largeſt three inches in diameter, convex, repand, brittle, green, with pale rays above, red-purple underneath. *Racemes* to each leaf two, erect, ſlender, oppoſite, from an inch to two inches long. *Flowers* white within, fleſh-coloured without, ſmall, moſt commonly with ſix ſtamens and ſix ſtyles. A native of the Cape of Good Hope. 51. C. *ſpicata.* Linn. jun. Supp. 189. Mart. 41. Willd. 47. Thunb. Prod. 55. "Leaves connate, linear-awl-ſhaped; ſtem nearly leafleſs; ſpike whorled; lower whorls more remote." *Stem* about ſix inches high, cylindrical, erect, ſmooth. *Root-leaves* a finger's length, erect, concave above, convex underneath, ſmooth, much crowded; ſtem-leaves oppoſite, ſmaller. *Flowers* ſeſſile. A native of the Cape of Good Hope. 52. C. *cymoſa.* Linn. Mant. 222. Mart. 2. Lam. 35. Willd. 2. Berg. 84. (Spiræa capenſis, Pet. Gaz. tab. 89. fig. 6.) "Leaves connate-ſheathing, linear, cartilaginous-ciliated; cyme compound, terminal." *Root* perennial. *Stems* herbaceous, about ſeven inches high, ſimple, erect, ſmooth. *Leaves* two inches long, acute, ſpreading, ſmooth on both ſides. *Cyme* ſmall, denſe, bifid, ſcaly. A native of Africa. La Marck ſuppoſes that his capitata (N° 2.) is nearly allied to this ſpecies, but it differs in having a woody perennial ſtem. 53. C. *ſubulata.* Linn. Sp. Pl. 3. Mart. 21. Lam. 25. Willd. 48. Berg. 83. (Spiræa, Pet. Gaz. tab. 89. fig. 8. Sedum, Herm. Lugdb. 550. tab. 552.) "Leaves awl-ſhaped, cylindrical, ſpreading." *Stem* ſix or ſeven inches high, erect, with two or three branches, entirely covered with truncated ciliated ſheaths of the leaves. *Leaves* about an inch long, oppoſite, linear, fleſhy, obtuſe, flat above and below, fringed with cartilaginous ciliæ. *Flowers* white (ſcarlet, Berg.), in a terminal nearly ſeſſile head, with a many-leaved imbricated involucre. A native of the Cape of Good Hope. 54. C. *acutifolia.* Lam. 26. "Leaves oppoſite, fleſhy, cylindrical-awl-ſhaped, quite ſmooth, ſpreading; cyme ſmall, peduncled." *Root* perennial. *Stems* three inches long, cylindrical, leafy, a little branched. *Leaves* a little connate, not ſheathing, ſix or ſeven lines long. *Flowers* white, from twelve to eighteen in a very ſmall, often dichotomous cyme; common peduncle two inches long, lateral, almoſt naked. A native of Africa. 55. C. *alternifolia.* Linn. Sp. Pl. 12. Mart. 22. Lam. 27. Willd. 49. Burm. afr. 58. tab. 24. fig. 1. (Cotyledon flore luteo, media; Herm. Lugdb. 191.) "Leaves ſerrate-toothed, flat, alternate; ſtems quite ſimple; flowers pendulous." *Stems* ſeveral, two feet long, purple, hairy. *Leaves* oval-lanceolate, with a very long point, ſeſſile. *Flowers* yellow, axillary, ſolitary, on ſhort peduncles. A native of Africa. 56. C. *rubens.* Mart. 23. Lam. 28. Willd. 50. (Sedum rubens; Linn. Sp. Pl.) "Leaves ſcattered, ſemi-cylindrical, ſmooth; flowers lateral, ſolitary, nearly ſeſſile; branches villous." *Root* annual. *Stem* about three inches high, cylindrical, a little villous, reddiſh, ſimple below, branched near the top. *Leaves* ſeſſile, a little attenuated and red near the tip; lower ones an inch long. *Flowers* white, with a purple longitudinal line on the outſide ſegments of the calyx, fleſhy, convex on the outſide, ſlightly villous; petals three times as long as the calyx; nectaries white, very ſmall; ſtamens generally obſerved to be five; but Haller aſſerts that theſe are naturally ten, five of them ſoon withering. *Fruit* ſtellate, red; capſules armed with the permanent ſtyle. It has the habit of a ſedum, and perhaps might with more propriety have been left where Linnæus and the older botaniſts placed it. A native of the ſouth of Europe. 57. C. *ceſpitoſa.* Willd. 51. Cavan. ic. 1. 50. tab. 69. fig. 2. "Leaves globular-egg-ſhaped, imbricated; flowers terminal, ſeſſile. Stem ſomewhat divided." *Root* annual. *Stem* three lines long. *Flowers* ſolitary, or three together. A native of Spain. 58. C. *minima.* Willd. 52. Thunb. Prod. 57. "Leaves petioled, roundiſh, entire; peduncles one-flowered." A native of the Cape of Good Hope. 59. C. *moſchata.* Willd. 53. Forſt. Comment. Gœtt. 9. 26. "Stem procumbent; leaves connate, oblong, acute; peduncles axillary, one-flowered; flowers tetrandrous." It differs from tillæa in the nectary, though it agrees in the number of parts. 60. C. *verticillaris.* Linn. Mant. 261. Mart. 24. Lam. 29. Willd. 54. (Tillæa erecta; Hort. Ups. 24.) "Leaves ſpreading; flowers in whorls, awned." *Root* annual. *Stem* the length of a finger, much branched, diffuſe; branches oppoſite. *Leaves* oppoſite, crowded, oblong-egg-ſhaped, ſeſſile, gibbous, ſprinkled with minute pimples, ſcabrous at the tip. *Flowers* axillary, ſeſſile, very minute; calyx the length of the corolla, awl-ſhaped; petals ſhorter than the calyx, lanceolate, acuminate ſo as to be almoſt awned, red in the middle; ſtamens very ſhort, red at the tip; ſtigmas red. A native of the ſouth of Europe. 61. C. *expanſa.* Mart. 52. Willd. 55. Hort. Kew. 1. 390. "Leaves ſemi-cylindrical-awl-ſhaped, ſpreading; peduncles axillary, ſolitary, one-flowered; ſtems dichotomous." *Root* annual. A native of the Cape of Good Hope. 62. C. *dentata.* Willd. 56. Thunb. Prod. 57. "Leaves petioled, heart-ſhaped, toothed." A native of the Cape of Good Hope. 63. C. *nudicaulis.* Linn. Sp. Pl. 13. Mart. 25. Lam. 30. Willd 57. Dill. Elth. 116. tab. 99. fig. 115. "Leaves awl-ſhaped, radical; ſtem naked." *Root* perennial, branched. *Leaves* three inches long or more, numerous, linear narrow, pale green, ſucculent, almoſt ſemi-cylindrical, making a kind of head on the ground. *Stem* or ſcape ſix inches high or more, with two or three joints, and three or four bractes in a whorl at each joint. *Flowers* greeniſh, not expanding, in ſeveral compact heads, ſome of which are terminal, and others a little below, almoſt in a whorl. A native of Africa. 64. C. *tecta.* Linn. jun. Supp. 190. Mart. 50. Willd. 58. Thunb. Prod. 56. "Leaves connate, egg-ſhaped, obtuſe, cinereous-lamellated; ſcape naked; head terminal." *Stem* ſcarcely any. *Leaves* nearly radical, very abundant, imbricated, concave above, convex underneath, thick, covered with an aſh-coloured meal reſembling the ſcales of a butterfly's wing, naked at the baſe, cartilaginous-ciliated. *Scape* erect, filiform. *Flowers* minute, collected into a head. A native of the Cape of Good Hope. 65. C. *cephalophora.* Linn. jun. Supp. 190. Mart. 47. Willd. 59. Thunb. Prod. 56. "Leaves connate, linear-oblong, obtuſe, entire; heads of flowers lateral, peduncled." *Root-leaves* the length of a finger, erect, ſomewhat tomentous; ſtem-leaves none. *Scape* ſix or ſeven inches high, erect, cylindrical, ſomewhat tomentous. *Heads* of flowers oppoſite, the ſize of a pea. A native of the Cape of Good Hope. 66. C. *montana.* Linn. jun. Supp. 189. Mart. 36. Willd. 60. Thunb. Prod. 55. "Leaves connate, egg-ſhaped, acute, ciliated; ſtem nearly naked; flowers aggregate." *Stem* the length of a finger, erect, filiform, purple. *Root-leaves* numerous, ſpreading, concave, ſmooth, green tinged with purple; ſtem-leaves in about three remote pairs. *Flowers* ſeſſile, in heads uſually ſolitary, ſometimes in two lateral ones together. A native of the Cape of Good Hope. 67. C. *turrita.* Linn. jun. Supp. 189. Mart. 42. Willd. 61. Thunb. Prod. 55. "Leaves connate, imbricated in four rows, ovate-oblong, acute, ciliated." *Root* annual. *Stem* about three inches high, erect, weak, cylindrical, jointed, covered with leaves, ſmooth. *Leaves* alternately oppoſite, thick, ſmooth, red; lower ones oblong, concave above, convex underneath; upper ones egg-ſhaped, flat above. A native of the Cape of Good Hope. 68. C. *alpeſtris.* Linn. jun. Supp. 189. Mart. 39. Willd. 62. Thunb. Prod. 55. "Leaves connate, egg-ſhaped, acute, imbricated in four rows; heads of flowers peduncled; ſtem leafy." *Stem* three inches high, purple, erect, cylindrical, ſmooth, branched at the bottom, before flowering time entirely covered with leaves. *Leaves* concave, entire, purpliſh green. *Flowers* in ſeveral ſmall terminal heads; peduncles purple. It reſembles C. montana, but the leaves are more acuminate and not ciliated, the ſtem thicker and covered with leaves; the heads and flowers larger. A native of the Cape of Good Hope. 69. C. *marginata.* Willd. 63. Thunb. Prod. 55. "Leaves connate, egg-ſhaped, membranous at the edges; peduncles one-flowered; ſtem weak." A native of the Cape of Good Hope. 70. C. *tomentoſa.* Linn. jun. Supp. 190. Mart. 48. Willd. 64. Thunb. Prod. 56. "Leaves connate, lanceolate, villous, ciliated; ſtem almoſt without leaves; flowers in whorls." *Stem* a foot high, erect, angular, villous. *Root-leaves* bluntiſh, hirſute, imbricated; ſtem-leaves in three pairs, ſmaller. A native of the Cape of Good Hope. 71. C. *crenulata.* Linn. jun. Supp. 189. Mart. 38. Willd. 65. Thunb. Prod. 56. "Leaves connate, lanceolate, dotted and crenulated; ſtem leafy; corymb decompound." *Stem* a foot high, erect, cylindrical, leafy, jointed, ſmooth, green variegated with white lines. *Leaves* ſeſſile, obtuſe, concave above, convex beneath, ſmooth, longer than the internodes, the length of a finger, upright, but ſpreading at the tip. *Flowers* white, in a trichotomous, faſtigiate corymb; bractes two under each pedicel, minute, oppoſite. A native of the Cape of Good Hope. 72. C. *deltoidea.* Linn. jun. Supp. 189. Mart. 34. Willd. 66. Thunb. Prod. 56. "Leaves connate, deltoid, ſpreading, acute; ſtem covered; flowers in a corymb." *Stem* fleſhy, erect, cylindrical, naked at the bottom, leafy above, branched. *Leaves* alternately oppoſite, imbricated, ſpreading at the tip, entire, glaucous, mealy. *Corymb* terminal, compound, ſomewhat faſtigiate. The leaves reſemble thoſe of meſembryanthemum deltoideum. A native of the Cape of Good Hope. 73. C. *orbicularis.* Linn. Sp. Pl. 15. Mart. 26. Lam. 31. Willd. 67. Dill. elth. 119. tab. 100. fig. 118. "Runners proliferous, regularly leafy at the end; leaves widely ſpreading, imbricated." *Root* perennial, producing laterally from its crown numerous filiform, procumbent, proliferous runners. *Leaves* in regular roſaceous tufts proceeding from the original root and from the ends of the runners where they take freſh root and ſend out other runners, oval, or oval-oblong, rather acute, fleſhy, edged with very fine cartilaginous ciliæ. *Scape* four or five inches high, riſing from the centre of the tufts of leaves, erect, furniſhed with two or three pair of very ſmall bractes. *Flowers* ſmall, whitiſh red, in ſeveral ſmall cluſters diſpoſed in a ſhort branched ſpike, ſweet ſcented; petals twice the length of the calyx. A native of the Cape of Good Hope. 74. C. *ſparſa.* Mart. 58. Willd. 68. Hort. Kew. 1. 395. "Leaves alternate, ſomewhat ſpatula-ſhaped, acute, quite entire; raceme compound." *Root* biennial. A native of the Cape of Good Hope. 75. C. *diffuſa.* Mart. 59. Willd. 69. Hort. Kew. 1. 395. "Leaves oblong, attenuated at the baſe, remotely crenated; peduncles ſolitary, oppoſite to the leaves and axillary." *Root* annual. A native of the Cape of Good Hope. 76. C. *proſtrata.* Willd. 70. Thunb. Prod. 54. "Decumbent, pellucid; leaves lanceolate, acute." A native of the Cape of Good Hope. 77. C. *pellucida.* Linn. 16. Mart. 27. Lam. 32. Willd. 71. Dill. elth. 119. tab. 100. fig. 119. "Stem flaccid, creeping; leaves oppoſite." *Root* perennial. The habit of a purſlane. *Stems* from ſix inches to a foot long, putting out roots at the joints, red, almoſt tranſparent, ſlender, trailing, ſmooth. *Flowers* white, with a bluſh of purple at the edge, in ſmall cluſters at the ends of the branches. A native of Africa. Common in botanical collections in England and other parts of Europe.

Obſ. Juſſieu, diſregarding the number of ſtamens, has referred all the tubular ſpecies to cotyledon.

Crassula *decumbens, inanis, natans et umbellata;* Thunb. See Tillæa.

Crassula *fruticoſa;* Mill. See Othonna *tenuiſſima.*

Crassula *portucalaria;* Linn. See Portulacaria *Afra.*

Propagation and Culture.—Moſt of the ſpecies are hardy, and may be treated like the meſembryanthemums and other hardier kinds of ſucculent plants, but ſhould not have much water: and ſome of them, particularly C. coccinea, and C. perfoliata, muſt not be ſo long expoſed to the open air in ſummer, but removed early to a warm, dry glaſs caſe.

Crassula, in *Gardening,* compriſes plants of the ſucculent kind for the green-houſe and ſtove collections. Of which the ſpecies cultivated are the ſcarlet flowered craſſula (C. *coccinea,*) the perfoliate ſhrubby craſſula (C. *perfoliata,*) the ſharp leaved craſſula (C. *cultrata,*) the dotted leaved craſſula (C. *punctata,*) the naked ſtalked craſſula (C. *nudicaulis,*) ſtarry craſſula (C. *orbicularis.*) Beſides which there are ſeveral other ſpecies that may be cultivated.

Method of Culture.—Of theſe plants the firſt three ſorts are capable of being eaſily increaſed, by planting the cuttings of the ſtems and branches in the later ſpring and ſummer months. After having been expoſed in a dry ſituation for a few days, to heal over the cut parts, in pots filled with ſandy earth planting them in the bark-bed of the ſtove, or in a frame ſhaded from the ſun. When well rooted, they ſhould be removed into ſeparate pots and be replaced in the ſame ſituation till fully eſtabliſhed, when they may be removed into the green-houſe, where they ſhould have a ſunny ſituation in winter and but little water, as it is apt to deſtroy them.

The other ſorts may be increaſed by planting the offsets from the roots in the ſame manner as directed above.

Theſe being plants of a ſucculent nature in their ſtems, branches, and leaves, as well as curious in their growth, they afford much variety among collections of other plants of ſimilar kinds. They are capable in dry warm ſituations of bearing the open air in the ſummer ſeaſon.

CRASSUS, Lucius Licinius, in *Biography,* an eminent orator of Rome, born, B. C. about 140, was brought into notice principally by the part that he took in the impeachment of Papirius Carbo, which he managed with the utmoſt ſkill, diſplaying, in the pleadings, the moſt conſummate eloquence. Craſſus from this circumſtance immediately roſe to the higheſt reputation. At the age of 27 he defended the veſtal virgin Licinia, accuſed of unchaſtity. He was the advocate of many very popular meaſures; and he paſſed with diſtinguiſhed honour through all the principal offices of the ſtate. He died in the year B. C. 91, in conſequence of ſome over-exertions in vindicating the ſenate from the cenſures paſſed upon it by the conſul Philippus, who threatened to ſilence him: in reply to which the orator exclaimed; "If you would ſilence Craſſus, you muſt cut out his tongue; and even then, liberty will inſpire my breath itſelf to reſiſt your tyranny." He perſiſted in the conteſt, and carried his point, but the violence of his agitation brought on a pleuriſy, of which he died, in a few days, to the great regret of his fellow-citizens, who conſidered him as a martyr to his country's cauſe. Cicero, in ſpeaking of Craſſus, ſays, "His language was accurate and elegant, without being too ſtudied. He had wonderful clearneſs of argument and illuſtration, as well on ſubjects of civil law as of common equity. As Scævola was the moſt eloquent of lawyers, ſo Craſſus was accounted the beſt lawyer among the eloquent. What is very difficult to attain, he was at the ſame time highly ornate, and very conciſe. He had no equal in attack or reply. He was converſant in almoſt all kinds of cauſes, and early took his ſtation among the principal orators." Univer. Hiſt. Cicero.

CRASSUS, MARCUS LICINIUS, a diſtinguiſhed Roman, who muſt hereafter be noticed in the article ROME, as taking a very leading part in her affairs in the latter days of the republic, but who nevertheleſs cannot be paſſed over in our biographical ſketches. He was deſcended from a family of high rank; enjoyed all the advantages of a liberal education, and ſelected as his principal purſuits, oratory, hiſtory, and the philoſophy of the age. His father and mother were ſlaughtered under the tyrannies of Marius and Cinna, and he himſelf eſcaped by leaving his country for Spain, where he was concealed in a cave for the ſpace of eight months. On the death of Cinna, he joined Sylla, whom he ſerved with zeal and fidelity. During the civil wars Craſſus enriched himſelf by means not at all honourable. He was prætor, B. C. 71, and was appointed to the command of the army, in which office he exerciſed much ſeverity againſt thoſe who neglected to perform their duty. In the following year Craſſus was aſſociated with Pompey in the conſulſhip. They had been long rivals, and were now exceedingly jealous of each other's authority; a ſeeming reconciliation took place, which was probably not ſincere on the part of either. Cæſar, on his return from Spain, found the conſuls at open variance; he, however, ſoon convinced them that it was the mutual intereſt of all three to come to an agreement, and this was the foundation of that triumvirate which ſuperſeded and demoliſhed all the powers of the old conſtitution. In the year 55, Craſſus and Pompey were again conſuls, and in the diſtribution of the provinces, Syria fell to the lot of Craſſus, which afforded him new opportunities of enriching himſelf, by the plunder of the oppreſſed inhabitants. He proceeded to Syria, marched to Jeruſalem, and ſeized upon all the treaſures of the temple which the moderation of Pompey had ſpared. He next croſſed the Euphrates, invaded the Parthian territories, and leaving garriſons in the principal cities which fell into his power, he recroſſed the river and took up winter quarters in Syria. Here he was baſely and infamouſly employed in plundering the temples, and raiſing money by every ſpecies of extortion, while to ingratiate himſelf with his army and to ſecure their affection, he ſuffered the ſoldiers to indulge in every kind of licentiouſneſs. At the proper ſeaſon he paſſed the Euphrates a ſecond time, with 40,000 men. Caſſius his lieutenant urged him by all means to keep cloſe to the bank of the river, but the king of Edeſſa, Abgarus, with a view of betraying the Romans, perſuaded Craſſus to take an inland courſe. He decided on this courſe, and led the army over barren plains, where they endured extreme hardſhips from thirſt and fatigue, till they came in ſight of the Parthian hoſt. Scarcely had Craſſus drawn up his legion into a hollow ſquare when he was attacked on all ſides and defeated. In this important battle the Romans loſt 20,000 in killed, and 10,000 in priſoners. The darkneſs of the night favoured the eſcape of the reſt, and Craſſus, forced by the mutiny and turbulence of this fragment of his army, and the treachery of his guides, truſted himſelf to the general of the enemy, on pretence of propoſing terms of accommodation, and he was put to death, B. C. 53. His head and right hand were cut off, and ſhewn to his troops, of whom ſome ſurrendered, and others attempted to eſcape, who were moſtly cut off by the Arabs. His head was afterwards ſent to the Parthian monarch, who cauſed melted lead to be poured into it, and otherwiſe inſulted his misfortunes.

Craſſus, in his youth, was free from thoſe vices which ſtained the noble Roman youth of the times; as he advanced in years, the love of money, not for its own ſake, but with a view of enhancing his importance among his contemporaries, was the rock on which he ſplit. Few among the ancients ſeem ſo ſyſtematically to have followed the plans of pecuniary profit: and he acquired a greater maſs of wealth than any other Roman citizen; hence he obtained the name of Craſſus the *Rich*. He was, however, at times exceedingly prodigal of his wealth: once he gave a ſumptuous entertainment to the people at ten thouſand tables, and he beſtowed upon each gueſt corn enough to ſupply his wants, and thoſe of his family for three months. He was likewiſe ready on almoſt every occaſion to lend his money to his friends without intereſt, which ſhewed a mind ſuperior to the principles of common avarice; and to the laſt, when diſengaged in projects of ambition, he was fond of philoſophy, and took great delight in the ſtudy of hiſtory. Plutarch. Florus. Univer. Hiſt.

CRASSUS, JUNIUS PAULUS, a learned and ingenious phyſician, and native of Padua, where he appears to have been held in high eſtimation, publiſhed in 1581, in 4to. "De purgativis Medicamentis Queſtiones Medicæ et naturales;"—alſo, "Meditationes de Theriaca, et Mithridatis," 4to. 1576; and "Mortis repentinæ examen." But his principal merit conſiſts in his being one of the earlieſt, and moſt judicious commentators on the works of Hippocrates, Galen, Palladius, and Aretæus, and introducing thoſe authors to more general notice:—cotemporary with this writer flouriſhed,

CRASSUS, JEROM, a diſciple of Fallopius, but who, although he obtained the dignity of Doctor in Medicine, appears to have confined himſelf to the practice of ſurgery, in which branch he publiſhed ſeveral treatiſes, which continued to be in great eſtimation, long after his demiſe. The principal of thoſe are, "De Calvariæ curatione, et de ſolutione continui," 4to. 1560, Venet. "De tumoribus præter Naturam et de Ulceribus," 1562. "De Ceraſte, ſeu Baſiliſco, Morbo Novo, Medicis incognito, Utini," 1593, 8vo. and "De Cauteriis, ſive de cauteriſandi oratione," (of which he made frequent uſe) 8vo. 1594. Haller. Bib. Med. Chirurg.

CRASTA, in *Geography*, a mountain of European Turkey, in the province of Albania; 4 miles north of Albaſano.

CRASTANOVITZA, a town of Croatia, on the river Unna; 26 miles N. W. of Banjaluka, and 20 S. W. of Gradiſca.

CRASTONA, or CRISTONA, GIOSEFFO, in *Biography*, a painter, born in Pavia, in the year 1664. He ſtudied ſome time under Bernardino Ciceri, and afterwards went to Rome for improvement. Upon his return to his own country, he employed himſelf many years in painting ſmall pictures of figures with landſcapes, eſteemed for the ſpirit and lightneſs of their foliage. He died in Pavia after the year 1718. Lanzi. Orlandi.

CRASTUS, in *Ancient Geography*, a town, and alſo a mountain, of Sicily.

CRASUS, a town of Phrygia Major.

CRATÆGELLA, in *Entomology*, a ſpecies of *Tinea*, in the claſs of *Phalæna*.

CRATÆGUS, in *Botany*, Linn. See Mespilus and Pyrus.

Cratægus, in *Gardening*, comprehends plants of the hardy deciduous tree and ſhrub kinds; of which the ſorts moſt commonly cultivated are the hawthorn or white-thorn, (C. *oxyacanthus*); the white beam, or white leaf tree (C. *aria*); the wild ſervice ſorb, or maple-leaved ſervice (C. *torminalis*); the great American hawthorn (C. *coccinea*); the green-leaved Virginia hawthorn (C. *viridis*); the cock-ſpur hawthorn (C. *cruſ-galli*); the woolly-leaved hawthorn (C. *tomentoſum*); and the parſley-leaved hawthorn, or azarole (C. *azarolus*).

The firſt ſort is well known to riſe with an aſcending round much-branched ſtem or trunk, having a ſmooth whitiſh coloured bark, and being beſet with ſharp thorns, affording flowers of a white colour in May, which are ſucceeded in the autumn with bunches of dark red berries.

Of this ſort there are different varieties, as with large oblong ſmooth bright ſcarlet fruit; with buds appearing of a fine bright yellow, and the fruit of a golden colour, being retained all the winter; with white berries and double bloſſoms, in large bunches: the maple leave at firſt of a pure white, then turning to faint red; and the Glaſtonbury thorn, or early flowering thorn.

The ſecond ſort is a tree which riſes to the height of thirty or forty feet, having a large trunk with numerous branches, with large bunches of flowers of a white colour at the ends of them. It is a native of moſt parts of Europe, flowering in May.

It has varieties with deeply ſinuated pinnatifid leaves, as the Swediſh; and with leaves which are not white underneath.

Thoſe of the third ſort riſe to the height of forty or fifty feet, having a large trunk, ſpreading at top into many branches ſo as to form a large head. The flowers are produced in large bunches at the ends of the branches, of a whitiſh colour, being ſucceeded by a roundiſh compreſſed fruit ſimilar to the haw, but larger. It is a native of Denmark.

And it has a variety, with oblong ovate-leaves, or ſhort foot-ſtalks.

The fourth kind reaches the height of about twenty feet, having a large upright trunk, branching at top ſo as to form a large head. The flowers are in large cluſters, making a fine ſhow in May, and being ſucceeded by large pear-ſhaped fruit of a bright ſcarlet colour, which becomes ripe in the beginning of autumn. It is a native of Virginia.

The fifth ſort has the ſtem and branches thornleſs; the leaves being ſmooth and green on both ſides. It has been ſuppoſed a variety of the above by Martyn.

In the ſixth kind the ſtem is ſtrong, being ten or twelve feet in height. The flowers are in roundiſh cluſters of a blueiſh red colour, and the fruit of a globular form having a fine red colour. It is a native of North America, flowering in June.

In the ſeventh ſort the ſtem is ſlender and ſhrubby, riſing to the height of ſix or ſeven feet, with many irregular branches, armed with long ſlender thorns. The flowers are ſmall and appear in June, and are ſucceeded by ſmall roundiſh fruit which ripens late in the autumn. It is alſo a native of North America.

It has a variety uſually known under the title of Carolina hawthorn, in which the leaves are longer and whiter, and the flowers and fruit larger, but it is without thorns.

The eighth kind has a ſtrong ſtem twenty feet in height, with numerous ſtrong irregular branches. The flowers in ſmall cluſters at the ſide of the branches, ſimilar in ſhape to thoſe of the common hawthorn, but greatly larger as well as the fruit which, when fully ripened, has a pleaſant acid taſte. It is a native of the ſouthern parts of Europe.

Method of Culture.—All the different ſorts are capable of being increaſed with facility, by ſowing the ſeed in the open ground, either in the autumn or ſpring months, in drills, or broadcaſt, covering them to the depth of about an inch. The ſeeds, or haws, may be gathered from the hedges in many of the ſorts, and the others be procured from the nurſery-men, being employed, when fully ripened. The plants moſtly appear in about twelve months. They ſhould be kept perfectly clean from weeds, and be occaſionally watered when the weather is hot and dry. When they have had one or two years growth in the ſeed-beds, they may, in moſt of the ſorts, be removed into nurſery-rows, and ſet out at the diſtances of from eight inches to two feet, according to the ſorts, and from ſix inches to a foot in the rows; to remain till wanted for the purpoſe of forming hedges, or planting out in other places, having the top ſhoots and other parts cut and pruned, as there may be occaſion. See Hawthorn and White-thorn.

The more beautiful and curious ſorts are generally proper for the purpoſe of planting out, when they have attained three, four, or five feet growth.

For theſe kinds, in order to continue the varieties, recourſe muſt be had to the practice of budding, grafting, or laying the young branches. The two firſt methods may be performed upon ſtocks of the common hawthorn, as any of the ſorts will take upon that ſort of ſtock; or upon thoſe of one another; but the former mode is the beſt. The operations ſhould be performed at the uſual ſeaſon in the manner that is directed under their proper heads. See Budding and Grafting.

The young ſhoots ſhould be laid down in the autumn, and when they have ſtricken good roots, which, in moſt caſes, happens in twelve or eighteen months, they ſhould be taken off, and planted out in nurſery rows, or other places, as above. See Layer and Layering.

The cuttings of the young ſhoots, planted out in the ſpring, in rather moiſt ſituations, will ſometimes take root, and become good plants. See Cutting.

All the various ſorts are hardy, and capable of ſucceeding in almoſt any ſoil or ſituation, where proper care is taken in their management.

The firſt ſort is a highly uſeful plant for the purpoſe of forming hedges for the farmer, being extremely uſeful in encloſing lands where this ſort of fence can be made uſe of. See Fence.

And all the other ſpecies and varieties may be employed as ornamental plants in the clumps and other parts of extenſive ſhrubberies, and other pleaſure-grounds and plantations. Many of the ſorts have likewiſe a very ornamental effect, when planted out ſingly on lawns, or other ſimilar parts of pleaſure-grounds, eſpecially when in flower from their beautiful bloſſom. On this account they have alſo a fine effect in mixed plantations in various caſes of ornamental planting.

CRATÆOGONUM, in *Botany*, Rumph. See PARIETARIA *indica*.

CRATÆOGONUM *amboinicum*, Rumph. See OLDENLANDIA *verticillata*.

CRATÆRIFORMIS, a technical term in *Botany*, ſomewhat like *Calathiformis*, but not ſo much bellying out, rather approaching to more dilute forms.

CRATAIS, in *Ancient Geography*, a ſmall river at the extremity of Italy, which ran between Colunna and Cœnys, and diſcharged itſelf towards the weſt into the ſtrait of Sicily.

CRATCH, in *Rural Economy*, a name applied in ſome diſtricts, to ſignify a cattle rack. It is alſo occaſionally uſed to denote a creel. See CREEL.

CRATCHES, in *Farriery*, a ſwelling on the paſtern under the fetlock, and ſometimes under the hoof.

CRATEÆ, or CRATEIÆ, in *Ancient Geography*, iſlands of the Adriatic gulf, between thoſe of Pharus and Iſſa.

CRATER, *Cup*, in *Aſtronomy*, a conſtellation of the ſouthern hemiſphere; whoſe ſtars, in Ptolemy's catalogue, are ſeven; in Tycho's, eight; in Hevelius's, ten; in the Britannic catalogue, thirty-one. See CONSTELLATION.

CRATER, in *Falconry*, denotes a line on which hawks are faſtened when reclaimed.

CRATER, in *Ancient Geography*, a name anciently given, from its form, to the gulf of Naples.

CRATERII PORTUS, a port of Aſia Minor, in the Æolide; it is placed by Thucydides in the territory of the town of Phocæa.

CRATERITES, in *Natural Hiſtory*, the name of a gem mentioned by Pliny, and ſaid to be extremely hard, and of a middle colour between that of the chryſolite, and of the common yellow amber. This was plainly a ſpecies of Chryſolite.

CRATERO, in *Biography*, an ancient painter, from whoſe pencil were ſome comic figures in the edifice at Athens, which was called *Pompeio*, from the utenſils uſed in their pomps and ſacrifices being there depoſited. There was alſo a ſculptor of this name, who is ſaid to have been employed at the palace of the Cæſars upon Mount Palatine. Della Valle.

CRATERUS, a famous Macedonian general, who accompanied Alexander in his expedition to India, and enjoyed a greater ſhare of his eſteem and confidence than any other commander in his ſervice. Whilſt Alexander was marching with his army towards Bactriana, ſome of his officers formed a conſpiracy againſt his perſon; and Philotas, the ſon of Parmenio, was ſuſpected of being a confederate in the treaſon. Craterus, who regarded him as a rival, availed himſelf of the opportunity which now offered itſelf, of extorting by torture a confeſſion of his guilt, in conſequence of which both Philotas and alſo his father, whom he had accuſed as one of his accomplices, were put to death. That Alexander duly appreciated the character of Craterus is plain from the reflection which he uttered on the death of his favourite Hephæſtion: "Craterus," ſays he, "loves the king, but Hephæſtion loves Alexander:" intimating that, whilſt the latter had devoted himſelf in an affectionate manner to his perſon, the former was concerned for his reputation, and was ſometimes leſs obſequious to his will than he was zealous for his glory and intereſt. Craterus was no leſs beloved by the Macedonians in general than by Alexander himſelf. Whilſt he was entruſted by his ſovereign with the command of the 10,000 veteran troops who were ſent to Macedonia, on account of their age, wounds, or other infirmities, which rendered them incapable of ſervice, he was appointed to the government of Macedonia, Theſſaly, and Thrace, in the room of Antipater, who was recalled to Babylon. After the death of Alexander, the provinces of Macedonia, Epirus, and Greece, were aſſigned to Craterus and Antipater, who governed them jointly; and in this government Craterus approved himſelf a prudent and faithful aſſociate; more eſpecially in the operations of the war in which they were unavoidably engaged by the diſcovery of the deſigns which Perdiccas was forming. So highly was Craterus reſpected by the Macedonians, that they were deſirous of having him for their leader after the death of Alexander; and ſuch was their known attachment to him that Eumenes in the engagement in Cappadocia, which proved fatal to Craterus, took particular care not to oppoſe any Macedonian againſt him. Having acquitted himſelf with great valour on this occaſion, and killed ſeveral of the enemies with his own hand, he was at laſt wounded by a Thracian in the back, and falling from his horſe was trampled to death by the enemy's cavalry. Eumenes could not forbear ſhedding tears over a vanquiſhed enemy, whom he had formerly eſteemed as a friend; and he cauſed the laſt honours to be paid him with all poſſible magnificence. His bones were conveyed to Macedonia for the diſpoſal of his wife and children. The wife of Craterus was Phila, the daughter of Antipater, one of the moſt accompliſhed princeſſes of her age, no leſs diſtinguiſhed by the amiableneſs of her diſpoſition than by the beauty of her perſon. Rollin's Anc. Hiſt. vol. iv.

CRATES, the moſt diſtinguiſhed philoſopher of the Cynic ſect after Diogenes, was by birth a Theban, and flouriſhed about the 113th Olympiad (B. C. 328.) and died after the year 287, B. C. He was honourably deſcended, and inherited a large eſtate; but, when he devoted himſelf to philoſophy, that he might be free from the dominion of thoſe paſſions which are foſtered by wealth, he diſtributed his whole property among the poorer citizens. Leaving his native city, where he had been a diſciple of Bryſo, reckoned among the Cynic philoſophers, he went to Athens, and became a zealous diſciple of Diogenes; adopting all the ſingularities of his maſter. In his natural temper, however, he was not, like Diogenes, moroſe and gloomy, but cheerful and facetious. This diſpoſition attached to him many friends, and procured for him acceſs to the houſes of the moſt wealthy Athenians. Among the citizens at large he acquired a degree of confidence, which gained him admiſſion into their domeſtic circles; and he frequently became an arbiter of diſputes and quarrels among relations. His influence in private families is ſaid to have had a great effect in correcting the luxuries and vices which prevailed at that time in Athens. His wife, Hipparchia, who was rich and of a good family, and had many ſuitors, preferred Crates to every other, and when her parents oppoſed her inclination, ſo determined was her paſſion, ſhe threatened to put an end to her life. After marriage ſhe adopted all the peculiarities of the Cynic philoſophy. Laertius, l. vi. §.85, &c. Suidas. Apul. Apol. p. 202.

CRATES, an Athenian, ſucceeded Polemo in the direction of the old academy. Long attached to one another by a ſimilarity of diſpoſitions and purſuits, their friendſhip was uninterrupted whilſt they lived, and they were both buried in the ſame grave. Crates died about the year 250, B. C.

CRATES, Lat. *Hurdle*. The ancients made uſe of machines formed of boards and hurdles for covering their men at work as they approached the walls of a town beſieged.

CRATEVA, in *Botany*, (ſo called from Cratevas, a Greek phyſician, celebrated by Hippocrates for his knowledge of plants). Plum. 21. Linn. Gen. 599. Schreb. 818. Willd. 943. Juſſ. 244. Vent. 3. 121. (Tapier; Encyc.) Claſs and order, *dodecandria*, or rather *polyandria monogynia*. Nat. Ord. *Putamineæ*, Linn. *Capparides*, Juſſ.

Gen. Ch. *Cal.* Perianth inferior, one-leafed, flat at the baſe, deeply four-cleft; ſegments egg-ſhaped, deciduous. *Cor.* Petals four, attached by the claws to the calyx. *Stam.* Filaments indeterminate in number, briſtle-ſhaped, inſerted into the pedicel of the germ; anthers erect, oblong. *Piſt.* Germ on a long filiform column or pedicel; ſtyle none; ſtigma capitate. *Peric.* Berry pedicelled, fleſhy, one-celled. *Seeds* numerous, bedded in the pulp, roundiſh, emarginate.

Eſſ. Ch. Calyx four-cleft. Petals four. Filaments inſerted into the pedicel of the germ. Stigma ſeſſile. Berry one-celled, with many ſeeds.

Obſ. In capparis, which is very nearly allied to the preſent genus, the filaments are attached to the edge of the receptacle; but this, as Dr. Sims rightly obſerves, (ſee Botanical Magazine, 596.) is only a ſlight difference, as the column or pedicel itſelf is only an elongation of the centre of the receptacle. In the habit of the plants there is, however, this ſtriking diſtinction, that the leaves are ternate in crateva, and ſimple in every ſpecies of capparis, except the *falcata* and *magna* of Loureiro (*n.* 27 and 41 of this dictionary) and a farther inveſtigation of the attachment of the filaments will perhaps ſhew that theſe ſpecies ought to have been referred to Crateva.

Sp. 1. C. *tapia*. Linn. Sp. Pl. 2. Mart. 2. Poir. 1. Willd. 2. (Apioſcorodon; Pluk. Almag. 34. tab. 137. fig. 7. Malus americana; Comm. hort. 1. 129. tab. 67. Tapia. Plum. gen. amer. 22. tab. 21. Marcg. Braſil. 89. Piſ. Braſ. 68. tab. 69.) "Leaflets egg-ſhaped, acuminate; petals ovate-roundiſh; germs globular." A large tree, from thirty to thirty-ſix feet high, covered with a dark green bark, divided near the top into numerous branches, which form a thick and ſpreading head. *Leaves* alternate, petioled, ternate; leaflets unequal, entire, ſmooth, and green on both ſides. *Flowers* on long, alternate, ſmooth peduncles; forming a looſe, ſpreading, terminal panicle; ſegments of the calyx egg-ſhaped, ſcarcely acute, much ſhorter than the corolla; petals roundiſh-egg-ſhaped, obtuſe, ſpreading, all inclined to the ſame ſide; claws as long as the laminæ; filaments twice the length of the petals; anthers purple; germ globular. *Fruit* the ſize of an orange, with a hard brown rind. *Seeds* kidney-ſhaped. A native of Jamaica, Brazil, &c. 2. C. *gynandra*. Linn. Sp. Pl. 1. Mart. 1. Poir. 3. Willd. 2. Brown. Jam. 246. (Anona; Sloan. Cat. 206. hiſt. 2. 170. Arbor americana; Pluk. Phyt. 147. fig. 6.) "Leaflets membranous, egg-ſhaped, quite entire; petals lanceolate." A tree, twelve feet high and more, with ſpreading branches. *Leaves* alternate, on long petioles, ternate; leaflets petioled, acute, nerved, veined, very ſmooth, thin, deep green. *Flowers* numerous, in panicled racemes; peduncles ſimple, ſmooth, ſcattered; ſegments of the calyx egg-ſhaped, acute, ſpreading; petals ſometimes four, but more frequently only two, whitiſh; filaments from twenty to twenty-four, longer than the petals, declining, green, tinged with purple; anthers dark purple; pedicel of the germ the length of the calyx. *Fruit* brown, ſpherical, having, like that of the preceding ſpecies, a ſmell of garlick. A native of Jamaica. Obſ. Linnæus calls this ſpecies gynandrous, from a miſconception of the nature of the pedicel of the germ, which cannot be conſidered as ſuſtaining the office of a ſtyle; the ſtamens, therefore, are by no means inſerted on any part of the piſtil; but, even if they were, the ſpecific name would in this caſe be improper, all the other ſpecies having a ſimilar character. The only difference is that ſome of them are inſerted higher on the pedicel than the others. 3. C. *obovata*. Mart. 5. Poir. 2. Willd. 3. Vahl. Symb. 3. 61. "Leaflets and petals inverſely egg-ſhaped; germ oblong." A tree with numerous ſmooth branches near the top. *Leaves* alternate, petioled, ternate; leaflets unequal, mucronate, ſmooth, veined underneath. *Flowers* in a ſpreading, terminal panicle; peduncles alternate, ſimple, long; ſegments of the calyx oblong; petals with long claws; filaments three times the length of the petals. A native of Madagaſcar. 4. C. *religioſa*. Mart. 4. Poir. 4. Willd. 4. Lam. Ill. Pl. 395. Forſt. Prod. 203. plant. ſucc. 45. Vahl. Symb. 3. 62. Nürvala; Rheed. Mal. 3. 49. tab. 42.) "Leaflets and petals lanceolate-elliptical, narrowed at both ends." A middle-ſized tree. *Branches* ſpreading, ſmooth, olive-coloured, dotted with white. *Leaves* alternate, on long petioles, ternate; leaflets almoſt equal, on ſhort petioles, ſmooth on both ſides, netted with many nerves and veins, an inch long and more. *Flowers* greeniſh white, in a looſe terminal panicle; peduncles long, cylindrical, ſimple, ſmooth; ſegments of the calyx ſmall, egg-ſhaped; its baſe remaining on the pedicel of the fruit; petals narrow, much longer than the calyx; ſtamens twelve; filaments twice the length of the corolla or a little longer; pedicel of the germ longer than the ſtamens. *Fruit* globular, the ſize of a ſmall plumb. A native of the Eaſt Indies and the Society Iſlands. In the latter it is planted in their burial-grounds, and is ſuppoſed to be ſacred to their idols. The fruit is eaten by the natives. 5. C. *fragans*. Bot. Mag. 596. (C. capparoides; Bot. rep. 176.) "Stem twining; corolla regular; petals very long, undulated." *Stems* ſeveral, extending from 10 to 20 feet, with a multitude of branches. *Leaves* alternate, petioled, alternate; leaflets almoſt ſeſſile, egg-ſhaped, entire, ſhining. *Flowers* in terminal cluſters, on long peduncles, yellowiſh-green, very fragrant; ſegments of the calyx large, ovate-acuminate, concave, equal; petals very narrow; claws long; laminæ undulated and convolute towards the baſe, regularly ſpreading; ſtamens numerous, longer than the calyx, ſhorter than the petals, attached to the pedicel of the germ near its baſe, incurved; ſtigma annular; pedicel of the germ longer than the ſtamens. A native of the iſland of Bananas, and of Sierra Leone in Africa; diſcovered by Dr. Afzelius, and raiſed in England from ſeeds ſent by him to T. Evans, eſq. of Stepney; but it has not yet ripened its fruit in this country. It is propagated eaſily by cuttings, but to thrive well requires more room for its roots than a pot. 6. C. *marmelos*. Linn. Sp. Pl. 3. Mart. 3. Poir. 5. Willd. 5. (Cucurbitifera; Pluk. Alm. 125. tab. 170. fig. 5. Cydonia exotica; Bauh. Pin. 425. Bilanus; Rumph. Amb. 1. 197. tab. 81. Covalam; Rheed. Mal. 3. 37. tab. 37. Burm. Flor. Ind. 109.) "Thorny; leaves ſerrated." A tall tree, with a large trunk; branches numerous, thick, cylindrical, ſmooth, leafy, armed between the leaves with divaricating pairs of long acute ſpines. *Leaves* alternate, petioled, ternate; leaflets oblong, acute, ſmooth on both ſides; common petiole very long. *Flowers* green on the outſide, whitiſh within, ſweet-ſcented, ſix or ſeven together on a common branched peduncle, forming ſmall terminal and lateral racemes. *Fruit* the ſize of an orange; containing, in a hard rind or ſhell, a thick, viſcid, yellowiſh pulp, which has an agreeable flavour, and is frequently ſerved up by the Eaſt Indians in their deſerts, mixed with orange and ſugar.

Obſ. Linnæus placed the laſt ſpecies under this genus, though he was aware that it does not correſpond with his generic character, obſerving that it has a five-cleft calyx, ſixty ſtamens, and no petals; but with reſpect to the laſt particular, he has ſince been found to have fallen into an error. Juſſieu afterwards remarked, that it ſeems to have more affinity to his natural order aurantia than to his capparides, to which the other ſpecies of crateva properly belong. The well-known Dr. Correa has confirmed the ſuggeſtion of Juſſieu; and in an excellent paper, inſerted in the fifth volume of the Linnæan Tranſactions, p. 218, has eſtabliſhed for it a new genus, which he has called Aegle, the name of one of the Heſperides. As this new genus has, through ſome overſight, been omitted by us in its proper place, we ſhall here give its natural character. *Cal.* Perianth one-leafed, ſmall, five-lobed, falling off before the maturity of the fruit. *Cor.* Petals five, many times larger than the calyx, ovate-acute, ſpreading. *Stam.* Filaments very numerous, ſhort, awl-ſhaped, inſerted into the outer ſide of an elevated receptacle or hypogynous diſk; anthers oblong, erect. *Piſt.* Germ ſuperior, egg-ſhaped; ſtyle ſhort, thick; ſtigma oval; (according to Kœnig, marked with many obſolete furrows.) *Peric.* Berry globular-top-ſhaped, with a ſmooth pitted rind, which finally becomes woody; cells in Correa's ſpecimen ten, ſurrounded with a ſpongy fleſh, which, after the fruit ripens, ſoon diſappears. *Seeds* numerous in each cell, egg-ſhaped, compreſſed, hairy, attached in a ſingle ſeries to a ſhort, ſtraight, umbilical cord. There are in the herbarium of ſir Joſeph Banks two ſeemingly diſtinct ſpecies of this genus, both arboreous, and both natives of the Eaſt Indies. The crateva balangas of Kœnig is conſidered by Dr. Correa as another diſtinct genus, which he has deſcribed under the name of feronia. See FERONIA.

CRATEVA *foliis ſingularibus;* Brown. See CAPPARIS *ferruginea.*

CRATEVA, in *Gardening*, comprehends plants of the exotic tree kind for the ſtove; of which the ſorts moſtly cultivated are the ſmooth crateva or garlic pear (C. *tapia*), and the prickly crateva (C. *marmelos*).

Method of Culture.—Theſe two plants are capable of being increaſed by ſowing the ſeeds, which have been procured from the places where they grow naturally, as ſoon as they arrive, in pots of light rich earth, and plunging them immediately in the bark bed of the ſtove. The plants, after they have obtained the growth of about three inches, ſhould be removed and placed out in ſeparate pots, a very little water being given at the time, replunging them immediately in the hot bed.

The plants require afterwards to be kept conſtantly in this ſituation, and to have the care and management of other tender woody plants of the exotic kind, which have ſimilar habits of growth.

CRATHES, in *Ancient Geography*, *Crati*, a ſmall river of Italy, in Brutium. It commenced S.E of Conſentia, purſued a northern courſe to Caprafiæ, whence it flowed by the north-eaſt, and diſcharged itſelf into the gulf of Tarentum, near Sybaris. Strabo ſays, that the waters of this river gave a white colour to the hair of thoſe who drank them; and they are ſaid to have been uſeful in medicine. Herodotus and Pauſanias inform us, that the river derived its name from Crathis of Achaia. Near its mouth was a temple of Minerva, ſurnamed *Crathian*. See CRATI.—Alſo, a river of Achaia, E. of Bura, which had its ſource in a mountain of the ſame name in Arcadia, near Cyllene, and ran from the S.W. to the N.E. into the gulf of Corinth. It received, in its courſe, the Alyſſon and the Styx.—Alſo, a river of Aſia, in Cilicia.

CRATI, in *Geography*, a river of Naples, which, proceeding from the eaſtern vallies of the Sila, paſſes by the foot of the declivity on which Coſenza ſtands, and receives the waters of the Buſiento; which torrent is remarkable for containing within its boſom the bones of Alaric, the mighty leader of the Viſigoths. See CRATHIS.

CRATIA, in *Ancient Geography*, an epiſcopal city of Aſia.

CRATICULA, a chemical inſtrument, made of ſquare pieces of iron of about a finger's thickneſs, placed ſo as to have half a finger's ſpace betwixt them. It is uſed in making of fires to keep up the coals.

The word is Latin, importing a roaſter, or gridiron.

CRATICULAR ECTYPE and PROTOTYPE. See ANAMORPHOSIS.

CRATINOPOLIS, in *Ancient Geography*, an epiſcopal city of Africa, in Mauritania Cæſarienſis.

CRATIPPUS, in *Biography*, a peripatetic philoſopher, born at Mitylene, where he was brought up, and where for ſome time he was engaged in teaching others the tenets of the philoſophy which he embraced. At Athens, whither he removed, he roſe to great celebrity, and acquired the eſteem and friendſhip of ſome of the moſt eminent men of his age. Cicero ſent his ſon to be educated by Cratippus; and ſo highly did the orator think of his talents, that he took pains to obtain for him, of Cæſar, the freedom of Rome; and afterwards moved the Areopagus to make a decree, to deſire Cratippus to live at Athens, as an ornament of the city, and for the purpoſe of inſtructing the young. Pompey and Brutus were likewiſe among his admirers. The former, after the battle of Pharſalia, viſited the philoſopher, when their diſcourſe turned upon the ways of Providence, which the warrior, depreſſed by his misfortunes, ſeemed willing to blame, but which Cratippus vindicated with manlineſs, but with a delicacy which the ſituation of Pompey ſeemed to require. Brutus attended the lectures of this wiſe man, when he was on the point of engaging in war with Marc Antony. Theſe are the proofs mentioned by Bayle and others, to ſhew that Cratippus recommended himſelf to perſons of conſideration, not only by the extent of his learning, and the wiſdom of his precepts, but by the agreeableneſs of his manners, and the pleaſantry with which he enlivened the hours of ſocial intercourſe. By theſe qualities he is ſaid to have attached the youth entruſted to his care to himſelf, and to the purſuits of literature. He wrote ſome treatiſes concerning divination, which were regarded as hypothetical and fanciful, rather than argumentative and philoſophical. Tertullian is ſuppoſed to have referred to the works of Cratippus, when he is ſpeaking of a treatiſe on dreams, aſcribed to a perſon of that name. Bayle.

CRATIUM, in *Natural Hiſtory*, a name given by Argenville to the MYTILUS *frons* of Gmelin.

CRATO, in *Geography*, a town of Portugal, in the province of Eſtramadura, ſurrounded with an ancient wall, and containing a church, hoſpital, and convent; 10 miles W. of Portalegre.

CRATON, alſo called CRAFFTHEIM, JOHN, in *Biography*, was born at Breſlaw in 1519. He received his firſt inſtruction under Philip Melancthon, and being intended for the church, he afterwards ſtudied for ſix years under Martin Luther at Wittenburgh. Being more inclined to the practice of medicine, he was ſent to Padua, and placed under profeſſor Monti. He here took the degree of doctor, and returned and ſettled at Breſlaw, whence, at the end of a few years, he was called to Vienna, and made phyſician and aulic counſellor to the emperor, Ferdinand I. He filled the ſame poſt under the two ſucceeding emperors, Maximilian and Rodolph,

dolph, which he notices in an epigram he compoſed a ſhort time before his death :

> " Cæſaribus placuiſſe tribus, non ultima laus eſt,
> Me pater hac ornans, filius atque nepos."

His works were numerous: the titles of the principal of them were, " De Morbo Gallico Commentarius," Franc. 1594, 8vo. ; " De vera præcavendi et curandi Febrem contagioſam peſtilentem Ratione," 1594 ; " Methodus Therapeutica ex Galeni et Montani Sententia." There were alſo publiſhed ſeven volumes in 8vo. of Epiſtles and Conſultations. He died Nov. 9th, 1585. Haller Bib. Med. Eloy Dict. Hiſt.

CRATOWNESS, a cape on the E. coaſt of Scotland, in the county of Kincardine ; 3 miles S. of Stonehaven.

CRAVALIDÆ, or Craugalidæ, in *Ancient Geography*, a ſmall country of Greece, in the territory of Phocæa, near the town of Cyrrha. Suidas.

CRAVAN, in *Geography*, a ſmall town of France, in the department of the Yonne, 12 miles S. of Auxerre, near the junction of the rivers Cure and Yonne, famous for a good ſort of Burgundy wine.

CRAVANT, in *Ornithology*, a name by which Bellonius and ſome others have called the barnacle, a ſmall ſpecies of wild gooſe, common in winter on the coaſts of Lancaſhire, the Anas *Bernicla* of Gmelin, and the *Brent-gooſe* of other writers. See Barnacle *Gooſe*.

CRAVATES. See Croats.

CRAU d'Arles, La, in *Geography*, is a conſiderable extent of very ſtony ground in the department of the Bouches du Rhône, in France, in the commune of Arles, which has lately been fertilized by a canal from the river Durance, called the canal of Craponne. The numerous flocks of ſheep which are kept here leave this plain in ſummer, to feed on the high mountains of the neighbouring departments, for which reaſon they are called *bêtes à laine tranſhumantes*, wandering ſheep.

CRAVEN, or Cravent, in *Britiſh Antiquity*, a term of reproach uſed in trials by battle.

The law was, that the victory ſhould be proclaimed, and the vanquiſhed acknowledge his fault, in the preſence of the people, or pronounce the word cravent in the name of recreantice, or cowardice, &c. and, preſently, judgment to be given ; and the recreant *amittere legem terræ*, *i. e.* become infamous.

Coke obſerves, that if the appellant join battle, and cry craven, he is to loſe *liberam legem*. If the appelled cry craven, he is to be hanged. See *Wager of* Battle, and Combat.

Craven, in *Geography*, a county of America, in the ſtate of N. Carolina, and diſtrict of Newbern, bounded N. by Pitt and S. by Carteret and Onſlow counties. Its chief town is Newbern : it contains 10,469 inhabitants, of whom 3658 are ſlaves.

CRAVETTA, Aimone, in *Biography*, an eminent lawyer in Piedmont, was born in 1504. When young he was of ſo delicate a conſtitution, that his parents had little hopes of rearing him ; and in proportion to their great anxiety, they prevented him from purſuing his ſtudies. Notwithſtanding theſe diſadvantages, he made ſo much proficiency as to be highly eſteemed as a profeſſor at the age of twenty ; and in three years after, having received the title of doctor, he was ſent as juriſt to Cuneo, and thence he practiſed as advocate at Turin. Upon the breaking out of a war in Piedmont, he was impriſoned two years, and not allowed the uſe of his books. In 1558 he was ſucceſſively profeſſor of law at Grenoble and Lyons : at the latter city he printed his " Conſultations." He was alſo public teacher of his ſcience at Avignon and Ferrara, and was invited to Pavia, and at length returned to Turin, where he obtained a ſtipend of 1200 crowns. In this city he died in 1569, highly reſpected for his talents and indefatigable application. Beſides his " Conſultations," he was author of a work on the ſubject of juriſprudence, entitled, " Tractatus de Antiquitatibus Temporum," printed after his death in 1581.

CRAUGIÆ, in *Ancient Geography*, ſmall iſlands on the coaſt of the Peloponneſus, near Cape Spiræa, according to Pliny.

CRAULA, or Craulau, in *Geography*, a ſmall town of Germany, in the duchy of Saxe-Gotha, containing 117 houſes, and 354 inhabitants, who are chiefly hop-planters.

CRAW, Crop, or *Ingluvies*, a part in granivorous fowls which ſerves for the immediate reception of the food ; where it remains ſome time for maceration, before it be tranſmitted to the ſtomach.

This ingluvies is furniſhed with glands, which, the patrons of fermentation maintain, convey a menſtruum thither, that impregnates the aliment, and ſerves inſtead of maſtication.

Craw, or *Cray Fiſh*, in *Ichthyology*, a ſpecies of the *Cancer*; the *cancer aſtacus* of Linnæus. (See Cancer *fluviatilis*, under the genus *Aſtacus*.) The fleſh is good and nutritious, and has been recommended to perſons under atrophies. There are various methods of preparing theſe animals : they may be either boiled or fried, and then taken out of their ſhells and made up in variety of diſhes ; but no parts of them are eatable except their claws and tail. Preparations and broths of cray-fiſh have been celebrated not only for a palatable aliment, but alſo for anſwering ſome medicinal intentions, as being of a moiſtening quality, and correcting acrimony. The broth is prepared of four or five cray-fiſh, which, having their heads cut off, and their inteſtines extracted, are to be bruiſed and boiled in the broth of fleſh or poultry, until they become ſufficiently red ; after which the liquor is to be ſtrained off and ſeaſoned, as the caſe may require. This broth may be rendered ſtill more medicinal by the addition of herbs, ſnails, or other ſubſtances ; according to the intention of the phyſician. The fleſh is counted beſt in the ſummer months.

The delicate flavour of theſe fiſh depends in a great meaſure on their food. When they have well-taſted food, their fleſh preſerves the reliſh of it ; but when they feed on other things, they are often rendered of no value, by the flavour communicated to their fleſh by them. There are great quantities of theſe fiſh in the river Obra, on the borders of Sileſia ; but the people find them ſcarcely eatable, becauſe of a bitter aromatic flavour, very diſagreeable in food. It has been ſince obſerved, that the *calamus aromaticus* grows in vaſt abundance on the banks of that river, and that theſe creatures feed very greedily upon its roots. Theſe have a very remarkable bitterneſs mixed with their aromatic flavour, while freſh, which goes off very much in their drying ; and on comparing the taſte of theſe roots with that of the cray-fiſh, there remains no doubt of the one being owing to the other. Act. Leipſ. 1690.

They abound in the river Don in Muſcovy, where they are laid in heaps to putrefy ; after which the ſtones, called crab's eyes, are picked out.

Theſe animals are very greedy of fleſh, and flock in great numbers about carcaſes thrown into the water where they are, and never leave it while any remains. They alſo feed on dead frogs when they come in their way. James.

In Swiſſerland, there are ſome cray-fiſh which are red, while they are alive, and others blueiſh. Some kinds of them alſo will never become red, even by boiling, but continue blackiſh.

The cray-fiſh diſcharges itſelf of its ſtomach, and as M. Geoffroy thinks, of its inteſtines too. Theſe, as they putrefy and diſſolve, ſerve for food to the animal; during the time of the re-formation, the old ſtomach ſeems to be the firſt food the new one digeſts. It is only at this time, that the ſtones are found called Crab's *eyes;* they begin to be formed when the old ſtomach is deſtroyed, and are afterwards wrapped up in the new one, where they decreaſe by degrees till they entirely diſappear.

CRAWFORD, *New*, in *Geography*, a town of the iſland of Jamaica; about 16 miles N. of Kingſton.

Crawford, *Old*, a town of Jamaica, now deſerted, about 13 miles N. of Kingſton.

Crawford, a town of America, in the ſtate of Virginia; 5 miles N. of Weſt Point.

CRAWINKEL, in ancient documents *Gravincella*, is a ſmall town of Germany, in the duchy of Saxe-Gotha, near the foreſt of Thuringen. It has 209 houſes, and 934 inhabitants, who derive their chief ſubſiſtence from burning charcoal, making lamp-black, and acting as waggoners.

CRAWLEY, or Husborn-Crawley, a vicarage in Bedfordſhire, in the hundred of Marſhead. The ſouthern parts of this pariſh are ſituated on the Woburn-ſand ſtratum, and the remainder upon the Clunch clay ſtratum, which here crops from beneath the ſand. The ſand-hill on which the church ſtands has a layer of fuller's earth in it, beneath which ſome very large ſpecimens of petrified wood were a few years ago dug out, that are in the poſſeſſion of Richard Howe, eſq. of Aſpley, an adjoining village. The clay hill north of the church is occaſioned by a conſiderable fault which croſſes the pariſh in a north-eaſt direction, with an extenſive depreſſion of the ſand ſtratum to the ſouth of it. The top of the clay above-mentioned, abounds with large and thick gryphites, or oyſter-like ſhells, perforated by ſome other fiſh, at the time the fiſh were alive in theſe gryphites; very beautiful ſmall cornua-ammoni in golden pyrites, are alſo found in this clay at the brick-kilns, and a ſtoney ſubſtance, here called Clunch, ſee that article. In 1796, this pariſh was incloſed under an act of parliament, and a large heath was in conſequence taken into the duke of Bedford's park, and cultivated, except the ſteep and moſt barren parts, which were planted. A very extenſive peat bog, between the village, or Town-ſtreet, and the church, which had long exerted its deleterious influence on the health of the inhabitants; as a compariſon of the proportions of births to burials in this pariſh and many adjoining villages proved; was effectually drained in conſequence of the incloſure, under the directions of Mr. Farey, the agent of the late duke of Bedford, and preparations were at the ſame time made for an extenſive irrigation in this vale. The ſituation of Crawley ſteeple was aſcertained in the government trigonometrical ſurvey, by an obſervation from Bowbrick hill ſtation, diſtant 15,998 feet, and bearing 65° 44′ 61″ ſouth-weſt from the parallel to the meridian of Greenwich, and another from Truſler hill ſtation, diſtant 8,867, whence was deduced its latitude 52° 0′ 57″ north, and its longitude 0° 36′ 19″.8, or 2^{m} $25^{s}.3$ weſt of Greenwich. A new barn and premiſes, erected on a hill in the new park, were alſo obſerved, and the centre of the front or ſouth ſide was found to bear 53° 55′ 2″ ſouth-weſt of the parallel above-mentioned, and to be diſtant 6023 feet from the centre of the ſteeple. A new and excellent turnpike road was, in 1796, made through this village, at the expence of the late duke of Bedford, in lieu of one which formerly went through his park; the cottages were, in general, repaired, and ſeveral new ones built; gardens were allotted to each of them, and as great an alteration made for the better, in the appearance and comforts of this village, as perhaps has any where elſe been witneſſed.

CRAX, in *Ornithology*, a genus of the gallinaceous order. The bill is ſtrong and thick, with the baſe of both mandibles covered with a cere; noſtrils ſmall, and placed in the middle of the cere; head creſted with revolute feathers; tail large, ſtraight, and expanſile.—Curaſſow.

Species.

Alector (*male.*) Cere yellow; body black; belly white: (*female*) red; head blueiſh; creſt white, tipt with black. Crested Curassow.

Linnæus deſcribes the male and female as two diſtinct ſpecies, the firſt under the name of *alector*, the other *rubra*. The male is about the ſize of a ſmall turkey; the bill an inch and three quarters long, duſky, and covered from the middle with a ſkin which paſſes backwards round the eyes. The general plumage is deep black. The top of the head is elegantly creſted with upright twiſted feathers of a black colour, the longeſt of which are nearly three inches long, the others ſhorter; the lower part of the belly, vent, and thighs white; its tail is eleven inches long, and conſiſts of fourteen feathers, which are a little rounded in ſhape, and of a black colour. The legs ſtrong and duſky brown. This is the *Crax guianenſis* of Briſſon, *Mituporauga* of Ray, *Hocco de la Guiane* of Buffon, *Indian coek* of Pitfield, *Guiana peacock pheaſant* of Bancroft, and *Creſted Curaſſow* of Brown. The female is about the ſize of the male; the bill aſh-coloured; irides red, and the head creſted as in the other ſex, the feathers white with black tips. The head, and hind part of the neck aſh-coloured; fore part of the neck, and reſt of the plumage red-brown; tail plain and duſky black; legs brown. This is called *Hocco de Perou* by Buffon, and is the *Red Peruvian hen* of Albin.

The creſted Curaſſow is a native of the mountainous parts of Mexico and Peru, where, in their natural ſtate, they feed on fruits, and rooſt in trees. They are remarkably docile, and have been cultivated, with much ſucceſs, in the warmer parts of America, and the Weſt Indian iſlands. At Guiana, where they conſtitute a principal article of food among the planters, theſe birds are known by the name of Poweſe, and they are alſo common in the (late) Dutch ſettlements of Berbice, Eſſequibo, and Demerara. At the Braſils it is known by the name of Curaſſo. The fleſh is white, and well-flavoured. Some endeavours have been made to naturalize theſe birds in England, but the climate is neither ſufficiently warm, nor dry enough for this purpoſe, and they are hence rather more likely to remain an ornament to our menageries, than become of permanent utility in our yards of poultry.

There are ſeveral intereſting and beautiful varieties of this ſpecies, among which may be mentioned the *Crax Mitu* of Linnæus, which latter obſervation has proved to be only a variety of the Alector; it is the ſize of the others, and has the bill crooked, about an inch and a half in length, the upper chap four times as large as the lower, and of a fleſh colour, with the tip whitiſh. Behind the ear is a white naked ſpot; and the head is creſted with long feathers which may be elevated at the pleaſure of the bird, into a conſpicuous creſt. The feathers on the head, neck, and breaſt are velvetty; the reſt of the plumage black, except the belly and under the tail, which are of a brown colour, almoſt like that of a partridge. Another variety *Hocco, Faiſan de la Guiane* of Buffon, differs in having the tip of the tail white; and a fourth kind has the creſt white tipped with black; neck barred with black and white; thighs brown; and vent white. Sometimes alſo, the tail is barred alternately black and white. The above are varieties of the male bird; the females vary alſo very conſiderably. Some of the latter have the neck annulated with black and white; belly white; and tail brown: and others have the body barred with red-brown, and yellowiſh or cream colour. But one of the moſt elegant varieties is of a red brown colour, paleſt beneath: the bill yellow-ochre, with the tip brown: ſides of the head covered with feathers, and black; creſt white, and black at the tip; neck ringed, black and white; tail brown, croſſed with nine yellowiſh-white bands, bounded on both ſides with black; legs yellowiſh, with duſky claws.

Globicera.—Yellow; gibboſity of the noſtrils globular; body blackiſh-blue; lower part of the belly white.—*Crax Curaſſous*, Briſſon, *Gallina Indica*, Aldrovandus, *Curaſſow-bird*, Edwards, *Globoſe Curaſſow*, Latham.

This is the ſize of the laſt, and has the bill yellow with the tip cinereous, and at the top over the noſtrils a round gibboſity ſomewhat reſembling a cherry in its form, very hard, and of a fine yellow colour. The irides are red, and the ſpace round the eyes white. The feathers on the head are long, and form a creſt pointing forwards, the feathers are black with white tips, and rather inflected. The general colour of the plumage is black, except the lower part of the belly, vent, and ſpace acroſs the thighs, all which are white; legs pale ferruginous. The female has the head and hind part of the neck black; the creſt black, with a white band. Some of the neck feathers have the tip white; the fore part of the neck, and breaſt, back and wings are dull brown; the upper part of the belly white, with ſome of the feathers tipped with black; lower part of the belly, vent, and thighs pale yellowiſh-brown; the tail croſſed with four broad bands of white; the knob on the bill is yellow as in the male, and the bill is cinereous, but the legs are aſh-coloured. This is a native of Guiana.

Pauxi. Cere blue; gibboſity of the noſtrils creſted; body blackiſh; belly and tip of the tail white.—*Crax Pauxi*, Linn. *Crax Mexicanus*, Briſſ. *Pauxi*, Hernandez, *Hocco du Mexique*, Buff. *La Piere de Cayenne*, Buff. *Cuſhew Curaſſow*, Edwards.

Size of the preceding, but of a more ſlender form. The bill is red, with a gibboſity at the baſe as large as a ſmall pear, and not unlike it in form, very hard, and of a fine blue colour; the baſe of the mandible is alſo blue. The plumage is gloſſy blue-black, with a tinge of purple; lower part of the belly, under tail coverts, and tip of the tail, white; legs pale red; claws black. The female is diſtinguiſhed by having thoſe parts brown, which in the male are black. The ſpecies inhabits Mexico.

Galeata. Crown horny; body black; vent white. *Le Hocco á tête calleuſe*, Briſſ. *Galeated Curaſſow*, Lath.

This is nearly as large as a turkey. The general colour black, except the vent, and under tail coverts, which are white; on the crown of the head is a horny ſubſtance about two inches in height, broad at bottom, and ending above in a blunt point, reſembling altogether a kind of cone. The bill and legs are red. Inhabits Curaſſow.

Vociferans. Brown; bill and breaſt blue; belly whitiſh.—*Penelope Vociferans*, Gmel. *Le Chacamel*, Buffon, *Chachalacametl*, Fernandez, *Crying Curaſſow*, Lath.

Deſcribed from an account given of it by Fernandez. It is the ſize of the common fowl; and is remarkably clamorous and noiſy, whence the Mexican name *Chachalacametl*, or crying bird. This kind inhabits mountainous ſituations in South America.

Cray, in *Geography*, a river of England, which runs into the Darent near Dartford, in Kent.

CRAYE, a river of Wales, which runs into the Uſk in Glamorganſhire.

CRAYER, a kind of ſmall ſea-veſſel or ſhip. It is mentioned in the ſtat. 14 Car. II. c. 27. and in old records, *Et tranſitus* craerarum *& battellorum cum victualibus & aliis neceſſariis, &c.* Parl. 6 Ric. II. Par. 2. M. 13.

Crayer, de, Caspar, in *Biography*, a painter of ſome eminence, born in 1592. He was a native of Antwerp, and was the ſcholar of Raphael, the ſon of Michael Coxcie of Bruſſels. He ſoon, however, ſurpaſſed his maſter, and, aided by the ſtudy of the beſt pictures, to which he could have acceſs, acquired a ſkill, according to the opinion of his cotemporaries, only inferior to that of Rubens and Vandyke.

Caſpar was held in ſuch eſteem at Bruſſels, that the government propoſed to confer upon him ſeveral offices and a penſion, aiming thereby to prevent his quitting that city; but he declined the honours that were offered him, and afterwards reſided at Antwerp, where he was viſited by Rubens, who beſtowed the higheſt encomiums on a picture (a large compoſition) which Caſpar was then painting, of the Centurion alighting from his Horſe to proſtrate himſelf at the Feet of our Saviour. Sir Joſhua Reynolds, however, does not ſeem to entertain ſo high an opinion of this artiſt's merit, as will appear from the following extract from his journey into Holland.

" Here is an immenſe picture of Gaſpar de Crayer, mentioned not on account of its excellence in my own opinion, but from its being in ſuch high eſtimation in this country, and it is certainly one of his largeſt works. Though it cannot be ſaid to be defective in drawing or colouring, yet it is far from being a ſtriking picture. There is no union between his figures and the ground; the outline is every where ſeen, which takes away the ſoftneſs and richneſs of effect; the men are inſipid characters, and the women want beauty. The compoſition is ſomething on the plan of the great picture of Rubens in the St. Auguſtins at Antwerp: that is, the ſubject is of the ſame kind, but there is a great difference indeed in their degree of merit. The dead and cold effect of this picture, as well as many others of modern maſters in this gallery, ſets off thoſe of Rubens to great advantage. It would be a profitable ſtudy for a young painter to look from thoſe pictures to Rubens, and compare them again and again, till he has inveſtigated and fixed in his mind the cauſe and principles of ſuch brilliant effects in one inſtance, and of failure (when there is failure) in the other."

Caſpar, after having devoted a long life to retirement and the conſtant ſtudy of his profeſſion, died in 1669. The following are amongſt the principal pictures which he painted in the churches of Bruſſels and of Gand: A Reſurrection, an Altar-piece in the church des Freres de la Charité in the latter town; another Altar-piece in the church of the Auguſtins, repreſenting the crowning of ſeveral ſaints; and in the church of Notre Dame, behind the altar, an Aſcenſion. Deſcamps.

CRAYFORD, in *Geography*, a rectory in Kent, in the lath of Sutton. The Darent and Cray rivers are navigable for barges, and the tide flows up to the calico-printing mills within a mile of this town. The church ſtands high on the top of the ſand ſtratum covering the chalk, in a lifted or very diſlocated part, a conſiderable thickneſs of gravel covers the loam on the top of this ſand, to the weſtward of the church, extending towards the windmill on the common. A ſtation was choſen in 1799 upon the top of this ſteeple for the ſmall inſtrument in the trigonometrical ſurvey, its ſituation being determined by an obſervation from Severndroog tower, diſtant 26,479 feet, and bearing 80° 50′ 1″ N.W. from the parallel to the meridian of Greenwich, and another from Well-hill ſtation, diſtant 37,840 feet, and bearing 9° 14′ 45″ S.W. from the ſaid parallel; whence

whence is deduced its latitude 51° 27′ 17″.8 N. and its longitude 0° 10′ 32″.2 E. of Greenwich. This ſtation was uſed with Aſh ſteeple for determining the place of Dartford Brent mill, and Northfleet church; with Charlton farm ſtation for Darent ſteeple; with Dartford Brent mill for Stone ſteeple; with Severndroog tower for Bexley ſpire; and with Well-hill ſtation for Aſh ſteeple, Charlton farm.

In the village of Crayford, formerly called "Creccanford," Hengiſt, two years after the death of his brother Horſa, A.D. 455, gained a great victory over the Britons under Vortimer, which gave him poſſeſſion of all Kent, and emboldened him to aſſume the name of *king*, having before this event contented himſelf with the more humble title of "heretogen" or general. Thus was the firſt Saxon kingdom, that of Kent, founded, about eight years after the arrival of Hengiſt and his followers in this iſland. The river Cray, that paſſes through this village, ſerves to work a mill for ſlitting and rolling iron, and another for a cotton manufacture. Crayford is 2 miles W. of Dartford, and 13 E.S.E. of London.

CRAYON, a general name for all coloured ſtones, earths, or other minerals and ſubſtances, uſed in deſigning, or painting in paſtel; whether they have been beaten and reduced to a paſte, or are uſed in their primitive conſiſtence, after ſawing or cutting them into long narrow ſlips.

In this laſt manner are red crayons made, of blood-ſtone, or red chalk; black ones, of charcoal and black lead. The beſt charcoal is that of willow, on account of its ſoftneſs. Crayons of all other colours are compoſitions of earths reduced to paſte.

Good crayons for the purpoſe of drawing and painting are not eaſily procured. Thoſe formed from red chalk, which are in common uſe, are almoſt always hard, gritty, and deſtitute of an uniform conſiſtence. The only good crayons uſed in France are manufactured excluſively at Paris, where they are ſold at a very high price: the beſt ſort having been long known there by the name of the paſte crayons of Deſmarets, who ſeems to have been the inventor. Induced by theſe conſiderations, M. C. F. Lomet made a variety of experiments with a view of aſcertaining the beſt combinations of various ſubſtances adapted to the fabrication of crayons; and the reſults that were ſatisfactory are here ſubjoined. Theſe crayons are compoſed of the ſofter kind of ochre or reddle, which is an oxyde of iron mixed with earth of an argillaceous nature, and called hematites or bog-ore. This muſt be incorporated with ſome agglutinating ſubſtance, ſuch as gum, glue, or roſin, to which is ſometimes added ſoap for ſoftening the compoſition. Inſtead of reddle, the other red oxydes of iron may be uſed, ſuch as colcothar of vitriol, &c.; but theſe ſhould be choſen ſoft to the touch and of a lively colour; whereas thoſe made for ſale are often mixed with too much clay, which gives them a dull yellowiſh caſt that ought to be avoided. The beſt reddle, in lumps, ſhould be ſelected, and ground with pure water on a marble ſlab, as is done in the preparation of colours for painting: moiſtening it with a little water, juſt ſufficient to make the grinding ſtone ſlide. For preparing a large quantity, the reddle muſt be pounded and ſifted through a fine ſieve, then diluted with a large quantity of water in a trough, where, after being well ſtirred, it ſhould be left for a few minutes to ſettle, that the groſſer particles may ſubſide to the bottom. The water, ſtrongly impregnated with the finer particles, muſt then be poured off, and allowed to ſettle for 24 hours: when the clear water has been poured off, a fine ſediment will be obtained, which muſt be again pounded and waſhed. The proceſs is repeated till the whole is reduced to the utmoſt fineneſs. The gum, glue, or ſoap, neceſſary for giving to the crayons a due degree of ſolidity, muſt be ſeparately diſſolved. The ſolutions muſt then be carefully mixed with the pounded ochre or reddle, and the water evaporated by expoſure to the ſun or the heat of a gentle fire, taking care frequently to turn the paſte till it has acquired a conſiſtence ſomewhat harder than butter; the crayons are then to be formed in the moulds, which may be done two ways: firſt, by ſpreading out the paſte on a board, in which are cut grooves rather broader at the top and round at bottom, and of any length, ſize, and depth, according to the propoſed bulk of the crayons; or otherwiſe, which is the better method, by forcing the paſte through a pipe or funnel of an orifice equal to the ſize of the crayon. The paſte thus formed may be left to dry in a cool place under the ſhade, in order to prevent cracks, which a more rapid deſiccation would produce. When the rods are dry, they are to be cut into a proper length; and the edges ſhould be taken off; after which they muſt receive the firſt cutting, in order to give them a blunt point. The laſt operation is that of ſcraping them, for the purpoſe of taking off the hard outward coat formed on the ſurface in drying, and which would prevent their making any marks. It may be neceſſary to rub a ſmall portion of oil into the grooves of the wood, that the paſte may not adhere too cloſely to the moulds. Gum arabic and iſinglaſs are the two beſt ſubſtances for mixing with the powder. The gum and ſoap may be diſſolved in cold water; but the iſinglaſs muſt be cut in ſmall pieces, put into hot water, and diſſolved in Balneo Mariæ. Theſe ſolutions ſhould be well diluted with water, that they may be made to paſs through a hair ſieve in order to remove any foreign particles. As it is difficult to incorporate the paſte with the iſinglaſs, they muſt both be heated and mixed over a fire with a heat equal to that of boiling water. The paſte ſhould be well mixed before it is moulded. The beſt mode is to beat it with a peſtle or mallet, and ſo pound it again for ſome time before it is put into the moulds. No ſoap muſt be employed but for thoſe crayons in which gum is uſed. M. Lomet obſerves, that, as the crayons for which ſoap has been uſed are of a browner caſt, it would appear that this combination abſtracts the oxygen from a part of the red oxyde of iron, and gives it a brown tint by cauſing it to approach the ſtate of martial æthiops. All the paſtes prepared with oxyde of iron, even when pure water alone is uſed, become brown on the exterior ſurface as they dry; and ſtill more ſenſibly when they are expoſed to the action of the ſun; which ſeems to ariſe from the light's abſtracting a portion of the oxygen from the oxyde of iron.

The crayons, ſays our author, compoſed in this manner, have every good property that can be deſired; they do not coſt one-quarter of the common price; but it ought to be conſidered, that their compoſition requires great nicety in regard to the quantity of the materials, becauſe the leaſt variation occaſions conſiderable difference in the quality of the paſte. The beſt means to prevent waſte, during the operation, will be to fix by experiments the quantity of water and of ingredients which the pounded reddle and the ſolutions form before the mixtures are made. The following ſtatements will ſerve this purpoſe. 1. Dry reddle, or red oxyde of iron, 1 oz.; gum arabic dry, 18 grs. Crayons thus made are very friable, but they may be uſed for large deſigns. 2. Reddle, &c. 1 oz.; gum 21 grains, will yield ſtrong crayons, rather friable, but excellent for large drawings. 3. Reddle, 1 oz.; gum 24 grains, or rather $25\frac{1}{2}$ gr., will give ſmooth and ſolid crayons, the beſt for common uſe. 4. Reddle, 1 oz.; gum 27 gr. will produce ſoft firm crayons, fit for drawings which require delicacy and preciſion. 5. Reddle 1 oz.; gum 30 gr., will yield very firm crayons, fit for ſmall drawings which are to be highly finiſhed. 6. Reddle 1 oz.; gum 33 gr. will give very hard crayons, that cannot be uſed without ſome force. This is the greateſt quantity of gum that can be employed in their compoſition; with more they would be uſeleſs. 7. Reddle 1 oz.; gum 22 gr.; white hard ſoap 30 grains. Crayons thus formed have a ſomewhat browner caſt than the former. Their conſiſtence is good, and they may be eaſily cut. All crayons with ſoap in their compoſition have this fault, that the ſtrokes made by them have a ſhining appearance if the touches are repeated ſomewhat too ſtrongly. Theſe crayons perfectly reſemble thoſe of Deſmarets. 8. Reddle, 1 oz.: iſinglaſs 36 grains, produce crayons of a brilliant colour, and excellent for uſe. With leſs iſinglaſs, they become brittle; with more, too hard. Annal. de Chemié. No. 90. An. 7.

CRAZE *mill*, or Crazing *mill*, a mill in all reſpects like a griſt-mill to grind corn, and is ſo called by the tinminers, who uſe it to grind their tin, which is yet too great, after trambling, and then it is trambled only.

CRAZEY, in *Agriculture*, a name not unfrequently applied in different diſtricts to a weed in paſture lands, the (*Ranunculus repens*) or creeping crowfoot.

In the vale diſtrict of the county of Glouceſter, it is, according to Mr. Marſhall, a plant which is greatly eſteemed as producing a valuable ſort of paſture or herbage; while the common and bulbous ſpecies of it are conſidered as highly pernicious, particularly when made into hay. This diſtinction, he ſuggeſts, as doing the vale farmers of that diſtrict great credit, becauſe it has been found by experience that theſe two latter ſpecies are extremely acrid and noxious, having the tendency to produce an effect ſimilar to that of cauſtic ſubſtances on the mouths of the animals which feed upon them; while the firſt ſpecies is perfectly mild and agreeable in its nature, ſo as to be higly beneficial to ſuch cattle as feed upon it. This circumſtance may lead the induſtrious and attentive farmer to extirpate the noxious ſpecies of this ſort from his paſtures, while he encourages the growth of the mild ſort in them. See Crowfoot.

CREALS, are a ſort of jetties or weir-hedges, ſometimes erected on the ſhores of rivers or the ſea, for checking the force of the current or tide, in particular places, and occaſioning a depoſit of ſilt or mud, in place of a conſtant wear and encroachment of the water upon the land. Smeaton's Reports, i. p. 4.

CREAM, in *Rural Economy*, the name of the fat, oily, or unctuous fluid which riſes on the ſurface of milk on ſtanding, being ſpecifically lighter than the other parts, and from which the well known article butter is made. See Butter and Dairying.

It is ſuppoſed by Dr. Anderſon, that the ſeparation of this oily fluid from milk takes place in conſequence of an acid being formed, or that it is greatly promoted by it. Cream contains all the butter, ſome of the cheeſe, and alſo a portion of the other principles of the milk. Violent agitation converts the cream into thick froth; in which ſtate it is called "whipped cream." The word is derived from *cremor*, which ſignifies the ſame; though in the lower Latin we find *cræma lactis*.

A variety of elegant preparations, for the purpoſe of diet, are made from cream in other countries, eſpecially in Germany; and in the northern part of this iſland a preparation is formed from it which affords an agreeable and nutritious article of food, and which is known under the title of *Corſtorphin Cream*, probably from the village of that name, where it is ſaid to have been firſt made. It is uſually ſold through the ſtreets of Edinburgh under the denomination of *ſweet cream*.

The proceſs by which it is prepared is this: a portion of ſkimmed milk, which has only acquired a moderately acid taſte, is put into an upright wooden veſſel, moſtly the common upright churn, which being provided with ſpiggot and foſſet at the bottom, is placed in a tub of a ſufficient ſize to hold it, when hot water is poured into the tub till it riſes nearly to the height of the milk in the veſſel which contains it. The whole is then covered with a cloth in order to preſerve the heat. In a few hours the milk is found to be ſeparated into two parts, the upper part having the conſiſtence of thick cream, which has much the taſte and appearance of good cream, being only moderately acid, while the other inferior portion conſiſts of a thin watery liquid, which is of a pungent acid taſte, and is eaſily let off by means of the ſpiggot. This fluid is then termed *wigg*. The cream is now fit for being made uſe of, and is ſcarcely capable of being diſtinguiſhed from real cream. Its goodneſs, however, in a great meaſure depends upon the ſkill of the perſon who is employed in making it, as it is much affected by different circumſtances of the proceſs, as the degree of heat to which it is ſubjected, and the acidity of the milk. It is eaten in mixture with ſugar as a great delicacy. The "clouted cream" of the weſt of England is well known.

Cream *of lime*, is that matter which ſeparates from lime-water by cryſtallization, during the evaporation of the water; forming on the ſurface a ſemi-tranſparent pellicle, which gradually thickens, till at length it ſubſides in the form of ſcales. This is a calcareous earth, which, having once loſt its gas, fixed air, or carbonic acid, by calcination, is recombined with it after being diſſolved in water, and expoſed again to the air, and hereby becomes mild, cryſtallizable, unſoluble in water, and recovers its original ſtate before calcination. See Lime.

Cream *of roſes*, a vegetable perfume, which M. Chaptal prepares by mixing equal parts of roſe water, ſpirit of wine à la roſe, and ſyrup of ſugar; and colouring the mixture with the infuſion of cochineal.

Cream-*ſlice*, in *Rural Economy*, the name uſually applied to a ſort of wooden knife, twelve or fourteen inches in length, which is employed in removing the cream from the veſſels in which it is contained.

Cream *of tartar*, *cremor tartari*, is that part of the concrete acid of tartar which cryſtallizes firſt, and forms a pellicle on the ſurface of the water in which tartar has been boiled. This has been a general name comprehending this ſaline pellicle and the cryſtals of tartar.

The manufacture of this purified tartar has been chiefly carried on at Montpellier and at Venice. The following is the proceſs at the former place, as it is ſtated by Chaptal. The tartar is diſſolved in water, and ſuffered to cryſtallize by cooling. The cryſtals are then boiled in another veſſel, with the addition of 5 or 6 pounds of the white argillaceous earth of Murviel to each quintal of the ſalt. After this boiling with the earth, a very white ſalt is obtained by evaporation, which is known by the name of cream of tartar, or acidulous tartrite of potaſh. M. Deſmarets informs us, "Journ. de Phyſique," 1771, that the proceſs uſed at Venice conſiſts, 1ſt, in drying the tartar in iron boilers: 2. pounding it and diſſolving it in hot water, which by cooling affords purer cryſtals: 3. rediſſolving theſe cryſtals in water, and clarifying the ſolution with whites of eggs and aſhes. The proceſs at Montpellier, ſays Chaptal (El. Chem. vol. iii. p. 266), is preferable to that at Venice; as the addition of the aſhes introduces a foreign ſalt, which alters the purity of the product. The acidulous tartrite of potaſh cryſtallizes in tetrahedral priſms cut off ſlantwiſe. The ſalt is uſed by the dyers as a mordant; but its greateſt conſumption is in the north, where it is uſed at table as a ſeaſoner. See TARTAR.

CRE'ANCE, in *Geography*, a ſmall town of France, in the department of La Manche, 9 miles N.W. of Coutances. —Alſo, formerly a marquiſate in the department of La Moſelle, 7 miles E. of Metz.

CREANGE, or KRICHLINGEN, a town of Germany, in the circle of the Upper Rhine, and capital of a county; 38 miles W.S.W. of Deux Ponts.

CREASE-TYLES. See TYLE.

CREAT, in the *Manege*, an uſher to a riding maſter.

CREATION, in its ſtrict and primary ſenſe, denotes the cauſing of a ſubſtance or being to exiſt, which had no exiſtence before; and, therefore, it implies no contradiction. That there is one underived and ſelf-exiſting cauſe, from which all other beings derive their exiſtence, and upon which they entirely depend, is a truth capable of inconteſtible demonſtration. Conſequently, all beings, except the firſt Cauſe, muſt have been produced, or brought into being, by the power and agency of the firſt Cauſe: not produced "out of nothing," as ſome have inaccurately expreſſed it, but out of nothing beſides the immenſe and inconceivable fullneſs of the ſelf-exiſtent Being, who muſt have in himſelf the power and poſſibility of all being; though we cannot comprehend or conceive in what manner, or by what kind of agency, he creates or communicates exiſtence to beings diſtinct from himſelf. The term *creation* is uſed, in a ſecondary and leſs proper ſenſe, when any particular bodies are formed out of ſuch a maſs of matter as ſeems to be utterly unfit for that purpoſe; when ſuch changes are made in any ſubſtance as are generally ſuppoſed to be above the power of creatures, and to belong to God alone:—thus God created fiſh and fowls out of the water, and man and beaſts out of the earth; though the creation of the ſubſtance of water or earth, or the matter out of which they were made, is the original ſenſe of the word. The Hebrew word, ברא, (Gen. i. 1.) rendered *created*, has, it is ſaid, chiefly on the authority of Maimonides, been conſidered as implying what theologians call "an abſolute creation out of nothing." But this, it has been alleged, is not its appropriate meaning. It rather means to *faſhion*, *form*, and *decorate* a matter already exiſting; and in this connection eſpecially, it means to retrieve from a ſtate of deſolation, and to embelliſh this little ſpot of earth, ſo as to render it fit for its inhabitants. In this limited ſenſe God is afterwards (ch. ii. 7.) ſaid to have *created* man, not out of *nothing*, but out of the *duſt* of the ground. Joſhua (xviii. 15, 18.) bids the children of Joſeph *create* to themſelves a more ample poſſeſſion, by cutting down the woods. Goliah (1 Sam. xvii. 8.) deſires the Iſraelites to *create*, that is, *chooſe* or *prepare*, a proper champion to fight with him. In Numb. xvi. 30., 1 Kings xii. 33., and Nehem. vi. 8., it ſignifies to *deviſe*, as it is rendered in the cited paſſage of Kings; and the word *deviſe* would have been more proper in the other places. The word ברא appears to have the ſame meaning, and, if etymology be regarded, to be the ſelf-ſame word, with the Latin *paro*; and it is ſo rendered by Theodotion, ετοιμασαι, Ezek. xxi. 19., and by the Chaldee Paraphraſt תתקן, Joſh. xvii. 15.

Moſes, in the *firſt* chapter of Geneſis, has given us a ſummary account of the creation, at leaſt of our earth, and its inhabitants; not, indeed, in a preciſe philoſophical manner, but ſo as to give the men of the age in which he wrote juſt and affecting notions of this ſtupendous work of divine wiſdom, power, and benevolence, ſo far as was neceſſary to the purpoſes of religion, and no further. It is ſufficient, therefore, that his account is true, ſo far as it goes, and not in any reſpect inconſiſtent with the moſt accurate diſcoveries, which have been made in later ages concerning the ſyſtem of the univerſe, or any part of it

In the beginning God created the heaven and the earth. (v. 1.) The *heaven* and the *earth* may comprehend either the whole univerſe, or all things viſible and inviſible. It does not therefore abſolutely follow from this phraſeology, that the whole univerſe was created all together at once, or at ſome one period of time: but the meaning of the expreſſion may be, *at firſt*, referring to a prior epoch, or *originally*, when the univerſe was produced, it was brought into being by the ſole power and wiſdom of the almighty and eternal God. This is true, though the ſeveral parts of the univerſe may have been produced at different times, or at any diſtance of time from each other: and though God may be ſtill creating new worlds in the immenſity of ſpace, which is not improbable, it is nevertheleſs true, that *in the beginning* of their exiſtence, whenever that was, God created, and is ſtill creating, them all. Thus, the ſentiment which Moſes ſeems to have been deſirous of inculcating was, that the whole univerſe, whenever created, doth not exiſt by neceſſity or by chance; but had a beginning, and was created by the ſole power of God. But as Moſes here gives us a particular account of the formation of our earth, this phraſe, *in the beginning*, may be underſtood proleptically with a reference to the ſix days' creation. Accordingly, the firſt thing which God did, in order to make the earth a ſuitable habitation for man, was to give to it and to the heavens the reciprocal appearances which they now have. Before that period, the earth was immerſed in water, and covered with thick darkneſs, &c.: in a word, it was a chaos (ſee CHAOS); and with reſpect to it, the *heavens* exiſted not; that is, all thoſe etherial phenomena, which conſtitute what we call the *heavens*, were yet inviſible. Such a change or revolution might juſtly be denominated a creation, according to the ſenſe already given of the word ברא. Upon the whole we may obſerve, that it ſeems to have been a current opinion among the ancient Jews and earlieſt Chriſtians, that the world was created by God of pre-exiſting unfaſhioned matter. The matter of which the earth was created, or rendered a habitable world, was "without form and void," (v. 2.) or a deſolate waſte, or in a ſtate of deſolation; that is, as ſome have ſuppoſed, a pre-exiſting earth reduced by ſome awful calamity to a chaotic ſtate. (See CHAOS.) The earth was covered with deep water, and that water was covered with a thick darkneſs. But "the Spirit of God moved upon the face of the waters," *i. e.* the influences and exertions of the divine power actuated this dark confuſed maſs, and digeſted and reduced its parts to the beautiful ſtate and order in which we now behold them. Some have rendered רוח אלהים, a mighty wind, inſtead of the Spirit of God, which of courſe muſt be conſidered as the agent or inſtrument of divine operation. The firſt ſtep in the recovery of the earth from its chaotic or deſolate ſtate, and the commencement of the ſix days' creation, was the production of light. This operation is expreſſed in the original with a beautiful conciſeneſs and emphaſis, אור־ויהי־אור. יהי, which even Longinus has admired, and better rendered by Wicliffe, than in our tranſlation, "Be light; and light was." The light here mentioned, ſays a learned annotator (Dr. Geddes), may readily be conceived to have been a partial incipient light, which progreſſively penetrating the denſe atmoſphere that enveloped the ſea-covered earth, ſo rarefied and expanded it in the courſe of three days, as to admit the clear and uninterrupted ſight of the celeſtial luminaries. The appearance of light three days before what ſome conceive to have been the creation of the ſun has occaſioned a difficulty, which indeed is not eaſily reſolved upon this hypotheſis. Some, as Dr. Taylor in his "Scripture Divinity,"

Divinity," and the author of "Nature Diſplayed," have adopted the notion that light is a diſtinct ſubſtance from every other, and that it exiſts independently of the ſun and other luminous bodies; and that theſe ſerve merely to excite it. Light, ſay they, exiſts in a ſtate of expanſion or diffuſion through the whole univerſe, and at all times, by night as well as by day; and that, in our ſyſtem, the ſun is the great exciter, by which the ſubſtance of light is impelled, and becomes viſible: and they add, that if no ſubſtance of light previouſly exiſted through the whole ſyſtem, no light would appear, though 10,000 ſuns ſhould at once be placed in our hemiſphere. Hence it is argued, that the element or ſubſtance of light was created on the firſt day, and that the divine power alone might be the exciter, which made the light appear for the three firſt days of creation, until the ſun, the inſtrumental exciter, was produced. "God," ſays the author of "Nature Diſplayed," "and not the ſun, was the author and parent of light, and it was created by his almighty fiat, before there was a ſun to dart it over one part of the earth, and a moon to reflect it on the other." (See alſo Patrick on Gen. i. 3, &c.) But waving any remarks on this hypotheſis, it is more reaſonable to conceive, as others have done, that the light, which was made to appear on the firſt day, was nothing more nor leſs than an emanation from the ſame ſun, previouſly exiſting, that ſtill enlightens us; and which, though it had not yet appeared in its full glory, yet ſhed ſufficient light through the denſe atmoſphere to make the ſurface of the terraqueous globe viſible. This was evidently the idea of Origen, and probably of Baſil alſo. The former affirms, that no one of a ſane mind can imagine, that there was an evening and a morning, during the three firſt days, without a ſun: the latter aſcribes the darkneſs that covered the earth, before the appearance of light, to the interpoſition of a denſe body.

In order to diſpoſe of the waters, which ſtill overſpread the face of the earth, and farther to attenuate the ambient air, God ſaid, on the *ſecond day*, (v. 6.) *Let there be an expanſe*, רקיע from רקע, the primary meaning of which is expanſion, outſtretching, attenuation, elaſticity; which are the properties of our atmoſphere. The word ϛερεωμα, uſed by the Greek tranſlators, and the long prevailing idea that the heavens were a ſolid body, led latter interpreters to render it by the word "firmament;" and this, as well as ϛερεωμα, is admiſſible, if by ſolidity be meant no more than that the fluid atmoſphere has denſity or conſiſtence ſufficient to ſuſtain the waters above it. This is the ſenſe in which St. Baſil underſtood the Greek term, although he had not the Hebrew to direct him to it. In his homily on the ſix days, he calls it a childiſh idea to ſuppoſe any other ſolidity in the firmament than that of a denſe fluid; and he very juſtly obſerves, that as ſuch the ſcripture every where repreſents the lower region of the heavens. The effect of this expanſion was the ſeparation of a part of the waters from the great maſs. The lighter particles were exhaled, rarefied, and carried up into clouds, and formed the element of air. The water contained in thoſe clouds is called the waters above the expanſe, in contradiſtinction to thoſe which ſtill remained upon the earth.

Having now a purer atmoſphere and a clearer ſky, it is farther neceſſary to remove the water that ſtill drenched the earth, and rendered it unfit for production. The *3d day* was aſſigned to this operation. (v. 9—13.) The waters were cauſed to retire into their deſtined receptacles, and left a portion of the chaotic maſs ſo dry as to be fit for vegetation. Accordingly, the earth was veſted in verdure, and repleniſhed with all ſorts of herbs and trees; with inherent powers to re-produce themſelves, and continue their propagation to the end of time.

The next operation was performed on the *4th day*, which ſome have ſuppoſed to have been the creation of the ſun and the moon, and alſo the ſtars; but it is not neceſſary to infer from the hiſtory, that theſe did not exiſt at various intervals before this period. God ſaid, as the hiſtorian proceeds with his detail, (v. 14—19.), *Let there be lights* (or luminaries) in the expanſe of the *heavens to illuminate the earth, and to diſtinguiſh the day from the night; i. e.* let theſe luminaries appear; or let the luminaries, which are in the expanſe of the heavens, be for the purpoſe of illuminating the earth, &c. The ſun and moon are equally called *great* luminaries, from their apparently equal ſize, and not from the degree of light which they give.

On the *5th day* God created all the fiſhes and inhabitants of the waters, and alſo the fowls of the air, (v. 20—23.)

On the *6th day* God made animals, according to their kinds; cattle, wild beaſts, and reptiles; terminating his works of creation with the formation of man in his own image, whom he conſtituted ſovereign of the earth, and whom he provided with a ſuitable companion. See ADAM and EVE.

Many abſurdities have been charged, both by ancient and modern writers, upon the Moſaic account of the creation; ſome of which, we conceive, might have been precluded by reſtricting this account to the formation of the earth into a habitable globe, without extending it to the creation of the ſun, moon, and ſtars, which are here mentioned merely as they bear relation to the earth, and ſerve for its accommodation. According to this interpretation, the operation of the 4th day was not the creation of the ſun, moon, and ſtars, but that of aſſigning to them their appropriate uſe, with reſpect to the new-formed earth. The whole paſſage deſcribing this operation may be read, from a collation of different copies, in the following manner, (v. 14—18.): — "Let there be luminaries in the expanſe of the heavens, to illuminate the earth, and to diſtinguiſh the day from the night; let them, alſo, be the ſignals of terms, times, and years." And let them be for luminaries in the expanſe of the heavens, to illuminate the earth, (conjectured to be an interpolation:) And ſo it was. For God having made the two great luminaries (the greater luminary for the regulation of the day, and the ſmaller luminary for the regulation of the night), and the ſtars; he diſplayed them in the expanſe of the heavens to illuminate the earth, to regulate the day and the night, and to diſtinguiſh the light from the darkneſs." Dr. Geddes, in a note on v. 14, "let there be luminaries, &c." obſerves, that it is not neceſſary to ſuppoſe that theſe luminaries were now firſt created. The text does not ſay ſo; and there are many ſtrong reaſons for believing the contrary. The objection, that may ſeem to ariſe from v. 16, "God made two great lights, &c." in our verſion, has no force but what it derives from theological ſyſtem, and an ignorance of the Hebrew idiom. To *make* is often equivalent to *appoint* to a certain uſe. The luminaries, then, may have long exiſted, and moſt probably did long exiſt before this period; although now, for the firſt time, they ſhone forth in their full ſplendour on this little world of man. The opinion above ſtated, was maintained not only by the moſt learned of the Jewiſh rabbins, but by the moſt learned of the Chriſtian writers. Origen affirms, as we have already obſerved, that "no man of a ſound mind can imagine, that there were an evening and a morning, during the firſt three days, without a ſun." St. Baſil aſcribed the darkneſs that covered the earth, before the appearance of light, to the interpoſition of an opaque body between it and the heavens. In this ſimple hypotheſis, the whole Hebrew coſmogony is clear and conſiſtent. It is plain that the light, if it emanated from the ſun, or were excited by the ſun, could not, even imperfectly, illuminate more than one half of the world at once; and that while that half was illuminated, the other would remain in darkneſs; and this is fitly called "ſeparating the light from the darkneſs;" namely, by that ever-changing boundary the "horizon." But, in order to move this boundary, and to carry alternate light and darkneſs to every part of the globe, it was neceſſary either to make the ſun revolve gradually round the earth, or the earth to turn gradually round its own ſuppoſed axis toward the ſun; which latter motion we now know to be the fact. Light being thus ſeparated from darkneſs by the aforeſaid ideal boundary, they would follow one another without interruption, and produce ſucceſſively thoſe viciſſitudes which we call "day" and "night;" two other terms, only, for "light" and "darkneſs;" and the former, being juſtly conſidered as the principal and moſt precious portion of time, an entire revolution of light and darkneſs was denominated "one day;" the "evening" being the term of "light," and the "morning" the term of "darkneſs."

By the "ſix days," in which the work of creation is ſaid to have been performed, the generality of critics and commentators have underſtood, literally and ſtrictly, ſo many days. Some by theſe days have underſtood as many years; ſome in order to favour a ſlow progreſſive creation, have made one day a period of 1000 years; and others, again, have thought the creation of the world to have been inſtantaneous, and that the number of days mentioned by Moſes is intended only to aſſiſt our conception, who are beſt able to think of things in the order of ſucceſſion. It has alſo been ſuppoſed, that the diſtribution of the work of creation into ſix days, followed by a day of reſt, was deſigned to enforce the obſervance of a weekly ſabbath, both as a day of religious worſhip, and as a day of ſolacing repoſe to the human, and even to the brute creation.

Many among the ancients and moderns have objected to a literal interpretation of the coſmogony of Moſes. Whilſt it has been a ſource of doubts and difficulties to the beſt commentators, it has furniſhed occaſion of indecorous and miſapplied raillery and ridicule to the enemies of revealed religion in all ages. Euſebius, by way of apology for the Moſaic account of the creation, ſays, (Præp. Evang. l. ii. 7.) "that it was not Moſes's intention to give a philoſophical account of the formation of the world, but to ſignify only, that it did not exiſt of itſelf, or by chance, but was the production of an all-wiſe and powerful creator." Cyril makes a ſimilar reply to the ſcoffs of Julian, that Moſes's view was to accommodate his ſtory to the ignorance of the Jews; not to reaſon accurately on the origin of things, but to ſhew that there was one God, who created them all." (Julian, Oper. and Cyril Contr. vol. ii. l. 3. p. 50, &c. Ed. Lipſ.) Philo, (Coſmop. l. i. tom. i. p. 123.) calls it a "piece of ruſtic ſimplicity to imagine, that God really employed the labour of ſix days in the production of things; in which he is followed by Origen, Auſtin, Ambroſe, &c. Accordingly, ſeveral ancient writers have adopted an allegorical interpretation. Joſephus, in the firſt chapter of his "Jewiſh Antiquities," intimates "that the ſtory of the creation was of the allegoric kind." Philo is evidently of the ſame opinion. Among the moderns, and eſpecially among thoſe who have been referred to the claſs of ſceptical writers, the ſame allegorical interpretation has been generally adopted. See Blunt's "Oracles of Reaſon;" Toland's "Pantheiſticon," and "Letters to Serena;" Burnet's "Archæologia (l. ii. c. 8, 9.); Middleton's "Eſſay on the allegorical and literal Interpretation of the Creation and Fall of Man," in his "Works," vol. ii. p. 123—126. and his "Examination of Sherlock's Diſcourſe on Prophecy," in his "Works," vol. iii. p. 192, &c. Dr. Burnet, in particular, maintains, that the Moſaic account was merely a *fable*, though, according to his repreſentation of it, a fable too abſurd for a wiſe man, and much more for an inſpired perſon to have formed. But ſurely there can be no reaſon for admitting this hypotheſis, if the literal interpretation be capable of a philoſophical explanation; more eſpecially as Moſes does not inform us where his fable ends, and where his true hiſtory begins, and as Chriſt and his apoſtles refer to the ſtory of the creation and that of the fall (ſee FALL), inſeparably connected with it, not as an *allegory*, but *true hiſtory*, 2 Cor. iv. 6. xi. 3. 1 Cor. xv. 45. Matt. xix. 4, 5. 1 Tim. ii. 13, 14. 1 Cor. xi. 9. Beſides, it is not very natural to ſuppoſe that God would ſo ſolemnly, from mount Sinai, make the circumſtance of a fable the foundation of the fourth commandment. Exod. xx. 11. Heb. iv. 3, 4.

A late biblical critic (ſee Dr. Geddes's Critical Remarks, vol. i.), rejects both the literal narration and the pure allegory, and alleges that the Moſaic account is a moſt beautiful *mythos*, or philoſophical fiction, contrived with great wiſdom, dreſſed up in the garb of real hiſtory, adapted to the ſhallow intellects of a rude barbarous nation, and perfectly well calculated for the great and good purpoſes for which it was contrived; namely, to eſtabliſh the belief of one ſupreme God and Creator, in oppoſition to the various and wild ſyſtems of idolatry which then prevailed; and to enforce the obſervance of a periodical day to be chiefly devoted to the ſervice of that creator, and the ſolacing repoſe of his creatures. In fact, ſays this writer, what ſtronger motive could be urged to preſerve a people from idolatry, than by ſhewing, in ſo minute a detail, that all the worſhip-objects of the ſurrounding nations were themſelves but mere creatures, the great celeſtial luminaries (moſt probably the firſt objects of adoration) not excepted? He had, no doubt, particularly in view the idolatry of Egypt; where, as Boſſuet elegantly ſays, "Tout étoit Dieu, excepté Dieu même; et cette Terre, qu'il avoit fait, pour y manifeſter ſa gloire, ſembloit être devenue un temple d'Idoles." (Diſc. ſur l'Hiſt. Univ.) Beſide the ſun, moon, and ſtars, they adored the fiſhes of the ſea, the birds of the air, the animals of the earth, and even the herbs of the field, radiſhes, leeks, and onions.

> "O ſanctas gentes! quibus hæc naſcuntur in hortis
> Numina!"

It was then of the utmoſt importance to perſuade the Iſraelites, who had, during their ſtay in Egypt, been more or leſs contaminated by thoſe idolatrous rites, that every plant of the field, fiſh of the ſea, bird of the air, and beaſt of the earth; the whole viſible world, in ſhort, was the production of a ſuperior BEING; to whom alone divine worſhip could be due. In particulariſing the greater quadrupeds, הבהמה, and the great ſea-monſters, התנינם, it is ſuppoſed that he alluded in the former, to the worſhip of Apis in the form of a bull, and in the latter to the crocodile, which, in ſome parts of Egypt, was held in the greateſt veneration. The hypotheſis, ſays Dr. Geddes, of a mere poetical mythos, hiſtorically adapted to the ſenſes and intellects of a rude unphiloſophical people, will remove every obſtacle, obviate every objection, and repel every ſarcaſm; whether it come from a Celſus or Porphyry, a Julian or a Frederic, a Boulanger or a Bolingbroke. See *Theory of the* EARTH, FALL *of Man*, and GENESIS.

CREATION, *Epocha of*. See EPOCHA.

CREATION, in a figurative ſenſe, is uſed to denote a change of character and ſtate. Thus the Jews, whom God by his providence reſcued from the moſt abject ſlavery, and advanced to a new and happy ſtate of being, attended with diſtinguiſhing privileges, enjoyments, and marks of honour, are ſaid to have been created, made, formed, and begotten. Iſ. xliii. 1. 7. 15. 21. xliv. 1, 2. 21. 24. In conſequence of this creation, they received a being or exiſtence. Iſ. lxiii. 19. 1 Cor. i. 28. Thus alſo, when God formed believing Jews and Gentiles into one body, and brought the Gentiles out of darkneſs and idolatry into a new and happy ſtate of exiſtence, he is ſaid to create and make them, and they are his work and workmanſhip. Eph. ii. 10. 15. Col. iii. 10. Jam. i. 18. And as God hath created us Chriſtians, and made us to live, we have received a new exiſtence. 1 Cor. i. 20. 2 Cor. v. 17. Accordingly, the new ſtate of life into which Chriſtians are brought under the goſpel, by its doctrines and motives, and the agency of a divine ſpirit, is called the new creation in Chriſt Jeſus. Many paſſages might be cited, in order to ſhew that the term creation is applied, in a moral or ſpiritual ſenſe, to a change of principles, character, and ſtate. As ignorance, vice, and guilt are, if we may ſo expreſs it, the chaos of an intelligent, moral, accountable, and immortal being, a recovery from this ſtate to knowledge, holineſs, pardon, and hope, may be fitly denominated a new creation. And as God is the primary cauſe of this change, and we are the ſubjects of it, he is our creator, and we are his creatures. Chriſtianity, the appointed means and powerful inſtrument of producing it, is, in reference to its effects, a new creation.

CREBILLON, PROSPER JOLYOT DE, in *Biography*, a celebrated French tragic poet, was born at Dijon the 15th of February, 1674, educated at the College Mazarin in Paris, and brought up for the bar. The lawyer, with whom he was placed for that purpoſe, obſerving the impetuoſity of his paſſions, urged him to attempt dramatic compoſitions. His two firſt tragedies were "Idomenée," and "Atrée." Both met with great ſucceſs. In the midſt of his triumphant career as a dramatic poet, he married an apothecary's daughter, againſt the conſent of his father, who diſinherited him; but re-eſtabliſhed him in his rights a ſhort time before his death, which happened in 1707. Crebillon, however, was not benefited by this circumſtance; the fortune of his father being hardly able to pay his debts. A few years after, the death of his wife added to the troubles of the poet, who continued involved in diſtreſs, until he obtained the employment of cenſor of the police, and, in 1731, a place in the French academy. The ſpeech which he delivered at his reception was in verſe.

Crebillon's manner of life was extremely ſingular. He ſlept little, and lay very hard: he was always ſurrounded with about thirty dogs and cats; and uſed to ſmoke tobacco, to keep his room ſweet againſt their exhalations. He made a jeſt of phyſic and phyſicians; and was for a long time afflicted with the eryſipelas in his legs, which brought him at laſt to his grave, on the 17th of June, 1762, when he was 88 years old.

Crebillon was of a cheerful temper. Being one day aſked, in a large company, which of his works he thought the beſt? "I don't know," anſwered he, "which is my beſt production; but this (pointing to his ſon, who was preſent) is certainly my worſt."—"It is," replied the ſon, with vivacity, "becauſe no Carthuſian had a hand in it:" alluding to the report, that the beſt paſſages in his father's tragedies had been written by a Carthuſian friar, who was his friend. Terror is the predominant character of Crebillon's tragedies. Being aſked for the reaſon of this peculiarity, he replied, "I had no choice: Corneille has exhauſted heaven; Racine, the earth; I had nothing left but hell, and I have thrown myſelf headlong into it." His "Atrée" was performed eighteen nights running. An Engliſhman, who was at its firſt repreſentation, obſerved that this tragedy was better calculated for the London than for the Paris ſtage; and that, although an Engliſhman, he had ſhuddered with horror at the cup-full of blood. "Electre" had leſs ſucceſs; "Rhadamiſte," in 1711, was performed thirty times, and ran through two editions in a week; "Xerxes," in 1714, had but two repreſentations; "Semiramis," in 1717, was much criticiſed; "Pyrrhus" had ſome ſucceſs when it came out, but failed when it was again performed in 1778; "Catilina" was performed in 1749, when Crebillon was 72 years old; and he wrote the "Triumvirate," his laſt tragedy, when he was 80 years of age.

Crebillon's ſtyle is unequal and incorrect: he has been much criticiſed on that account by Boileau, who witneſſed his firſt ſucceſſes, and by Voltaire, to whom he was oppoſed as a rival for dramatic fame. In order to remove Voltaire from court, Crebillon was recommended as a ſuperior poet to Madame de Pompadour. Hearing that he was poor, this lady obtained for him a penſion of 2400 French livres. When Crebillon went to thank his patroneſs, ſhe received him uncommonly well, being ſtruck with his venerable and intereſting figure; but ſhe was in bed, and at the inſtant the old poet was kiſſing her hand, the king entered the room. "Alas! Madame!" exclaimed Crebillon, "the king has ſurpriſed us: I am undone." This exclamation, from the mouth of an old man of 80, diverted Louis XV. exceedingly. The monarch zealouſly patronized Crebillon ever ſince, got his works printed at the preſs of the Louvre, and, after his death, erected a marble monument to his memory in the church of St. Gervais, where his remains are interred.

The beſt editions of Crebillon, beſides that of the Louvre, in 2 vols. 4to., are that of 1759, in 2 vols. 12mo.; that of 1772, in 3 very neat volumes, ſmall 12mo.; that of 1785, in 3 vols., 8vo., with cuts; and the laſt Paris edition by Deſray, publiſhed a few years ago.

Laharpe, in his "Cours de Litérature," pronounces that Crebillon, though a bad writer, will maintain his ſtation among men of genius, but cannot be ranked in the claſs of maſters and models. Marmontel calls his verſes *âpres et durs*, ſtiff and harſh. Nouveau Dictionnaire Hiſtorique. Mémoires de Marmontel.

CREBILLON, CLAUDE PROSPER JOLYOT DE, ſon of the poet, was born at Paris on the 12th of February, 1707, and died on the 12th of April, 1777, at the age of 70. If his father has ſometimes been called the Æſchylus of the French, he may be denominated their Petronius. With a maſterly hand he has delineated in his novels the vices, follies, and levity of the French. His ſtyle is rather defective; but his works betray an intimate knowledge of the moſt hidden receſſes of the human heart. He lived with his father as with a friend and brother. His marriage with an Engliſh woman, of which the poet diſapproved, cauſed but a very ſlight altercation between them.

The principal works of Crebillon the Younger are, "Tangaï & Néadarné;" "Les Egaremens du Coeur et de l'Eſprit;" "Le Sopha;" and "Les Lettres Athéniennes." A complete edition of them has been publiſhed in 1779, in 11 vols., 12mo. Nouveau Dictionnaire Hiſtorique.

CRECCA, in *Ornithology*, the ANAS *crecca*, with a green ſpot on the wings, and a white line above and below the eyes; the common teal of Engliſh writers. See ANAS and TEAL.

CRECCHIO, in *Geography*, a town of Naples, in the province of Abruzzo Citra; 10 miles E. of Civita di Chieti.

CRECY, or, as it is improperly ſpelled in Engliſh, *Creſſy*, a ſmall town of France, in the department of the Somme, 36 miles N.W. of Amiens, and 120 N. of Paris, chief place of a canton, in the diſtrict of Abbeville, with 1378 inhabitants.

habitants. The canton has 25 communes, and a population of 12,317 individuals, upon a territorial extent of 217 kiliometres and a half. There was anciently near this place a royal ſeat, called *Crécy en Ponthieu*, *Creciacum in Pontivo*, famous for the battle which was fought here, in 1346, between Philippe de Valois, king of France, and Edward, king of England.

The king of France, hearing that Edward had made a ſtand at this place, and dreading nothing ſo much as the eſcape of the Engliſh, began the march of his great army from Abbeville early in the morning of the 26th of Auguſt, and continued it for ſeveral hours with great eagerneſs; but was adviſed not to engage, on account of the fatigue of his troops. His orders for halting were, however, not obeyed. Edward had employed the forenoon in drawing up his army in three lines. The firſt, which conſiſted of 800 men at arms, 4000 Engliſh archers, and 600 Welſh foot, was commanded by his heroic ſon, the prince of Wales, aſſiſted by the earls of Warwick and Oxford; the ſecond line, compoſed of 800 men at arms, 4000 halbardiers, and 2400 archers, was led by the earls of Arundel and Northampton; the laſt line, or body of reſerve, in which were 700 men at arms, 5300 billmen, and 6000 archers, was ranged along the ſummit of the hill, and conducted by the Engliſh king in perſon. When the army was completely formed, Edward rode along the lines, and by his words and looks inſpired his troops with the ſtrongeſt hopes of victory. He then commanded the cavalry to diſmount, and the whole army to ſit down upon the graſs in their ranks, and refreſh themſelves. As ſoon as the French army came in view, they ſprang from the ground, ready to receive them.

The king of France, aſſiſted by the kings of Bohemia and Majorca, the dukes of Lorraine and Savoy, and ſeveral other ſovereign princes, with the flower of the French nobility, laboured to reſtore ſome degree of order to his large army, and drew it up alſo in three lines, but very indiſtinctly formed. The firſt line was commanded in chief by the king of Bohemia; the ſecond by the earl of Alençon, brother to the king of France; and the third by the king in perſon. Each of theſe lines contained a greater number of troops than the whole Engliſh army.

The battle was begun about 3 o'clock in the afternoon by a body of Genoeſe croſs-bowmen in the French ſervice, who, letting their weapons fly at too great a diſtance, were preſently routed by a ſhower of arrows from the Engliſh archers. The earl of Alençon, after trampling to death many of the flying Genoeſe, made a furious attack on the corps commanded by the prince of Wales. The earls of Arundel and Northampton advanced with the ſecond line to ſuſtain the prince. The battle raged for ſome time with uncommon fury. Anxious for the ſafety of the prince, the earl of Warwick ſent to intreat the king to advance with the third line. But Edward, who had taken his ſtand on the top of the hill, from whence he had a full view of both armies, aſked the meſſenger whether his ſon was unhorſed, wounded, or killed; and being anſwered that he was unhurt, and performed prodigies of valour: "Go, then," ſaid the king, "and tell my ſon and his brave companions, that I will not deprive them of any part of the glory of their victory." This flattering meſſage inſpired the prince and his troops with redoubled ardour. The king of Bohemia, the earl of Alençon, and many other noblemen, being ſlain, the whole firſt and ſecond line of the French were put to the flight. Undiſmayed at the ſlaughter of his troops, and at the fall of ſo many princes, the French king advanced to the charge with the line under his immediate command. But it ſoon ſhared the ſame fate with the other two. Philippe, unhorſed and wounded, was carried off the field by John de Hainault. Of his mighty army, which at the commencement of the battle conſiſted of 120,000 men, only five knights and about 60 ſoldiers fled with him. Such was the celebrated victory of Crécy, the greateſt ever gained by any king of England. Henry's Hiſtory of England.—There is another Crecy, a ſmall town of France, in the department of Seine and Marne, in the diſtrict of Meaux, with 1007 inhabitants. It is ſituated 3 miles S. of Meaux, and is the chief place of a canton, which, upon a territorial extent of 145 kiliometres, has 23 communes and 12,725 inhabitants.

CRE'CY *ſur Serre*, a ſmall town of France, in the department of Aiſne, on the river Serre, which flows into the Oiſe, 9 miles N.W. of Laon, and 15 miles S. of Guiſe. It is the chief place of a canton, in the diſtrict of Laon. Its population amounts to 1862 individuals. The canton itſelf has 22 communes, 10,695 inhabitants, and a territorial extent of 167 kiliometres and a half.

CREDAN HEAD, a cape of Ireland, on the weſt coaſt of Waterford harbour. W. long. 6° 59′. N. lat. 52° 10′.

CREDDY, a river of England, which runs into the Ex, near Exeter.

CREDENCE TABLE, from *Credentia*, low Latin, "Tabula ſeu menſa in quâ vaſa ad convivia reponuntur," Du Cange; a ſmall table placed on the right hand ſide of the high altar, in Roman Catholic churches, for the purpoſe of holding ſeveral articles made uſe of in the ſervice of the maſs. Cæremoniale Epiſcop. lib. i. cap. 12.

CREDENTIALS, letters of credit and recommendation; eſpecially ſuch as are given to ambaſſadors, plenipotentiaries, &c. ſent to foreign courts.

CREDI, DI, LORENZO, in *Biography*, a Florentine painter, born in 1452. His family name was *Sciarpelloni*; but being placed, when young, under a goldſmith called Credi, he aſſumed that name, according to the ancient Florentine cuſtom. He afterwards entered the ſtudy of And. Verrochio, and, with the exception of his condiſciple, the celebrated Lionardo da Vinci, may be conſidered the beſt ſcholar of that maſter. His works were deſigned with great diligence, and painted with a delicacy and neatneſs which are peculiar to him; inſomuch that his picture of the S. S. Nicolo and Giuliano, in the church of Sta. Maria Maddalene at Florence, is adduced by Vaſari as an example of clear and beautiful execution. He ſometimes is ſaid to have copied the works of Lionardo with ſuch wonderful exactneſs, that the original could not be diſtinguiſhed from the imitation. His ſtyle appears to unite ſomething of the early manner of Da Vinci with that of Pietro Perugino, the other friend of Credi; but he never attained the boldneſs and breadth of chiaro-ſcuro which characterized the works of Lionardo, although he continued to live many years after the deceaſe of that great artiſt. His moſt celebrated picture is the Nativity, in the church of St. Chiara at Florence. Several circular pictures of the Holy Family, by this artiſt, are diſperſed in that city, which unite a conſiderable portion of grace to ſome originality of deſign. He died in 1530. Lanzi. Orlandi.

CREDIBILITY, a quality in objects whereby they become fit to be believed. See FAITH.

A thing is ſaid to be credible, which is not apparent of itſelf, nor is certainly to be inferred either from the cauſe or effect: and yet has the atteſtation of a truth. Things which appear immediately true, as the whiteneſs of ſnow, or that the whole is equal to its parts; are not ſaid to be credible, but evident. Thoſe to which we only give our aſſent in virtue of ſome competent authority or teſtimony of others, are, by the ſchoolmen, ſaid to be credible. In the Philoſophical Tranſactions we have a mathematical computation of the credibility of human teſtimony. See Evidence.

CREDIT, in *Commerce*, a mutual truſt or loan of merchandize or money, on the reputation of the probity and ſolvability of a dealer.

Credit is either *public* or *private;* the latter being that of individuals, and the former belonging to individuals connected by ſocial intercourſe, and forming communities or nations.

Every trader ought to have ſome eſtate, ſtock, or portion of his own, ſufficient to carry on the traffic he is engaged in: they ſhould alſo keep their dealings within the extent of their capital, ſo that no diſappointment in their returns may incapacitate them from ſupporting their credit. Yet traders of worth and judgment may ſometimes lie under the neceſſity of borrowing money for carrying on their buſineſs to the beſt advantage; but then the borrower ought to be ſo juſt to his own reputation and to his creditors, as to be well aſſured that he has ſufficient effects within his power, to pay off his obligations in due time. But if a trader ſhould borrow money to the extent of his credit, and launch out into trade, ſo as to employ it with the ſame freedom as if it was his own proper ſtock; ſuch a way of management is very precarious, and may be attended with dangerous conſequences. Merchants ought never to purchaſe their goods for exportation upon long credit, with intent to diſcharge the debt by the return of the ſame goods; for this has an injurious influence on trade ſeveral ways: and if any merchant has occaſion to make uſe of his credit, it ſhould always be for the borrowing of money, but never for the buying of goods; nor is the large credit given to wholeſale traders, a prudential or juſtifiable practice in trade.

The public credit of a nation is ſaid to run high, when the commodities of that nation find a ready vent, are ſold at a good price, and when dealers may be ſafely truſted with them: alſo when lands and houſes find ready purchaſers; when money may be eaſily obtained for commercial purpoſes, the promotion of important objects of a national kind, or the ſervice of the ſtate; and when it may be borrowed either at a low intereſt or without difficulty on higher terms; when people think it ſafe and advantageous to venture large ſtocks in trade; and when notes, mortgages, &c. will paſs for money. See Bank and Paper Money.

Credit, *letters of*, are thoſe given to perſons in whom a merchant, &c. can truſt, to take money of his correſpondent abroad, in caſe they happen to need it.

Credit is alſo uſed for the currency which paper, or bills, have with the public, or among dealers.

In this ſenſe, credit is ſaid to riſe, when in negotiating the ſhares of a company, they are received and ſold at prices above *par*, or the ſtandard of their firſt creation.

Diſcredit is oppoſed to credit, and is uſed where money, bills, &c. fall below *par*. Theſe terms, however, are uſed in a more lax ſenſe, when they are applied to the riſe or fall of the ſhares or ſtocks of any public company, whether they were at, above, or below *par*. The gage of public credit in England was formerly the riſe and fall of its public or national funds; but ſince the plan of annexing to any capital borrowed and funded, a certain ſum deſigned to form a ſinking fund for liquidating or reducing it, has been adopted by modern policy, and the gradual increaſe of this fund is regularly applied to the purchaſe of floating ſtock, the funds admit of very little advancement or depreſſion; and of courſe they are a leſs deciſive criterion of the ſtate of public credit. See *National* Debt and Fund.

Credit was alſo anciently a right which lords had over their vaſſals; conſiſting in this, that during a certain time they might oblige them to lend them money.

CREDITON, commonly called Kirton, in *Geography*, is an ancient and populous town in Devonſhire, England, ſituated near the river Creedy, between two hills; one of which riſes gradually towards the north, the other, with a quicker aſcent ſouthward, overlooks the tops of the houſes. The town is divided into two parts, diſtinguiſhed by the appellations of the Eaſt Town and the Weſt; the latter was formerly of much greater extent than at preſent, upwards of 450 houſes having been conſumed by fire in the year 1743; and when in ſome degree reſtored, many of the new buildings, with the market houſe and ſhambles, were again deſtroyed by a ſecond fire in 1769, but have ſince been rebuilt in a handſome manner. Crediton was probably of conſiderable note in the Saxon times; twelve biſhops having ſucceſſively their ſeats here between the years 924 and 1049, when the ſee was removed to Exeter. The old church or cathedral was ſituated, according to Leland, on the ſpot which is now occupied by houſes on the ſide of the burial ground; but no part of it is now remaining. From the time of the removal of the ſee, there continued a chapter, under the peculiar patronage and juriſdiction of the biſhops of Exeter. After the diſſolution, the ſite of the college was granted by Henry VIII. to Elizabeth counteſs of Bute and ſir Thomas d'Arcy; but the church with its appropriate lands was given by Edward VI. to the maſter and governors of the free grammar ſchool, which about that time was eſtabliſhed in this town. The preſent church is a very ſpacious ſtructure, built in the form of a croſs, with a tower riſing at the interſection of the nave and tranſept, and ſupported by four pillars of uncommon magnitude. The interior diſplays particular neatneſs, being furniſhed with a raiſed floor, and covered with pews of the beſt wainſcot. The eaſt and weſt windows are very large, and are adorned with rich tracery. Beſides the grammar ſchool above-mentioned, here are a free Engliſh ſchool, a charity ſchool, and two Sunday ſchools, Crediton is 180 miles W. from London; contains 1903 houſes, and 4929 inhabitants: many of whom derive their ſupport from the manufacture of ſerges, which is carried on here to a conſiderable extent. There are three annual fairs; and a weekly market on Saturdays where vaſt quantities of wool, yarn, and all kinds of proviſions are ſold. The town is governed by a Portreve; and was once repreſented in parliament, 35 Edward I.

A degree of celebrity attached to it, as being the birth place of Winiford, ſurnamed Boniface, archbiſhop of Mentz, who flouriſhed in the 8th century. "Hiſtory, &c. of Devonſhire, by R. Polwhele," fo.

CREDITOR, a perſon to whom any ſum of money is due, either by obligation, promiſe, or otherwiſe.

The laws of the Twelve Tables, which were the foundation of the Roman juriſprudence, allowed the creditor to tear or cut his debtor to pieces, in caſe he proved inſolvent. See Bankrupt.

Creditor, in *Book-keeping*. See Book-keeping.

CREDO, *the grand*, in *Geography*, is the name given to the ſouthern part of Mont Blanc, between Gex and Bourg, in the department of the Ain.

CREDULITY denotes a weakneſs of mind, by reaſon of which a perſon yields his aſſent to propoſitions or facts, before he has conſidered their evidence. See Evidence.

CREE, in *Geography*, a river of Scotland, which riſes in the S.E. part of Ayrſhire, ſeparates Kircudbright from Wigtownſhire, and diſcharges itſelf into Wigtown bay. There is a ſmall village on the E. ſide of Wigtown bay, near the mouth of the river Cree, which is navigable ſome miles higher to Carty port, near Newton-ſtewart, a conſiderable village, pleaſantly ſituated in a fertile country, abounding with all the real neceſſaries of life, particularly extenſive woods of full-grown trees, which overhang the banks of the Cree, and the waters which fall into it from the North.

Cree *Indians*, Indians of North America, who occupy the diſtrict W. of little lake Winnipeg, and fort Dauphin, in upper Canada.

CREECH, Thomas, in *Biography*, chiefly celebrated for his poetical tranſlations, was born in 1659 at Blandford in Dorſetſhire. He was inducted into grammar learning at the free-ſchool of Sherborne, and from thence he went to Wadham college, Oxford. In 1683 he took his degree of M.A., but he had already publiſhed his tranſlation of Lucretius, by which he eſtabliſhed his reputation as a ſcholar; and on account of which he was probably elected probationer-fellow of All-ſouls college. Creech tranſlated many other pieces from the ancient writers; as parts of Ovid and Virgil; the greater portion of Horace, one of Juvenal's ſatires, and the Idylliums of Theocritus. This laſt he dedicated to his old maſter who had inſtructed him in the knowledge of the languages. In the year 1699 he was preſented to the rectory of Welwyn in Hertfordſhire, but put an end to his life before he took poſſeſſion of it. It is not perfectly aſcertained what led to this fatal cataſtrophe; ſome have thought it the effect of diſappointed love, but others with more reaſon imputed it to certain pecuniary embarraſſments, and the cold reception which he met with from a friend to whom he applied for aſſiſtance. He was found hanging in his ſtudy three days probably after he had committed the raſh action. He is ſaid to have been of a very moroſe temper, which engaged him in many diſputes. Biog. Brit.

Creech-*Hill*, in *Geography*, a remarkable eminence in the iſland of Purbeck in Dorſetſhire. In the government trigonometrical ſurvey in 1794 the ſituation of the ancient barrow on this hill was determined, by an obſervation from Nine Barrow down, diſtant 24,163 feet and bearing 83° 0′ 57″ S.E. from the parallel to the meridian of Dunnoſe, and another from Wingreen, diſtant 125,534 feet; whence is deduced its latitude 50° 38′ 1″.7 N., and its longitude 2° 6′ 14″.9, or 8^m 25^s W. of Greenwich.

CREED, Credo, a ſhort or ſummary account of the chief articles of the Chriſtian faith; thus called from the firſt word thereof in Latin, *credo*, *I believe*. See Symbol.

The principal of theſe creeds are the *Apoſtles'*, the *Athanaſian*, and the *Nicene*.

Creed, *Apoſtles'*, is ſo called, becauſe for many ages it was believed to have been framed by the apoſtles before they left Jeruſalem. The firſt perſon who gave this account of its original was St. Ambroſe, towards the latter end of the fourth century; in which he is followed by Ruffinus, Jerom, and ſeveral others: and ſome have even aſſerted, that each apoſtle ſupplied his particular article; and according to the number of the Apoſtles, the creed was divided into 12 articles, one article being aſſigned to each Apoſtle. (See Symbol.) But there are many reaſons why this account cannot be admitted: if a creed of ſuch high authority had exiſted in the Chriſtian church, it is reaſonable to ſuppoſe that it would have been mentioned by St. Luke in the hiſtory of the Acts of the Apoſtles, or by ſome of the earlier writers in the four firſt centuries, before the time of St. Ambroſe; that it would have been referred to as a ſtandard of doctrine by the more ancient councils; and that it would have ſuperſeded the neceſſity of compoſing new creeds, which was done on many occaſions. Beſides, the ſeveral copies of this creed, of which the principal are the vulgar or Roman, the Aquileian, and the Oriental, differ from one another in many articles; and this difference cannot eaſily be reconciled with the notion, that it was framed by the apoſtles, and tranſmitted from them to their ſucceſſors. To which we may add, that ſome of the articles contained in it were inſerted in oppoſition to errors that ſprung up in the Chriſtian church, long after the time of the apoſtles. However, this creed is a very ancient compoſition, and upon the whole an unexceptionable ſummary of the Chriſtian doctrine, and much ſuperior to compoſitions of a ſimilar kind of later date. It might in part have been tranſmitted down from the apoſtles, and afterwards gradually enlarged in its preſent form as hereſies aroſe and occaſion required. Although the exact form of the preſent creed cannot pretend to be ſo ancient as the time of the apoſtles by 400 years; yet a form not very different from it was uſed long before, as we learn from Irenæus and Tertullian. It ſeems, however, that, in the firſt ages of Chriſtianity, every church was at liberty to expreſs the fundamental articles of the Chriſtian faith in any manner, which was thought fit *pro re natâ*, or as occaſion offered. After its introduction, this creed was received in all ages with the greateſt veneration and eſteem, and for ſeveral centuries, ſuch deference was paid to it, that it was not only uſed at the adminiſtration of baptiſm, but it was uſually, if not always, read in every public aſſembly as the ſtandard and baſis of the Chriſtian faith, to which the whole congregation teſtified aſſent by ſaying "Amen." The primitive Chriſtians, however, affected an unaccountable ſecrecy in their faith and worſhip, and, therefore, did not in their aſſemblies publicly recite the creed, except at the times of baptiſm, which, unleſs caſes of neceſſity occurred, were only at Eaſter and Whitſuntide; ſo that the conſtant repetition of the creed in the church was not introduced till a long time after our Saviour's incarnation. The repetition of a creed at every aſſembly was appointed in the eaſtern church by Timothy, archbiſhop of Conſtantinople in the reign of Anaſtaſius, who died A.D. 521; but before this time the creed was only repeated on the day immediately preceding Good Friday, and its repetition on that day was firſt appointed by the 46th canon of the council of Laodicea. In the weſtern churches the general and conſtant reading of the creed does not ſeem to have prevailed, till almoſt 590 years after Chriſt, when the third council of Toledo enjoined, that the creed ſhould be repeated with a loud voice every Lord's day. The creed thus appointed to be read, both by archbiſhop Timothy and the council of Toledo, was the Nicene or Conſtantinopolitan creed, which, for reaſons peculiar to that age, in ſome meaſure eclipſed the Apoſtles' creed, although in a little time this latter recovered its former value and eſtimation. Lord King's Crit. Hiſt. of the Apoſtles' Creed.

Creed, *Athanaſian*, has been falſely attributed to Athanasius, biſhop of Alexandria, who lived and wrote in the fourth century, and who died A. D. 373: it is neither mentioned nor referred to in any of his genuine works; nor is it likely that he ſhould himſelf compoſe a creed, as he and all the orthodox divines of thoſe times conſtantly refer to the Nicene creed as the ſtandard of their faith. No notice is taken of it by writers who immediately ſucceeded him; it was never appealed to for the deciſion of the controverſy relating to the proceſſion of the Spirit between the Eaſtern and Weſtern churches, in the ſeventh and ninth centuries; it condemns the Macedonian, Neſtorian, and Eutychian hereſies; but as it is never mentioned in thoſe controverſies, we may conclude that it did not then exiſt: nor is it quoted, ſay ſome, till one thouſand years after Chriſt. Accordingly, the learned Dr. Cave ſays (Hiſt. Lit.) that it never was cited till about the year 800, above 400 years after the death of Athanaſius, and that it was not received in the church till ſo very late as about the year 1000. Indeed Dr. Waterland, in his "Hiſtory of the Creed," intimates, that it was written by ſome perſon about 60 years after the death of Athanaſius; but he allows that it did not appear in the churches till a century or two after. It had never the ſanction of any council, and it is doubtful whether it was ever admitted into the Eaſtern church. Fabricius is of opinion that it was firſt written in Latin long after the fifth century, and afterwards tranſlated into Greek. It is appointed to be read in the ſervice of the church of England thirteen times in the year. Voſſii Diſſ. de Symbolis. Fabr. Bib. Græc. vol. v.

As to the uncharitable and damnatory clauſes of this creed, they ſeem to have been reprobated by the moſt eminent men in the church, and even by thoſe who profeſs to believe the doctrines that are contained in it. It ſeems to have been one of the principal reaſons of Mr. Chillingworth's long perſiſting in his refuſal to ſubſcribe the 39 articles; and he was one of the brighteſt ornaments and ableſt defenders (ſays Dr. Clarke) the proteſtant cauſe ever had. Of the damning ſentences in this creed he obſerves, that they are not only falſe, but in a high degree preſumptuous and ſchiſmatical. "The account given of Athanaſius's creed," ſays the excellent archbiſhop Tillotſon, in a letter written from Lambeth, Oct. 23, 1694, to a right reverend prelate, "ſeems to me nowiſe ſatisfactory; I wiſh we were well rid of it." The learned biſhop Taylor in his "Liberty of Propheſying," (Sect. ii. § 36.) has the following obſervation reſpecting it: "If it were conſidered concerning Athanaſius's creed, how many people underſtand it not, how contrary to natural reaſon it ſeems, how little the ſcripture ſays of thoſe curioſities of explication, and how tradition was not clear on his ſide for the article itſelf, much leſs for thoſe forms and minutes: it had not been amiſs if the final judgment had been left to Jeſus Chriſt: and indeed to me it ſeems very hard to put uncharitableneſs into the creed, and ſo to make it become as an article of faith." "It certainly is to be lamented," ſays Dr. Tomline, the preſent biſhop of Lincoln, in his "Elements of Chriſtian Theology," (vol. ii. p. 220.) "that aſſertions of ſo peremptory a nature," referring to the damnatory clauſes, "unexplained and unqualified, ſhould have been uſed in any human compoſition." "I am ready to acknowledge (p. 222.) that, in my judgment, notwithſtanding the authority of former times, our church would have acted more wiſely, and more conſiſtently with its general principles of mildneſs and toleration, if it had not adopted the damnatory clauſes of the Athanaſian creed. Though I firmly believe that the doctrines themſelves of this creed are all founded on ſcripture, I cannot but conceive it to be both unneceſſary and preſumptuous to ſay that "except every one do keep them whole and undefiled, without doubt he ſhall periſh everlaſtingly." Dr. Horſley, the late biſhop of St. Aſaph, avowed ſimilar ſentiments.

Creed, *Nicene*, was compoſed and eſtabliſhed as a proper ſummary of the Chriſtian faith by the council at Nice, A. D. 325, againſt the Arians. This is alſo called the Conſtantinopolitan *creed*, becauſe it was confirmed with ſome few alterations by the council of Conſtantinople, A. D. 381. The greater part of this creed, *viz.* as far as the words "Holy Ghoſt" was formed and ſettled by the council of Nice; which council alſo added the following clauſe: "The holy catholic and apoſtolic church anathematizes thoſe who ſay there was a time when the Son of God was not, and that before he was begotten he was not, and that he was made out of nothing, or out of another ſubſtance or eſſence, and is created, or changeable, or alterable." (Socrat. Ecc. Hiſt. i. 8.) Our church hath dropped the anathematizing clauſes at the end; and one cannot help wiſhing, ſays Dr. Jortin, that the Nicene fathers had done the ſame: the reſt of this creed, after "Holy Ghoſt," was added at the council of Conſtantinople, except the words "and the Son," which follow the words "who proceedeth from the father;" and they were inſerted A. D. 447. The addition made at Conſtantinople was occaſioned by the denial of the divinity of the Holy Ghoſt by Macedonius and his followers; and the creed thus enlarged was immediately received by all orthodox Chriſtians. The inſertion of the words "and the Son" was made by the Spaniſh biſhops, and they were ſoon after adopted by the Chriſtians in France. The biſhops of Rome for ſome time refuſed to admit theſe words into the creed; but at laſt, in the year 883, when Nicholas I. was pope, they were allowed, and from that time they have ſtood in the Nicene creed, in all the weſtern churches, but the Greek church has never received them.

Theſe three creeds are enjoined by the eighth article of the church of England, "thoroughly to be received and believed, for they may be proved by moſt certain warrants of Holy Scripture;" they are uſed in the public offices of the church; and ſubſcription to them is required of the clergy, and as the law formerly ſtood of diſſenting teachers properly qualified under the toleration act. See Toleration.

CREEK, a part of a haven where any thing is landed from the ſea. So many landing places as there are in a harbour or port, ſo many creeks there are.

It is alſo ſaid to be a ſhore or bank whereon the water beats, running in a ſmall channel from any part of the ſea; from the Latin *crepido*. This word is uſed in the ſtat. 4 Hen. IV. c. 20. and 5 Eliz. c. 5.

Creek *Moor*, in Dorſetſhire, is a wharf at the northern extremity of Pool harbour, in the road between Pool and Lyonett Minſter. See Canal.

Creeks, or Creek *Confederacy*, an Indian nation of America, ſo called from the creeks and rivulets with which their country abounds, and known alſo by the names of *Muſkogulges*, and *Muſkogees*, which inhabits the middle parts of Georgia. The country they claim is bounded N. by the 34th degree of latitude, and extends from the Tombigbee river to the Atlantic ocean, though they have by different treaties ceded a part of the tract on the ſea-coaſt to the ſtate of Georgia. The weſtern line of their ſettlements and villages is formed by the Cooſa river, and its main branches; but their hunting grounds extend 200 miles further to the Tombigbee, which ſeparates their country from the Chactaws. Their territory is naturally divided into three diſtricts, *viz.* the Upper Creeks, Lower and Middle Creeks, and Seminoles. The upper diſtrict includes all the waters of the Tallapooſee, Cooſahatchee, and Alabama rivers, and is called the Abbacoes. The lower or middle diſtrict includes all the waters of the Chattahooſee and Flint rivers, down to their junction; and although occupied by a great number of different tribes, they are altogether called Cowetaulgas, or Coweta people, from the Cowetan town and tribe, the moſt ancient and warlike of any in the whole nation. The lower or ſouthern diſtrict takes in the river Appalachicola, extends to the point of Eaſt Florida, and is called the country of the Seminoles. The Creeks or Muſkogulges reckon 55 towns beſides villages; and they have eſtabliſhed a powerful empire upon the ruins of that of the Natchez. After their emigration from the weſt, beyond the Miſſiſſippi, their original native country, they firſt ſettled on the Oakmulge fields; and gradually ſubduing their ſurrounding enemies, they ſtrengthened themſelves by admitting into their confederacy the vanquiſhed tribes; thus they rendered themſelves victorious over the Chactaws, and formidable to all the nations around them. The ſmalleſt of their towns contain from 20 to 30 houſes, and ſome from 150 to 200. Theſe houſes ſtand in cluſters of 4, 5, 6, 7, and 8 together, irregularly diſtributed along the banks of the rivers or ſmall ſtreams. Each cluſter of houſes contains a clan, or family, of relatives, who eat and live in common. Each town has a public ſquare, hot-houſe and yard near the centre of it, appropriate to various public uſes. The principal towns of the upper and lower Creeks that have theſe public ſquares, beginning at the head of the Cooſa, or Cooſa Hatcha river, are Upper Utalas, Abbacoochees, Natchez, Cooſas, Oteetooheenas, Pinc Catchas, Pocuntullahaſes, Weeokes, Little Talaſsie, Tuſkeegees, Cooſadas, Alabamas, Tawaſas, Pawactas, Autobas, Auhoba, Weelumpkees Big, Weelumpkees Little, Wacacoys, Wackſoy, and Ochees; the following towns are in the central, inland, and high country, between the Cooſa and Tallapooſee rivers, in the diſtrict called the Hillabees, *viz.* Hillabees, Killeegko, Oakchoys, Slakagulgas, and Wacacoys. On the waters of the Tallapooſee, from the head of the river downward, are the following: *viz.* Tackabotchee, Tehaſſa, Totacaga, New-York, Chalaacpaulley, Loguſpogus, Oakſuſkee, Ufala Little, Ufala Big, Sogahatches, Tuckabatchees, Big Tallaſſee, or half-way-houſe, Clewaleys, Cooſahatches, Coolamus, Shawaneſe or Savannas, Kenhalka, and Muckeleſes. The towns of the Lower Creeks, beginning on the two waters of the Chattahooſee, and ſo downwards, are Chelu Ninny, Chattahooſee, Hohtatoga, Cowetas, Cuſſitahs, Chalagatſcoor, Broken Arrow, Euchees Several, Hitchatees Several, Palachuolo, and Chewackala: beſides 20 towns and villages of the little and big Chehaus, low down on Flint and Chattahooſee rivers: their country is hilly, but not mountainous, and the ſoil is very fertile and well watered, their agriculture is as far advanced as it well can be, without the proper implements of huſbandry. They cultivate tobacco, rice, Indian corn, potatoes, beans, peaſe, cabbage, melons, and have plenty of peaches, plums, grapes, ſtrawberries, and other fruits. A very large majority of the natives being devoted to hunting in the winter, and to war or idleneſs in the ſummer, they cultivate but ſmall parcels of ground, barely ſufficient for ſubſiſtence. But many individuals, particularly on Flint river, among the Chehaws, who poſſeſs a number of negroes, have fenced fields, tolerably well cultivated: but as they have no ploughs, they break the ground with hoes, and ſcatter the ſeed promiſcuouſly over the ground, in hills, but not in rows: they rear horſes, cattle, fowls, and hogs: the only articles they manufacture are earthen pots and pans, baſkets, horſe-ropes, or halters, ſmoaked leather, black marble pipes, wooden ſpoons, and oil from acorns, hickery nuts, and cheſnuts. Their land is a common ſtock, and any individual may remove from one part of it to another, and occupy vacant ground wherever he can find it. From their unſettled and roving diſpoſition, their number cannot be eaſily or exactly aſcertained. The fighting men are eſtimated at between 5 and 6000, excluſive of the Seminoles, who are of little account in war, except as ſmall parties of marauders. The whole number of perſons that compoſe the Creek nations may be reckoned at about 25 or 26,000. Every town and village has one eſtabliſhed white trader in it, and generally a family of whites, who have fled from ſome part of the frontier. The Creeks are a well-made, expert, hardy, ſagacious, politic people, jealous of their rights, and averſe from parting with their lands. They are badly armed, having few rifles, and being moſtly armed with muſkets. For about 40 years paſt, they have had little intercourſe with any foreigners, except the Engliſh, to whom they are much attached, and whom they highly reſpect. Their language is ſoft and muſical, and is ſpoken through the whole confederacy, though compoſed of many nations, who have a ſpeech peculiar to themſelves, and alſo by their friends and allies, the Natchez, the Chickaſaw and Chactaw language is, ſay the Muſkogulges, a dialect of theirs. Theſe people are ſingularly laudable for prohibiting the uſe of ſpirituous liquors. One of the principal articles in their treaties with the white people is, that no kind of ſpirituous liquors ſhall be ſold or brought into their towns. Moſt of their favourite ſongs and dances they derive from their enemies, the Chactaws, who are famous for poetry and muſic. Their muſic is both vocal and inſtrumental; but of the latter they have ſcarcely any thing that deſerves the name; ſuch are the tambour, rattle-gourd, and a kind of flute, made of a joint of reed, or the tibia of the deer's leg, which yields a hideous melancholy diſcord, rather than harmony; but the tambour and rattle, accompanied with their ſweet low voices, produce a pathetic harmony, in which they keep time together; the countenance of the muſician expreſſing, at proper intervals, the ſolemn elevated ſtate of his mind; and the harmony touches the feelings of the attentive audience, and produces an univerſal ſenſation of delight and tranquillity throughout the aſſembly. Their muſic, both vocal and inſtrumental, united, keeps exact time with the performers or dancers. In dancing, their moſt admired and generally practiſed ſtep is ſlow, ſhuffling, and alternate; both feet moving forward one after the other, firſt the right foot foremoſt, and next the left, moving one after the other, in oppoſite circles, *i. e.* firſt a circle of young men, and within a circle of young women, moving together oppoſite ways, the men with the courſe of the ſun, and the females in a contrary direction; the men ſtrike their arms with the open hand, and the girls clap hands, and raiſe their ſhrill ſweet voices, anſwering an elevated ſhout of the men at ſtated times of termination of the ſtanzas; and the girls perform an interlude or chorus ſeparately. In accompaniment with their dances, they have ſongs, martial, bacchanalian, and amorous,—and they have alſo moral ſongs, which ſeem to be the moſt eſteemed and practiſed, and anſwering the purpoſe of religious lectures. Their doleful moral ſongs or elegies have a quick and ſenſible effect on their paſſions, and they manifeſt a lively affection and ſenſibility in their countenances. They have alſo a variety of games for exerciſe and paſtime, ſome peculiar to the men, others to the female ſex, and others in which both ſexes are employed The ball-play is eſteemed the moſt noble and manly exerciſe. This game is exhibited in an extenſive level plain uſually contiguous to the town; and in this the inhabitants of one town play againſt thoſe of another, in conſequence of a challenge, where the youth of both ſexes are often engaged, and ſometimes ſtake their whole ſubſtance. Here they perform amazing feats of ſtrength and agility. The game principally conſiſts in taking and carrying off the ball from the oppoſite party, after being hurled in the air, between two high pillars, which are the goals, and the party which bear off the ball to their pillar win the game. Each perſon has a racket or hurl, which is an implement of curious conſtruction, reſembling a ladle or ſmall hoop net, with a handle about three feet in length, the hoop and handle of wood, and the netting of thongs of raw hide, or tendons of an animal. The foot-ball is likewiſe a favourite diverſion. All their games are terminated with feaſting and dancing in the public ſquare. They have, beſides, feſtivals almoſt for every month in the year, which are chiefly dedicated to hunting and agriculture. The principal of theſe is the buſk, or feaſt of firſt-fruits, which ſeems to end the laſt, and begin the new year. There are three in Auguſt, when their new crops of corn are arrived at maturity, and every town celebrates it ſeparately, when their new harveſt is ready. If they have any religious rite or ceremony, this feſtival is its moſt ſolemn celebration. They begin with cleanſing their houſes, ſquares, and the whole town, of their filth, and conſuming all their old veſtments and proviſions with fire. Then follows a faſt of three days, during which the fire in the whole town is extinguiſhed, and they abſtain from the gratification of every appetite and paſſion. A general amneſty is proclaimed, all malefactors may return to their town, and they are abſolved from their crimes, which are now forgotten, and they are reſtored to favour. On the fourth morning, the high prieſt, by rubbing dry wood together, produces new fire in the public ſquare, whence every habitation in the town is ſupplied with the new and pure flame. The women then go forth into the harveſt-field, and bring from thence new corn and fruits, which, being duly prepared, are ſolemnly brought, together with drink, into the ſquare, where the people are aſſembled, in their new cloaths and decorations. The women and children place themſelves in their ſeparate families, and in the evening repair to the public ſquare, where they dance, ſing, and rejoice through the whole night, obſerving a proper and exemplary decorum: this continues three days, and during the four following days they receive viſits, and rejoice with their friends from neighbouring towns, who have purified and prepared themſelves. The Muſkogulges allow of polygamy in the utmoſt latitude: for every man takes as many wives as he pleaſes; but the firſt is queen, and the others her handmaids and aſſociates.

The youth of both ſexes are fond of decorating themſelves with external ornaments. The men ſhave the head, leaving a creſt or comb, beginning at the crown, where it is frized and ſtands upright, covering the hinder part of the head and neck, and terminating behind in lank hair, ornamented with pendant ſilver quills, and jointed ſilver plates. Their ears are lacerated, and a piece of lead is faſtened to the cartilage, which extends it to a great length, and which is then bound round with braſs or ſilver wire in the form of a bow or creſcent, decorated with ſoft white plumes of heron feathers. Their temples are encircled with a curious diadem or band, ingeniouſly wrought or woven, and decorated with ſtones, beads, porcupine quills, &c.; the front peak of it being embelliſhed with a high waving plume of crane or heron feathers. Their clothing is ſimple and frugal. The head, neck, and breaſt are painted with vermilion; and ſome of the warriors have the ſkin of the breaſt, or muſcular parts of the body, inſcribed with hieroglyphic ſcrolls, flowers, figures of animals, ſtars, creſcents, and the ſun in the middle of the breaſt; which ſtains are given in youth, by pricking the ſkin with a needle, and rubbing in a blueiſh tinct. The decorations of dreſs are reſtricted to particular occaſions; for the male youth are perfectly naked till they attain the age of twelve or fifteen years; but the females always wear a jacket, flap, and buſkin, which reach to the middle of the leg. The junior prieſts or ſtudents conſtantly wear the mantle or robe, which is white; that of others being of a ſcarlet or blue colour; and they have a great owl ſkin caſed and ſtuffed, and ſo well executed as almoſt to repreſent the living bird, having large ſparkling glaſs beads or buttons fixed in the head for eyes:—this enſign of wiſdom and divination they ſometimes wear as a creſt on the top of the head: at other times it is borne on the arm, or on the hand. Theſe bachelors are always diſtinguiſhable from other people by their taciturnity, grave and ſolemn countenance, dignified ſtep, and by their ſinging to themſelves ſongs or hymns, in a low ſweet voice, as they ſtroll about the towns. For a farther account of the manners and cuſtoms of theſe people, ſee Bartram's Travels through North and South Carolina, Georgia, &c.

Creeks' *Croſſing-place*, lies on Tenneſſee river, about 40 miles E.S.E. of the mouth of Elk river, at the Muſcle ſhoals, and 36 S.W. of Nickajack, in the Georgia Weſtern territory.

CREEL, in *Rural Economy*, a name often provincially applied to ſignify a ſort of ſtool contrived in different forms, for the purpoſe of performing different operations on ſheep, and other ſmall animals: ſuch as ſmearing, clipping, ſlaughtering, &c. It is in much uſe in ſome diſtricts, while in others it is almoſt wholly unknown.

CREENGLES, *Cringles*, probably derived from *krinckelen* (Belg.), *to run into twiſts*, in *Naval Architecture*, are ſmall ropes ſpliced into the bolt-ropes of the ſails of the main-maſt and fore-maſt, into which the bowling bridles are made faſt; and are alſo to hold by when a bonnet is ſhaken off.

CREEPER, in *Ornithology*, the Engliſh name of the Certhia; which ſee.

Creeper, *New Zealand*. See Merops *Novæ Icelandiæ*.

Creeper, *yellow throated*, and black and white *creeper*. See Motacilla *flavicollis* and *varia*.

Creeper, in *Sea Language*, a ſort of grapnel, having a ſhank, and four hooks or claws, but without flooks; uſed for recovering things that may be caſt overboard.

CREEPING, Repens, in *Botany*, is applied either to a root or ſtem, when either of them is extended horizontally, and throws out fibres for the abſorption of nouriſhment as it goes. See Root and Radicle. A creeping root, *radix repens*, is a kind of ſubterraneous ſtem, the fibres, which it ſends forth here and there, being the only efficient part of the root. It ſerves powerfully for the increaſe of ſuch plants as are furniſhed with it, whoſe vital principle is often ſo entirely devoted to the root, as not to have ſufficient energy left to perfect the ſeeds. The Mints, the *Triticum repens*, or Couch-graſs, and various others of the laſt-mentioned tribe, deſtined to inhabit and to bind down the ſandy ſhores of the ocean, all exemplify this kind of root. In ſome other plants, particularly ſuch as grow paraſitically on the ſtems or branches of trees, the upper ſide of the root is frequently bare, witneſs the genus *Epidendrum;* and the ſame may be obſerved of ſome ſpecies of *Iris*.

A creeping ſtem, *caulis repens*, (ſee Caulis,) runs either along the ground, or over rocks, walls, or the trunks of trees; in every caſe throwing out radicles for the abſorption of nouriſhment, as, in many ſpecies of Cinquefoil or *Potentilla*, ſeveral brambles, and other plants. When the fibres of the ſtem ſerve merely to attach it to other bodies for ſupport, as in the ivy, ſuch a ſtem is called *radicans*, clinging, a term by many botaniſts not ſufficiently diſtinguiſhed from the above. S.

CREGER'S Town, in *Geography*, a town of America, in the ſtate of Maryland, and Frederick county, on the W. ſide of Menococy river, between Owing's and Hunting creeks, which fall into that river; 9 miles S. of Ermmiſburg,

burg, near the Pennſylvania line, and about 11 N. of Fredericktown.

CREGLINGEN, a ſmall town of Franconia, on the Tauber, which formerly belonged to the king of Pruſſia, as margrave of Anſpach.

CREICHGAU, a canton of Germany, in Suabia, which formerly belonged to the free nobility of the German empire, and as ſuch conſiſted of ſeveral lordſhips, under the immediate counts and barons of the empire. It is now part of the kingdom of Wurtemberg.

CREIL, in Latin *Creolium*, a ſmall town of France, in the department of the Oiſe, on the river Oiſe, 6 miles N.W. of Senlis, and 36 miles N. of Paris. It is the chief place of a canton in the diſtrict of Senlis. It has 1000, and the canton 12,492 inhabitants, living in 19 different communes, upon a territorial extent of 245 kiliometres.

CREILSHEIM, a ſmall town of Franconia, on the river Saxt, with an ancient citadel, and a grammar-ſchool. It formerly belonged to the king of Pruſſia, as margrave of Anſpach.

CREIOPOLUS, in *Ancient Geography*, a mountain of the Peloponneſus, in the Argolide, ſituated on the route from Tegæa to Argos, according to Strabo.

CRELLIUS, John, in *Biography*, was born in Franconia, in the year 1590. He was indebted to his father for the early part of his ſchool-learning, and afterwards purſued his ſtudies at Nuremberg. At this place he was diſtinguiſhed for great application, and excellent talents, and obtained the reſpect and favour of his ſuperiors. He ſtudied ſucceſſively at ſome other German academies, and became an excellent linguiſt, and deeply verſed in the Ariſtotelian philoſophy. He next began to read with attention the works of the moſt celebrated divines, intending to make theology his principal purſuit. As, however, he meant to form his own opinions independently of the authority of great names, he previouſly formed the liberal determination of embracing no ſpeculative doctrines concerning the truth of which he ſhould not be perfectly ſatisfied from his own enquiries. He ſoon found reaſon to be diſſatisfied with the Lutheran ſyſtem, in which he had been brought up, and diſavowed his belief in it. By this profeſſion of his faith, or as his contemporaries would rate it, of his want of faith, he was prevented from riſing to that eminence to which he would have otherwiſe attained: he reſigned his pretenſions to the office of inſpector of youth, to which he was nominated in the year 1610. This was a great cauſe of mortification to his friends, who had anticipated for him the higheſt preferments in the church. Crellius, however, determined, according to the maxim of his great Maſter, to make every thing, even the attachment of friends, and the neareſt relations, ſubſervient to his ſenſe of duty; he accordingly left his native country, and removed to Poland, where he had not a ſingle friend; but the ſpirit of enquiry was cultivated and encouraged there, with ſingular advantages. At Racow, whither he arrived in 1612, he met with a conſiderable degree of patronage, joined the Unitarian church of that place, and determined to devote himſelf and his talents to the profeſſion of the miniſtry. In the following year he was appointed Greek profeſſor of the univerſity; and in 1615 commenced the office of a public preacher with great acceptability. In the following ſeſſion he was nominated rector of the univerſity, a poſt which he filled with much uſefulneſs, and honour, for the ſpace of five years, when he reſumed his miniſterial functions, and was fixed on as one of the ſtated paſtors of the church at Racow. The duties of this office he performed with great aſſiduity: he zealouſly defended and illuſtrated the opinions which he had embraced, as well from the pulpit, as from the preſs. He appeared as an advocate for Socinus againſt the celebrated Grotius, on the ſubject of the atonement. Crellius's anſwer was well received by his learned antagoniſt, who was from this, and other circumſtances, ſuſpected to lean, according to Moreri, too much to the Unitarian doctrines. Beſides this anſwer to Grotius, the principal works of our author were, two books concerning the one God the Father, generally ſpoken of in catalogues as "Crellius de Deo;" "A Treatiſe concerning God and his Attributes;" one on "The Holy Spirit;" and another containing "A Defence of Religious Liberty." He wrote on "Ethics," and on various topics, which he diſcuſſed with learning, and great candour. He is reckoned one of the ableſt among the Fratres Poloni, and his works make almoſt the half of the four volumes ſo well known in every theological library. He was intent upon planning other works, when he was attacked by a fever, which carried him off in the forty-ſecond year of his age; highly revered for his integrity, learning, and ardent piety. Moreri. Life of Socinus.

CREMA, in *Geography*, a town of Italy, and capital of the Cremaſco, ſituated on the river Serio, well built, fortified, populous, commercial, and rich: the ſee of a biſhop, ſuffragan of Bologna. It contains 5 pariſh churches, and 16 convents. The name is ſaid to be derived from *κρεμαω*, *to burn*, as being built on the ruins of a more ancient and beautiful town, burned by order of the archbiſhop of Milan, in the year 951; it has belonged to the Venetians from the year 1428: 22 miles E.S.E. of Milan. N. lat. 45° 22'. E. long. 9° 26'.

CREMASCO, a country of Italy, taking its name from the capital Crema, inſulated in the Milaneſe, and belonging to the Venetians. It is ſmall, but fertile in corn, wine, flax, and hemp.

CREMÆ, in *Ancient Geography*, a town of Aſia, in the Pontus. Steph. Byz.

CREMAILLE, or Cre'maille're. When the inſide of the parapet of any work is notched or broken in ſuch a manner as to reſemble the teeth of a ſaw, it is ſaid to be *en cremaille*, or *en cremaillere*, whether it be in any part of a regular fortification, or in a field redoubt, in a line of circumvallation or countervallation, &c. This formation of the inſide of a work by indenting it with ſmall redans, having each of them one face perpendicular to the capital of the work, and the other parallel to it, is very uſeful for taking off the defects of ſaliant angles, and furniſhing defences in different directions from the ſame part. To whom this uſeful contrivance is juſtly attributable is not certainly known. Mr. Clairac ſays, that Mr. de la Fon, director of fortification of the maritime places in Flanders, ſhewed him at Dunkirk, in 1740, a project of this kind in tracing out a covert-way, and that Mr. De Verville, formerly chief engineer at Rocroi, to whom he had mentioned it, ſhewed him, in 1741, the plan of a redoubt at the army on the Lower Rhine, wherein he had propoſed to defend the angles in this manner.

CREMASTA, in *Ancient Geography*, a place of Aſia, ſituated, according to Xenophon, near the town of Antandra.

CREMASTER, in *Anatomy*, from *κρεμαω*, to *ſuſpend*, is a muſcle belonging to the teſtis. It ariſes from the inferior border of the internal oblique, and tranſverſalis muſcles; chiefly from the former. It becomes connected to the outer ſide of the ſpermatic chord, and paſſes, with that part, through the ring of the external oblique. Its fibres are in ſome degree ſeparated as it deſcends, and they are ultimately ſcattered over the upper part of the tunica vaginalis teſtis. The fibres of this muſcle purſue quite an oppoſite courſe in the embryo; being reflected towards the abdomen. Theſe muſcles ſerve, as their name imports, to ſuſpend the teſtes in their ſituation; and to bear the weight of theſe parts. They will draw the teſtes towards the abdominal ring; which effect may be obſerved in coughing; and particularly in the hooping-cough. It is ſaid to elevate the teſtis, and to produce ſome compreſſion, or concuſſion of the part in the act of coition.

CREMATION is ſometimes uſed for burning, particularly when applied to the ancient cuſtom of burning the dead. This cuſtom is well known to have prevailed among moſt eaſtern nations, and continued with their deſcendants after they had peopled the different parts of Europe. Hence we find it prevailing in Greece, Italy, Gaul, Britain, Germany, Sweden, Norway, and Denmark, till Chriſtianity aboliſhed it. Phil. Tranſ. N° 458. ſect. 3.

CREMAUX, in *Geography*, a ſmall town of France, in the department of the Loire in the diſtrict, and 6 miles ſouth, of Rouanne.

CREMBS, a river of Carinthia, which runs into the Lyzer, about 6 miles N. of Milſtatt.

CREMBSPERG, a town of Carinthia; 7 miles N. of Milſtatt.

CREMERA, in *Ancient Geography*, a ſmall river of Italy, in Etruria; it iſſues out of the lake of Baccano, and after a courſe of 3 miles, runs into the Tiber. It is at preſent called "La Varea," and is famous in ancient hiſtory for the ſurpriſe and ſlaughter of the Fabii by the Vejentes. According to Livy, (l. ii. c. 50.) and other Roman hiſtorians, 306 of the Fabii fell into an ambuſcade, and were cut to pieces near this river; one alone of the whole family ſurviving, who, by reaſon of his tender years, had been left at Rome. He, it is ſaid, was the grandfather of Fabius Maximus, of whom Ennius ſays,

> "Unus qui nobis cunctando reſtituit rem."
> Virgil Æn. vi. 846.
> "Whoſe wiſe delays retriev'd the Roman ſtate."

CREMIEU, in Latin *Cremiacum*, in *Geography*, a ſmall town of France, in the department of Iſere, 18 miles E. of Lyons, at no very great diſtance from the Rhone. It is the chief place of a canton, in the diſtrict of La Tour du Pin, with a population of 2123 individuals. The canton itſelf has 29 communes, 13,823 inhabitants, and a territorial extent of 320 kiliometres. Near Cremieu is the famous grotto of Notre Dame de la Balme.

CREMMEN, an ancient but ſmall town of Pruſſia, in the middle mark of Brandenburg, containing about 300 houſes, and remarkable for two battles which were fought in its vicinity, between the ſovereigns of Brandenburg and Pomerania; one loſt by the Margrave, Lewis of Brandenburg, againſt the duke of Pomerania in 1331, and the other won againſt another duke of Pomerania by the elector Frederic I. in 1413.

CREMNA, in *Ancient Geography*, a town of Aſia, in Piſidia, according to Strabo and Ptolemy.—Alſo, an epiſcopal town of Aſia, in Pamphylia Secunda.

CREMNI, a town of European Sarmatia, near the Palus-Mæotis and Tanais, according to Herodotus, who ſays it was a commercial town. Ptolemy.

CREMNISCOS, a town of European Sarmatia, placed by Pliny on the other ſide of the Iſter.

CREMNITZ, KREMNITZA, *Kormotz*, in *Geography*, the principal mine-town of Hungary, about 40 miles to the ſouth of the Carpathian mountains, in a deep valley famous for the nine rich gold and ſilver mines, which are in its neighbourhood. It has a mint which uſed to coin one hundred thouſand ducats annually; but, at preſent, the mines yield the precious metals leſs abundantly.

Cremnitz itſelf is an inconſiderable place; but the ſuburbs are large. It has three churches, an infirmary and a Franciſcan convent. On a hill near the town is an old caſtle with a church.

In 1751, Cremnitz was honoured with the viſit of the emperor Francis I., who, in the garb of a miner, went down a very deep ſhaft.

Both the mines and the town of Cremnitz ſuffered conſiderably during the diſturbances raiſed by prince Rakotzy and count Tekely.

CREMONA, a town anciently of Gallia Tranſpadana, and now capital of the Cremoneſe, ſituated in a delightful plain, watered by the Oglio, about a quarter of a mile from the Po, over which is a bridge of boats, protected by a fort, as the town is by a caſtle: a canal, which paſſes through the town, forms a communication between the Oglio and the Po:—its circumference is about 5 miles. The principal ſtreets are wide and ſtraight, adorned with ſome ſmall ſquares, and a few palaces, but the houſes in general are not well built. An univerſity was founded in this city by the emperor Sigiſmund; but it has long been in a declining condition. Cremona has 40 pariſh churches, from the tower of one of which is an extenſive view over the fertile plains of Auſtrian Lombardy, 43 convents, and about 12,000 inhabitants. This is the ſee of a biſhop, ſuffragan of Milan. This town is ſaid to have been built 391 years B. C. When the country became ſubject to the Romans, they ſent a colony into this city in the year of Rome 535, and a ſecond in 562. In the war of Antony and Auguſtus, it took part againſt the latter; who ſurrendered the town and the adjacent territory to the plunder of the ſoldiers. After having recovered its former flouriſhing ſtate, it was burnt by the ſoldiers of Veſpaſian. It was again laid waſte by the Goths A. D. 630. In 1796, it ſurrendered to the French without reſiſtance.

CREMONA STOP, on an organ, is a ſingle reed ſtop, originally deſigned to imitate an ancient wind inſtrument, called a *Knemhorn*, (which ſee;) but time and the ignorance of organ-builders have corrupted this word into Cremona, which has led ſome of late to ſuppoſe, that this ſtop was at firſt intended as an imitation of the violin. See ORGAN.

CREMONAGE, in *Geography*, a country of Italy in the Milaneſe, deriving its name from its capital, Cremona; bounded on the E. by the duchy of Mantua, on the N. by the Breſſan, on the W. by the Lodeſan and Cremaſco, and on the S. by the Parmeſan, from which it is ſeparated by the Po. It belonged for a long time to Spain till the famous war for the ſucceſſion of Charles II., when it was ceded to the houſe of Auſtria, and made a fief of the empire. It is a fertile country, particularly in wine and fruit.

CREMONINI, GIO. BATISTA, in *Biography*, a painter, was a native of Cento, and flouriſhed at Bologna in the 16th century. He had ſufficient knowledge of perſpective and architectural decorations, and was much employed at Bologna in painting in freſco the façades of the palaces and houſes of perſons of diſtinction, which he ornamented with the imitations of ſtatues, baſſo-relievos, and friezes, repreſenting combats of wild beaſts, &c., which he executed with great ſpirit. He had the honour of numbering Guercino amongſt his diſciples. Cremonini died in 1610. Lanzi. Orlandi.

CREMPE, or KREMPE, in *Geography*, a town of Germany,

many, in the duchy of Holſtein, ſeated on a brook or ſmall river, which ſoon after runs into the Stoer: the inhabitants deal chiefly in cattle; 4 miles N. of Gluckſtadt, and 27 N.W. of Hamburgh.

CREMS, or Krems, a town of Germany, in the archduchy of Auſtria, on the Danube; 32 miles W.N.W. of Vienna.—Alſo, a river of Auſtria, which runs into the Danube near Crems.

CREMSIER, Kremsier, or *Kromerziz*, a ſmall town of Moravia, in the circle of Prerau, on the river March, 24 miles S. of Olmutz, and the uſual reſidence of the biſhops of Olmutz. It is well built, and has ſeveral churches and convents.

CREMSMUNSTER, or Kremsmunster, a ſmall town of Upper Auſtria, or the country above the Ens, 30 miles S.E. of Lintz on the river Krems, which, in the year 1490, obtained the rank of a market town, on account of the adjacent rich abbey of Benedictines, founded in the year 777. It has an academy for young noblemen.

CRENAN Craig, a cape of Scotland, on the coaſt of the county of Wigtown, in Luce bay: 13 miles S.S.E. of Stanraer.

CRENATUM, Folium, in *Botany*, a notched or crenate leaf, has its margin cut into a number of notches, which are not directed towards either of its extremities; as in *Glechoma hederacea*, the Ground Ivy, and eſpecially *Chryſoſplenium*, or Golden Saxifrage. The notches may be more or leſs acute, and in ſome leaves they conſiſt of a double ſeries, for which the term *duplicato-crenatum* is uſed. When the notches are very minute, the diminutive is adopted, *crenulatum*. All theſe terms are alſo occaſionally applied to the *corolla*, *nectarium*, or any other expanded part of a vegetable. See Serratum. S.

CRENÆA, Schreb. gen. 807. Lam. Enc. Willd. 932. Juſſ. 332. Aubl. 523. Claſs and order, *dodecandria monogynia*. Nat. Ord. *Salicariæ*, Juſſ.

Gen. Ch. *Cal.* Perianth one-leafed, top-ſhaped, permanent, four-cleft half way down; ſegments egg-ſhaped, acute, equal, ſpreading. *Cor.* Petals four, roundiſh, longer than the calyx, and attached to it between its diviſions. *Stam.* Filaments fourteen, capillary, white, inſerted into the calyx below the petals, inclined to one ſide; anthers roundiſh. *Piſt.* Germ ſuperior, globular; ſtyle long, incurved; ſtigma oblong, thickiſh. *Peric.* Capſule globular, five-celled, its lower part ſurrounded by the calyx. *Seeds* numerous, very ſmall.

Eſſ. Ch. Calyx four-cleft, bearing the corolla. Petals four. Capſule five-celled, with many ſeeds.

Sp. C. *maritima*. Aubl. tab. 209. *Stems* ſeveral, two or three feet high, knotty, quadrangular, winged. *Leaves* oppoſite, oval-oblong, obtuſe, narrowed near the baſe, almoſt ſeſſile, even-ſurfaced, entire, green. *Flowers* white, axillary; peduncles often two together, ſlender, ſhorter than the leaves, divided into two very ſmall, one-flowered pedicels; bractes one at the baſe of each peduncle; two about the middle, oppoſite. A native of Cayenne, growing in the ſalt water.

CRENDIREK, in *Geography*, a lake of America, in North Carolina; 30 miles N.N.E. of Newbern.

CRENEAUX, Fr. *Loop-holes*, are ſmall openings made in the walls of a work for receiving the ends of muſkets or ſmall fire-arms, and for firing through on thoſe who advance to attack it. A creneau, or loop-hole, is for a muſket what an embraſure is for a cannon. It is alſo called *meurtriere*. Its opening on the outſide is about three inches broad, and from 12 to 15 inches in height or depth, and on the inſide it is from 8 to 10 inches wide.

CRENELLE, in *Heraldry*. See Embattled.

CRENI, in *Ancient Geography*, a place of Aſia Minor, in Phrygia.

CRENIDES, a maritime place of Aſia Minor, in Bithynia, ſituated, according to Arrian, on the coaſt of the Euxine ſea, between the port of Sandaraca and the town of Pſylla.

CRENO, *the Lake of*, in *Geography*, is a lake of conſiderable extent at the top of mount Rotondo, in Corſica, in the department of Golo, out of which iſſues the river Tovignano.

CRENOPHYLAX. The *crenophylaces* at Athens were magiſtrates who had the inſpection and management of fountains under their care.

CREODIBA, in the *Cuſtoms of the Middle Age*, a robbery and murder committed in a wood, where the body of the perſon killed was burnt, in order to prevent any diſcovery of the crime. The word, ſays Wendelinus, is compounded of *cruy* and *diven*, that is, *wood-robbers*.

CREOLES, a name given to the families deſcended from the Spaniards who firſt ſettled at Mexico in America. Theſe conſtitute the ſecond claſs of ſubjects in the Spaniſh colonies; and they are diſtinguiſhed from the Chapetones, who are the firſt in rank and power; from the mixed race, forming the third claſs of citizens, and comprehending the Mulattoes and Mestizos; from the Negroes, who hold the fourth rank; and from the *Indians*, who form the laſt and the moſt depreſſed order of men in the country, which belonged to their anceſtors. The character and ſtate of the Creoles have enabled the Chapetones, or Spaniards arrived from Europe, to acquire various advantages, beſides thoſe which they derive from the partial favour of government. Although ſome of the Creolian race are deſcended from the conquerors of the New World; though others can trace up their pedigree to the nobleſt families in Spain; though many are poſſeſſed of ample fortunes; yet, by the enervating influence of a ſultry climate, by the rigour of a jealous government, and by their deſpair of attaining that diſtinction to which mankind naturally aſpire, the vigour of their minds is ſo entirely broken, that a great part of them waſte their life in luxurious indulgences, mingled with an illiberal ſuperſtition ſtill more debaſing. Languid and unenterpriſing, the operations of an active extended commerce would be to them ſo cumberſome and oppreſſive, that almoſt in every part of America they decline engaging in it. The interior traffic of every colony, as well as its trade with the neighbouring provinces, and with Spain itſelf, are carried on chiefly by the Chapetones; who, as the recompence of their induſtry, amaſs immenſe wealth; while the Creoles, ſunk in ſloth, are ſatisfied with the revenues of their paternal eſtates. From this ſtated competition for power and wealth between theſe two orders of citizens, and the various paſſions excited by a rivalſhip ſo intereſting, their hatred is violent and implacable. The court of Spain, from a refinement of diſtruſtful policy, cheriſhes theſe ſeeds of diſcord, and foments this mutual jealouſy, which not only prevents the two moſt powerful claſſes of its ſubjects in the New World from combining againſt the parent ſtate, but prompts each, with the moſt vigilant zeal, to obſerve the motions, and to counteract the ſchemes of the other. To the Creoles, or natives in the Weſt Indies, ſays Mr. B. Edwards, we muſt look for the original and peculiar caſt of character impreſſed by the climate, if indeed the influence of climate be ſuch as many writers imagine. (See Climate.) This writer conceives that the climate of the Weſt Indies diſplays itſelf more ſtrongly on the perſons of the natives, than on their manners, or on the faculties of their minds. They are obviouſly, he ſays, a taller race, on the whole, than the Europeans, but, in general, not proportionably robuſt. Many of them are ſix feet four inches in height; but they want bulk, correſponding to our ideas of maſculine beauty. All of them, however, are diſtinguiſhed by the ſuppleneſs of their joints, which enable them to move with great eaſe and agility, as well as gracefulneſs, in dancing. They alſo excel in penmanſhip, and the uſe of the ſmall ſword. It has been truly obſerved, he ſays, that the effect of climate is likewiſe obvious in the ſtructure of the eye, the ſocket being conſiderably deeper than among the natives of Europe. By this conformation, they are guarded from the injurious effects of an almoſt continual ſtrong glare of ſun-ſhine; he alſo remarks, that their ſkin feels much colder than that of an European, a circumſtance which, as he conceives, proves, that nature has contrived ſome peculiar means of protecting them from the heat, which ſhe has denied to the nations of temperate regions, as unneceſſary. Accordingly, though their mode of living differ in no reſpect from that of the European reſidents, they are rarely obnoxious to thoſe inflammatory diſorders, which frequently prove fatal to the latter. The Creole women, by their ſingularly abſtemious diet, and the calm tenour of their lives, are peculiarly exempt from theſe diſorders. Hence, however, their fibres are relaxed and their countenances wan. The Creole ladies, though deſtitute of that bloom which is more diſcernible in colder countries, ſurpaſs moſt others in their large, languiſhing, and expreſſive eyes; ſometimes beaming with animation, and ſometimes melting with tenderneſs; a ſure index, ſays the writer now cited, to that native goodneſs of heart and gentleneſs of diſpoſition for which they are eminently and deſervedly applauded, and to which it is owing that no women on earth make better wives, or better mothers. The Creole ladies are alſo noted for very fine teeth, which they preſerve beautifully white by a conſtant uſe of the juice of a withe called the "Chewſtick," a ſpecies of rhamnus. This is cut into ſmall pieces, and uſed as a tooth-bruſh. The juice is a ſtrong bitter, and a powerful detergent. The circumſtance moſt obſervable in the character of the Weſt Indian Creoles is an early diſplay of the mental powers. Hence it has been ſaid that as the genius of the young Weſt Indians attains ſooner to maturity, it declines more rapidly than that of Europeans. The chief cauſe, however, according to De Ulloa, of the ſhort duration of ſuch promiſing beginnings ſeems to be the want of proper objects for exerciſing the faculties. The propenſity alſo, which the climate undoubtedly encourages, to early and habitual licentiouſneſs, induces a turn of mind unfriendly to mental improvement. Among ſuch of the natives as have happily eſcaped the contagion and enervating effects of youthful exceſſes, men are found of capacities as ſtrong and permanent as among any people whatever. Mr. Edwards cannot either admit that the Creoles in general poſſeſs leſs capacity and ſtability of mind than the natives of Europe, or allow that they fall ſhort of them in thoſe qualities of the heart which render man a bleſſing to all around him. Generoſity to each other, and a high degree of compaſſion and kindneſs towards their inferiors and dependents, diſtinguiſh the Creoles in a very honourable manner. To this purpoſe, Mr. Ramſay obſerves, in his "Eſſay on the Treatment and Converſion of the Slaves," &c. that adventurers from Europe are univerſally more cruel and moroſe towards the ſlaves than the Creoles or native Weſt Indians. "If they are proud," ſays Mr. Edwards, "their pride is allied to no meanneſs. Inſtructed from their infancy to entertain a very high opinion of their own conſequence, they are cautious of doing any act which may leſſen the conſciouſneſs of their proper dignity. From the ſame cauſe they ſcorn every ſpecies of concealment. They have a frankneſs of diſpoſition beyond any people on earth. Their confidence is unlimited and entire. Superior to falſehood themſelves, they ſuſpect it not in others." Indolence, this writer allows, is too predominant among them: but timidity conſtitutes no part of their character; and even the indolence, of which they are accuſed, is rather an averſion from ſerious and deep reflection than a ſluggiſhneſs of nature. Both ſexes, when the ſprings of the mind are ſet in motion, are remarkable for a warm imagination, and a high flow of ſpirits. Robertſon's America, vol. iii. Edwards's Weſt Indies, vol. ii. Voy. de Ulloa; and Voy. de Frezier.

CREON, in *Ancient Geography*, a mountain of the iſland of Leſbos.

CRE'ON, in *Geography*, a ſmall town of France, in the department of the Gironde, chief place of a canton in the diſtrict of Bourdeaux. It has only 843, but the canton contains 13,394 inhabitants, diſperſed in 28 communes, upon a territorial extent of 192 kiliometres and a half.

CREONES, in *Ancient Geography*, a people who, according to Ptolemy, inhabited the northern part of Britain, on the weſtern coaſt, N. of the Cerones.

CREONIUM, an ancient town of Macedonia, near the Lychnide lake. Polybius.

CREOPHAGI, a people of Ethiopia, near Egypt, placed by Strabo above the port of Antiphile. Both men and women practiſed a kind of circumciſion.

CREOPHYLUS, in *Biography*, an excellent poet of Samos, contemporary with Homer, who preſented him, as Strabo informs us, with a poem on the taking of the city Oechalia. This poem is alſo mentioned by Pauſanias and Callimachus; but both theſe writers aſcribe it to Creophylus, and not to Homer. Creophylus entertained Homer at his houſe, and is ſaid by ſome to have been his maſter, and to have had great ſhare in compoſing the divine work, as Cicero ſtyles it, which paſſes under the name of that inimitable poet.

CREPANU, in the *Manege*, a chop in a horſe's leg, made by the ſpunges of the ſhoes of one of the hinder feet, croſſing and ſtriking againſt the other.

CREPIDÆ, among the Romans, a kind of ſlippers or ſhoes, which were always worn with the *pallium*, as the *calcei* were with the *toga*.

CREPIS, in *Botany*, (the name of a plant in Pliny.) Linn. Gen. 914. Schreb. 1239. Willd. 1412. Gært. 915. Juſſ. 169. Vent. 2. 485. Claſs and order, *ſyngeneſia polygamia æqualis*. Nat. Ord. *Compoſitæ ſemifloſculæ*, Linn., *Cichoraceæ*, Juſſ.

Gen. Ch. *Calyx common* double; exterior one generally very ſhort; ſcales generally ſpreading, deciduous; interior one egg-ſhaped, ſimple, furrowed, permanent, often ſwelling in the middle as the ſeeds ripen; ſcales linear. *Cor.* uniform; florets in ſeveral ranks, all ligulate, hermaphrodite, five-toothed. *Stam.* Filaments five, capillary, very ſhort; anthers united in a hollow cylinder. *Piſt.* Germ ſomewhat egg-ſhaped; ſtyle filiform, the length of the ſtamens; ſtigmas two, reflexed. *Peric.* none, except the permanent inner calyx. *Seed* ſolitary, oblong, ſpindle-ſhaped or columnar; down ſimple or feathery, ſeſſile or ſtipitate. *Recep.* roughiſh.

Eſſ. Ch. Calyx calycled with deciduous ſcales. Florets in ſeveral ranks. Receptacle roughiſh.

Sp. 1. C. *burſifolia*. Linn. Sp. Pl. 2. Mart. 2. Lam. 1. Willd. 1. (Hieracium ſiculum, burſæ paſtoris folio; Bocc. Muſ. 2. 147. tab. 106. and 112. Tourn. 471.) "Leaves pinnatifid, crenated ; ſcape few-flowered.” *Root* perennial. *Stems* ſix or ſeven inches high, naked, or furniſhed only with a few ſhort laciniated leaves. *Root-leaves* ſpread on the ground, reſembling thoſe of thlaſpi burſa paſtoris, or common ſhepherd's purſe. *Flowers* rather ſmall, on ſlender peduncles. A native of Italy and Sicily. 2. C. *nemauſenſis.* Willd. 2. Gouan. Illuſ. 60. Allion. Ped. 309. tab. 75. fig. 1. (Andryala nemauſenſis ; Vill. Delph. 3. 66. tab. 26.) “ Leaves runcinate-lyrate, obtuſe, toothed ; ſcape many-flowered, hiſpid ; calyx-ſcales membranous at the edge.” *Root* annual. Whole plant hiſpid. It has ſome reſemblance to hieracium ſanctum of Linnæus ; but we have the authority of Dr. Smith for aſſerting, that Willdenow is wrong in ſuppoſing it to be the ſame plant. A native of the ſouth of France, Italy, and Paleſtine. 3. C. *leontodontoides.* Willd. 3. Allion. Auc. Ad. Fl. Pedem. 13. “ Leaves runcinate, toothed, ſmooth ; ſcape many-flowered, aſcending ; calyxes tomentous ; outer ſcales preſſed cloſe to the others.” *Root* biennial. *Scapes* a foot high, ſmooth, furniſhed at the baſe of the ramifications with a linear-awl-ſhaped bracte. *Leaves* acuminate, ciliated at the baſe and on the lower part of the mid-rib. *Down* capillary, ſtipitate. A native of Piedmont. 4. C. *taraxacifolia* Willd. 4. Deſf. Atl. 2. 231. “ Leaves runcinate-pinnatifid, toothed, hiſpid ; ſtems aſcending, leafy at the baſe, many-flowered ; calyxes tomentous ; outer ſcales ſpreading.” *Root* biennial. *Stems* one foot or two feet high, branched. *Peduncles* pubeſcent ; bractes generally two at the baſe of each peduncle ; inner ſcales of the calyx oblong-lanceolate ; outer ones ovate-lanceolate, membranous at the edges. *Down* capillary, ſtipitate. A native of Barbary. 5 C. *apargioides.* Willd. 5. (Hieracium ſtipitatum ; Jacq. Auſt. 3. tab. 93.) “ Leaves lanceolate-obovate, toothed, ſmooth ; ſtem-ones linear-lanceolate ; ſtem angular, ſcabrous near the bottom ; peduncles and calyxes hiſpid.” *Root* perennial. *Stem* a foot or a foot and half high, furrowed, hiſpid towards the top, ſometimes leafleſs, two or three-flowered. *Stem-leaves*, when preſent, from one to three, ſeſſile or ſomewhat decurrent, nearly entire at the baſe. *Flowers* yellow ; calyx ſlighty calycled, blackiſh-green ; inner ſcales lanceolate, ſmooth, hiſpid at the baſe ; outer ones few, awl-ſhaped, hiſpid ; down capillary, ſtipitate. A native of high meadows in Auſtria and Bavaria. 6. C. *veſicaria.* Linn. Sp. 5. Mart. 4. Lam. 3. Willd. 6. β. Cichorium pratenſe hirſutum veſicarium ; Bauh. Pin. 126. Cichorium ſylveſtre ; Col. Ecphr. 1. 238. tab. 237. “ Involucres egg-ſhaped, concave, obtuſe, ſpreading.” Linn. Sp. Pl. “ Involucres ſcarious, the length of the calyx ; flowers in corymbs ; bractes egg-ſhaped.” Linn. Syſt. Nat. *Root* annual, thick. *Stem* a foot and half high, ſtriated, ſcabrous in its lower part, branched into a panicle, or corymb ; longer branches two or three-flowered ; the others only one-flowered. *Root-leaves* lyre-ſhaped, deeply cut at the baſe, enlarged upwards, entire and obtuſe at the ſummit, runcinate, ſlightly rough ; ſtem-leaves embracing the ſtem, acute, furniſhed with narrow teeth at the baſe. *Flowers* yellow, terminal ; inner or proper calyx oval-conical, very hairy ; ſcales of the outer calyx broad, concave, ſcarious, having the appearance of an involucre with reſpect to the other, and at leaſt half its length ; bractes at the divarications of the ſtem, panicle or corymb exactly ſimilar to the ſcales of the outer calyx. β differs only in having rougher leaves. Dr. Smith, with his uſual urbanity and zeal for the promotion of ſcience, has obligingly informed us, that the ſpecimen in the Linnæan Herbarium, from which the deſcription in Species Plantarum was formed, was gathered by Haſſelquiſt in the Eaſt ; and that there appears no authority for its ever having been found in Switzerland, as Linnæus has ſtated, from a miſconception of C. Bauhin's hieracium montanum rapifolium, which Haller refers to C. biennis. There is no ſpecimen of β in the Herbarium, and it ſeems to have been taken up ſolely from Columna. Willdenow has conſidered it as a diſtinct ſpecies, and called it *ſcarioſa :* he has alſo added another, under the name of taurinenſis, giving as a ſynonym, C. veſicaria ; Balbis ; Taur. 93. ; but Dr. Smith is inclined to think that he has made three ſpecies out of one. According to Willdenow, it differs in having the bractes and outer ſcales of the calyx, not lanceolate and ſcarious, but linear-awl-ſhaped, and only membranous at the edges. Both the varieties are natives of Italy. 7. C. *alpina.* Linn. Sp. Pl. 10. Mart. 5. Lam. 9. Willd. 9. Gært. tab. 158. tab. 8. Copied in Lam. Ill. Pl. 651. fig. 1. (Hieracium alpinum ſcorzoneræ folio ; Tourn. 472. Leontodon ; Gmel. Siber. 2. 16. tab. 5.) “ Leaves embracing the ſtem, oblong, acuminate ; lower ones finely toothed above ; upper ones, below.” Linn. Sp. Pl. “ Involucres ſcarious, the length of the calyx ; flowers ſolitary.” Linn. Syſt. Nat. Somewhat reſembling the preceding, but diſtinct. *Root* annual. *Stem* about a foot high, ſtriated, leafy, with two or three ſimple branches. *Root-leaves* long, ſpatulate, toothed towards the ſummit, quite entire and narrowed towards the baſe ; ſtem-leaves embracing the ſtem, toothed towards the baſe. *Flowers* pale-yellow ; inner calyx hairy ; ſcales of the outer one looſe, ſmooth, according to Gærtner's figure, not a quarter the length of the other. *Receptacle* concave, deeply pitted ; edges of the cavities ciliated. *Seed* very long, rugged, with numerous ſcabrous ſtriæ, club-ſhaped at the baſe, gradually attenuated into a long point ; down capillary, much ſhorter than the ſeed. Obſ. The down of this and ſome other ſpecies may be ſtyled ſemi-ſtipitate ; it being difficult to determine whether it be ſeated on a real ſtipes, or only on the point of the lengthened ſeed. A native of Italy. 8. C. *albida.* Mart. 17. Lam. 5. Willd. 10. Jacq. Ic. Rar. 1. tab. 164. Allion. Ped. 800. tab. 32. fig. 3. Vill. Delph. 3. 139. tab. 33. “ Leaves runcinate-toothed, ſomewhat hoary ; peduncles naked, one-flowered ; calyx-ſcales whitiſh at the edges.” *Root* perennial. *Stems* ſeveral, from twelve to fifteen inches high, cylindrical, pubeſcent, divided into two or three ſimple branches, with a leaf at each diviſion. *Root-leaves* oblong, runcinate, toothed, enlarged towards the ſummit, rather thick, clothed with ſhort hairs, whitiſh ; ſtem-leaves half embracing or ſeſſile, ſometimes a little narrowed at their inſertion, acute, thinly and ſlightly toothed. *Flowers* pale-yellow, rather large ; peduncles or branches long, one-flowered ; outer calyx-ſcales oval, looſe ; inner ones lanceolate, preſſed cloſe to the flower. A native of the ſouth of France, and of Italy. 9. C. *ſinuata.* Lam. 6. “ Leaves pinnate-ſinuated, ſomewhat ſcabrous ; peduncles naked, one-flowered ; outer calyx-ſcales widely ſpreading.” *Root* perennial. *Stems* a foot high or more, furniſhed with two or three ſimple branches, leafy only at the diviſions and near the baſe. *Root-leaves* oblong ; ſtem-ones ſhorter and more deeply cut. *Flowers* pale-yellow, rather large ; peduncles long, beſet with ſome ſtrap-ſhaped ſcales, one-flowered ; outer calyx-ſcales green, not ſcarious. *Seeds* oblong, ſcabrous ; down feathery. A native of the north coaſt of Africa, obſerved by Deſfontaines, who ſent ſeeds to Paris. 10. C. *rigida.* Willd. 11. Waldſ. and Kitaib. Pl. Rar. Hung. 1. 18. tab. 19. “ Leaves rigid, ſcabrous, toothed ; root-ones inverſely egg-ſhaped ; ſtem-ones arrow-ſhaped, embracing the ſtem ; flowers raceme-panicled ; calyxes pubeſcent.”

pubeſcent." *Root* perennial. *Stem* four feet high, erect, rigid. *Raceme* terminal; long, peduncles two-flowered; outer calyx-ſcales brown at the tip. A native of the ſunny ſide of mountains in Hungary and Tauria. 11. C. *rigens.* Mart. 18. Willd. 12. Hort. Kew. 3. 127. " Leaves oblong, doubly ſerrated, briſtly; ſtem naked, branched; flowers panicled; calyxes cylindrical, ſmooth; down ſeſſile." A native of the Azores, introduced into Kew garden by Maſſon. 12. C. *rubra.* Linn. Sp. Pl. 6. Mart. 6. Lam. 7. Willd. 13. (Hieracium dentis leonis ſolio, flore ſuave rubente; Bauh. pin. 127. Tourn. 469. H. Apulum; Col. Ecphr. 1. 242, Moris. § 7. tab. 4. fig. 3. Chondrilla purpuraſcens; Bauh. Prod. tab. 68.) " Root-leaves runcinate-lyrate; ſtem-ones embracing, lanceolate; lower ones pinnatifid; calyxes hiſpid; outer ſcales ſcarious." Willd. *Root* annual. *Stems* ſcarcely a foot high, ſlender, ſtriated, but little branched. *Flowers* of a delicate red colour, terminal, ſolitary; inner calyx hiſpid; ſcales lanceolate-linear; outer one ſmooth, rather ſhort; ſcales oval-acute. *Down* ſemi-ſtipitate, as in C. veſicaria. A native of Italy and the ſouth of France. 13. C. *fætida.* Linn. Sp. Pl. 7. Mart. 7. Lam. 8. Willd. Eng. Bot. 406. (Hieracium amygdalas amaras olens, ſive odore apuli ſuavcrubentis; Tourn. 469. Moris. hiſt. 3. 63. § 7. tab. 4. fig. 4. H. caſtorei odore; Rai. hiſt. 232. Syn. 165.) " Leaves runcinate-pinnatifid, rough with hair; petioles toothed; ſtem hairy; calyx tomentous." *Root* biennial, ſmall. *Stems* ſeveral, the central one erect, the others diffuſe, branched, leafy, cylindrical, about a foot high. *Leaves* deeply pinnatifid, toothed; the lower ſtem-ones narrowed at the baſe into what Linnæus calls a toothed petiole, but which ſeems properly the termination of a ſeſſile leaf. *Flowers* paliſh-yellow, terminal; peduncles one-flowered, elongated, thickened upwards, furniſhed with two or three ſcales, or ſmall ſcattered bracteal leaves; calyx cloathed more or leſs with ſoft hairy down, not glandular; inner ſcales nearly equal, keeled, finally embracing the marginal ſeeds; outer ones awl-ſhaped, looſe, ſhort; receptacle ciliate-pitted. *Seeds* ſlender, yellowiſh, furrowed, ſomewhat ſcabrous; down ſcabrous, not feathery; on the marginal ſeeds nearly ſeſſile, on the others diſtinctly ſtipitate. The whole plant has the ſmell of bitter almonds, but ſtronger, and approaching to that of opium. A native of dry chalky paſtures in England and other parts of Europe, but in England at leaſt not of frequent occurrence. 14. C. *ſprengeriana.* Willd. 15. Allion. Ped. *n.* 810. (Hieracium ſprengerianum; Linn. Sp. Pl. Mart. Helmintia; Gært.) " Hiſpid-ſcabrous; leaves oblong, embracing the ſtem, remotely toothed; ſtem divaricated, branched; outer calyx-ſcales unequal, ſpreading." *Root* annual. *Stem* thinly beſet with ſomewhat rigid hairs; branches alternate, ſhort, ſimple. *Flowers* ſeveral, terminal, peduncled. *Down* of the ſeed ſtipitate, feathery. A native of Portugal and Italy. 15. C. *aſpera.* Linn. Sp. Pl. 4. Mart. 8. Lam. 9. Willd. 16. (Hieracioides ſicula; Vaill. act. 714.) " Leaves toothed; lower ones egg-ſhaped, auricled; upper ones arrow-ſhaped; ſtem beſet with ſcattered ſtiff briſtles." *Root* annual. *Stem* about a foot high, much branched, panicled, diffuſe. *Leaves* rather ſmall, lanceolate, ſometimes entire, rough with ſhort hairs. *Flowers* yellow, numerous, on ſhort alternate peduncles; inner calyx oval-cylindrical, hiſpid, four or five lines long; outer one ſhort, very looſe, ſpreading or reflexed. *Down* of the ſeed ſeſſile, feathery. 16. C. *rhagadioloides.* Linn. Mant. 16. Mart. 9. Willd. 18. Jacq. Hort. Schænb. 2. 9. tab. 144. " Leaves embracing the ſtem, oblong; inner calyx egg-ſhaped, angular, hiſpid with club-ſhaped hairs. *Root* annual. *Stem* half a foot high, erect, ſtriated, ſcabrous, branched. *Leaves* entire or recurved-toothed, even-ſurfaced; lower ones narrowed a conſiderable way above the baſe; upper ones arrow-ſhaped, embracing the ſtem. *Flowers* yellow, purpliſh on the under ſide; peduncles elongated, ſcabrous, naked, one-flowered; outer ſcales of the calyx numerous, linear, obtuſe, half the length of the others, unequally inſerted; inner ones about thirteen, parallel, boat-ſhaped, compreſſed. *Down* of all the ſeeds capillary. The lappacea of Willdenow ſeems only a ſlight variety of the preceding, diſtinguiſhed by its tumid peduncles, and the ſimple not club-ſhaped hairs of its inner calyx. 17. C *virgata.* Willd. 19. Desfont. act. hiſt. nat. par. 1. 37. tab. 8. Atl. 2. 230. " Leaves lanceolate, toothed, ſomewhat pubeſcent; upper ones linear, nearly entire, ſeſſile; ſtem rod-like; calyxes tomentous." *Root* annual. *Stem* erect, branched, furrowed, ſmooth. *Leaves* remotely toothed. *Flowers* ſomewhat umbelled, peduncled; lateral peduncles riſing higher than the primary terminal one; calyx tomentous; down of the ſeed ſeſſile, capillary. A native of Barbary. 18. C. *hieracioides.* Willd. 20. Waldſ. and Kitaib. Hung. 1. 71. tab. 70. " Leaves ſmooth, toothed; root-ones ovate-ſpatulate, ſtem-ones oblong, ſeſſile; corymb terminal; calyxes glandular-hiſpid." *Root* perennial. A native of Hungary. 19. C. *hiſpida.* Willd. 21. Waldſ. and Kitaib. Hung. 1. 42. tab. 43. " Briſtly-hiſpid; leaves runcinate, auricled at the baſe; upper ones lanceolate, ſagittate-haſtate, pinnatifid at the baſe; calyxes extremely hiſpid." *Root* annual. A native of Auſtria, Croatia, Sclavonia, and the Banat. 20. C. *tectorum.* Smooth hawk's-beard. Smooth ſuccory hawk-weed. Linn. Sp. Pl. 13. Mart. 11. Lam. 10. Willd. 22. Flor. dan. 501. Lam. Ill. Pl. 651. fig. 3. Curt. Lond. faſc. § 5. tab. 25. Eng. Bot. 111. (Hedynois tectorum; Hudſ. Hieracium Chondrillæ folio, glabrum; Bauh. Pin. 127. Tourn. 470. H. luteum glabrum; Rai. Syn. 165.) " Root-leaves runcinate, lanceolate, or ſomewhat lyrate, even-ſurfaced; the reſt embracing the ſtem, pinnate-toothed, ſomewhat haſtate; ſtem ſmooth." A very common and very variable plant in different ſituations. *Root* annual, tapering. *Stem* often two feet high, erect, branched, furrowed, purpliſh ſometimes, but rarely, a little hairy. *Leaves* ſmooth, bright green. *Flowers* ſmall, bright yellow; panicle upright, terminal, ſomewhat corymbed, leafy, roughiſh; calyx rough. *Seeds* furrowed; down rough, ſeſſile. *Receptacle* ſomewhat pitted, roughiſh. A native of England, and many other parts of Europe, on walls, dry banks, &c. flowering from June to the end of September. 21. C. *pinnatifida.* Willd. 26. (C. virens; Hoff. germ. 281. Roth. Germ. 1. 336. 2. 254 Allion. Ped. *n.* 805.) " Leaves ſmooth, ſeſſile, lanceolate, pectinate-pinnatifid, quite entire towards the tip; ſtem erect, branched; calyxes pubeſcent." *Root* annual. Perfectly diſtinct from the next ſpecies, though it has a ſimilar flower. A native of Germany and Italy. 22. C. *virens.* Linn. Sp. Pl. 9. Mart. 13. Lam. 11. Willd. 27. (Hieracium minus glabrum, foliis eleganter virentibus; Bauh. Pin. 127. Tourn. 470. Hedypnois Plinii; Lob. Ic. 229.) " Leaves runcinate, ſmooth, embracing the ſtem; calyxes ſomewhat tomentous." Linn. " Root-leaves toothed, ſomewhat lyrate, even-ſurfaced; ſtem-ones half embracing the ſtem, narrow, toothed at the baſe; branches nearly naked, filiform." Lam. " Leaves ſmooth; lower ones remotely toothed; upper ones nearly entire, ſomewhat arrow-ſhaped; ſtem branched at the baſe, diffuſe; calyxes pubeſcent." Willd. *Root* annual. *Stems* ſcarcely a foot high, ſlender, ſtriated. *Root-leaves* about three inches long, ſix or eight lines broad. *Flowers* very ſmall, yellow; peduncles almoſt capillary; outer ſcales of the calyx ſhort, narrow, few; down of the ſeed capillary, ſeſſile. A native of France and Italy, on walls, and by the ſides of hedges. Nearly allied to C. murorum, but ſmaller in all its parts. 23. C. *Dioſcoridis.* Linn. Sp. Pl. 8. Mart. 14. Willd. 28. (C. virens β; Lam.? Hieracium majus erectum anguſtifolium, caule lævi; Bauh. Pin. 127.) "Root-leaves runcinate; ſtem-ones haſtate; calyxes ſomewhat tomentous." Linn. "Root-leaves lyrate-runcinate; ſtem-ones haſtate, lanceolate; lower ones toothed; ſtem erect; branches divaricated; inner calyx roundiſh egg-ſhaped, angular." Willd. *Root* annual. *Stem* a foot high, ſomewhat angular, nearly even-ſurfaced. *Root-leaves* ſmooth, toothed, ſcarcely ciliated; ſtem-ones embracing the ſtem, purpliſh underneath, auricles at the baſe thickly toothed. *Flowers* yellow, purpliſh underneath; peduncles long, aſcending, naked, one-flowered, ſcarcely thickened at the top; calyxes mealy, not nodding before the flower opens; calyx-ſcales tomentous, briſtly at the back; outer ones filiform. A native of France, Siberia, and the Palatinate. Linnæus doubted whether this and the preceding are ſpecifically diſtinct; Vaillant, Haller, Gowan, and Villars have actually united them. 24. C. *agreſtis.* Willd. 23. Waldſ. and Kitaib. Hung. "Root-leaves lanceolate-runcinate; ſtem-ones lanceolate, toothed at the baſe, arrow-ſhaped; flowers corymb-panicled; calyxes rough with hairs. *Root* annual. The wild plant is a foot and half high, and hiſpid; when cultivated it riſes to the height of two feet, and becomes almoſt ſmooth. *Flowers* ſmaller than thoſe of C. tectorum. A native of Hungary, on the borders of corn fields, and in dry meadows. 25. C. *biennis.* Linn. Sp. Pl. 14. Mart. 12. Lam. 13. Willd. 24. Hall. 30. Gært. tab. 158. fig. 2. Copied in Lam. Ill. Pl. 651. fig. 2. Eng. Bot. 149. (Hedypnois biennis; Hudſ. 342. Hieracium maximum, chondrillæ folio, aſperum; Bauh. Pin. 127. Tourn. 470. Rai. Syn. 166.) "Leaves runcinate-pinnatifid, ſcabrous; lobes furniſhed with teeth, pointing upwards: calyx briſtly, ſomewhat tomentous." *Root* biennial, ſpindle-ſhaped. *Stem* three or four feet high, erect, angular, leafy, rough with briſtles, branched in the upper part, often purpliſh below. *Leaves* rough with whitiſh briſtles; root and lower ſtem-ones petioled; upper ones lanceolate, pinnatifid at the baſe, embracing the ſtem; uppermoſt entire. *Flowers* large, yellow, in a kind of corymb; outer ſcales of the calyx looſe, ſomewhat membranous at the edges, about half the length of the inner ones. *Receptacle* pitted; edges of the cavities ciliated. *Seeds* oblong, ſtriated, ſmooth, more ſlender upwards, but not attenuated into a ſtipes; down ſeſſile, capillary. A native of England, France, and other parts of Europe, chiefly in a chalky ſoil. 26. C. *ſcabra.* Willd. 25. "Leaves runcinate, hiſpid; ſtem-ones ſeſſile: flowers in corymbs; calyx tomentous; outer ſcales preſſed cloſe to the others." *Stem* a foot high, ſtriated, thinly cloathed with very ſhort hairs. *Root-leaves* two inches long, petioled, very rough with hairs, inverſely egg-ſhaped; ſegments obtuſe, ſomewhat toothed; ſtem-ones leſs hiſpid; loweſt ſegments a little elongated; bracteal ones linear-awl-ſhaped, ſomewhat haſtate at the baſe with linear auricles. *Flowers* yellow, about the ſize of thoſe of C. tectorum, corymbed; peduncles white, with down; calyx downy, not briſtly. A native of France. 27. C. *macrophylla.* Willd. 29. Deſf. Atl. 2. 231. "Lower leaves ovate-oblong, hairy, unequally toothed; down ſtipitate, capillary." *Stem* a foot and a half or two feet high, erect, ſtriated, branched, hairy, ſcabrous. *Leaves* cloathed with ſhort hairs; lower ones ſix or eight inches long; upper ones lanceolate, embracing the ſtem. *Flowers* numerous, yellow, the ſize of thoſe of C. biennis, corymbed; outer calyx looſe; ſcales egg-ſhaped, ſmooth, membranous at the edges; inner one cylindrical; ſcales linear, acute, nearly equal, hirſute with ſhort hairs. *Seed* elongated, ſlender, ſmooth. A native of Barbary about Algiers. 28. C. *pulchra.* Linn. Sp. Pl. 11. Mart. 15. Krok. Siles. 2. tab. 37. (Chondrilla pulchra; Lam. Prenanthes hieracifolia; Willd. Chondrilla hieracii folio, annua; Tourn. 238.) "Leaves arrow-ſhaped, toothed; ſtem panicled; calyxes pyramidal, ſmooth." *Root* annual. *Stem* three feet high, furrowed, leafy, ſmooth. *Leaves* roughiſh; root-ones ſix or ſeven inches long, and two broad, ſomewhat lyre-ſhaped, narrowed into a petiole; ſtem-ones embracing the ſtem, arrow-ſhaped acute, toothed towards the baſe. *Flowers* ſmall, yellow, peduncled, in a looſe terminal panicle; outer calyx-leaves very minute, cloſe. *Down* of the ſeed capillary, ſeſſile. A native of France, Italy, and Sileſia. 29. C. *neglecta.* Linn. Mant. 15. Mart. 15. (C. ſpatulata; Lam.?) "Leaves embracing the ſtem, runcinate, ſomewhat hairy; ſtem panicled; inner calyxes with one or two weak ſpines on each ſcale." *Stem* a foot high, erect, ſomewhat hairy, branched. *Root-leaves* obovate-oblong, toothed, ſomewhat hairy; ſtem ones embracing the ſtem, runcinate, ſomewhat hairy, with elongated teeth even at the baſe; upper ones ſomewhat haſtate. *Flowers* ſmall, yellow; peduncles or flowering branches elongated, naked, even-ſurfaced, two-flowered or bifid; outer calyx-leaves very ſhort, acute; inner ones eight or ten. *Root* annual. A native of Italy. Dr. Smith aſſures us that Willdenow has no good authority for aſſerting that, in the herbarium of Linnæus, a ſpecimen of C. nemauſenſis is preſerved under the name of C. neglecta. The latter is much more ſimilar to hieracium ſanctum, which Willdenow erroneouſly makes a ſynonym of C. nemauſenſis, but is quite diſtinct from both. 30. C. *ſucculenta.* Hort. Kew. 13. (C. coronopifolia; Willd. 30. Deſfont. act. ſoc. hiſt. nat. par. 1. 38. tab. 9. Chondrilla hieracioides; Roth. Cat. 1. 101. Chondrilla tragopogonoides; Bocc. mus. tab. 13.) "Leaves pinnatifid or toothed, ſomewhat fleſhy; calyxes a little tomentous; down ſeſſile." Hort. Kew. "Leaves pinnatifid; ſegments linear; root-ones toothed; ſtem-ones quite entire; ſtem panicled; calyxes tomentous; ſcales of the outer ones preſſed cloſe to the others." Willd. *Root* annual. A native of Madeira and the Canary Iſlands. 31. C. *tenuifolia.* Willd. 31. "Leaves pinnated; leaflets filiform; root-ones toothed; ſtem panicled; calyxes pubeſcent; ſcales of the outer one reflexed." A native of Tauria? 32. C. *filiformis.* Willd. 32. Hort. Kew. 3. 1280. "Leaves linear-filiform, quite entire, ſmooth; down ſeſſile." *Root* biennial. A native of Madeira.

CREPIS *barbata*; Linn. See TOLPIS *barbata.*

CREPIS *pygmæa*; Linn. See HIERACIUM *pumilum.*

CREPIS *ſibirica*; Linn. See HIERACIUM *ſibiricum.*

CREPIS, in *Gardening*, compriſes plants of the herbaceous ornamental annual kind; of which the ſpecies moſtly cultivated are; the Spaniſh bearded crepis, or purple eyed ſuccory hawk-weed, (C. *burbata*;) and the purple crepis, (C. *rubra.*)

Method of Culture.—Theſe, like other annual plants of the hardy kinds, muſt be raiſed by ſowing the ſeed in either the autumn or ſpring, or both periods, where they are required to flower for a great length of time and in patches, in the clumps, borders, or other part where they are to remain, ſix or ſeven in each, covering them in lightly. When the plants have attained ſix or ſeven inches in growth, they ſhould be thinned out, to three or four in each patch, and be kept free from weeds.

They are capable of ſucceeding in moſt ſoils and ſituations, having a pleaſing effect in their flowers, in the fronts and other parts of the borders and clumps of ornamented grounds, as well as in many other places.

CREPITATION, that noiſe which ſome ſalts make over the fire in calcination; called alſo *detonation.*

Crepitation is alſo uſed in *Surgery*, for the noiſe made by the ends or pieces of bones, when the ſurgeon moves a limb to aſſure himſelf by his ear of the exiſtence of a fracture.

This is one of the evident indications of a fracture of bones; and to judge by it with the greater eaſe to the patient, it is neceſſary that the upper part of the limb be held faſt, while the lower part is gently moved. The jar of the bones will likewiſe be ſometimes felt by the hand, when nothing is heard.

CREPITUS Lupi, in *Natural Hiſtory*, a kind of fungus, popularly called *puff-ball.*

Mr. Derham obſerves, that upon examining the powder thereof with a microſcope, he found the ſeeds to be ſo many exceeding ſmall puff-balls, with round heads, and long, ſharp-pointed ſtalks; as if made on purpoſe to prick into the ground.

The ſeeds become hurtful to the eyes, probably by their ſharp ſtalks pricking and wounding them.

CREPON, in *Geography*, a town of France, in the department of the Calvados, and diſtrict of Bayeux; 2 leagues N.E. of Bayeux.

CREPSA, in *Ancient Geography*, an iſland of the Adriatic ſea, according to Ptolemy; called *Crexa* by Pliny; now *Cherſo*.

CREPSTINI, a people who inhabited the territory towards the mouths of the Rhine, according to the Peutingerian table.

CREPUNDIA, in *Antiquity*, tokens left with expoſed children, by which they might be afterwards known. Theſe were of conſiderable value, if the child happened to be nobly born, in order to defray part of the expence of its education.

Crepundia was alſo uſed, in a leſs proper ſenſe, for the ſwaddling cloths in which children were expoſed; becauſe by them they might be known again. See Exposing *of children*.

CREPUSCULUM, in *Aſtronomy*, *twilight;* the time from the firſt dawn or appearance of the morning, to the riſing of the ſun; and again, between the ſetting of the ſun, and the laſt remains of day.

Papius derives the word from *creperus;* which, he ſays, anciently ſignified *uncertain, doubtful,* q. d. *a dubious light.* "Res dubiæ creperæ vocantur," Cenſorinus. (Vid. Voſſii Etymol.) It is called the *twilight* as being between or partaking of two lights, the light of the ſun and that of the ſtars. (Skinneri Etymol.) The beginning of morning twilight is commonly called the day-break, day-ſpring, or dawning of the day. The crepuſculum is uſually computed to begin and end when the ſun is about eighteen degrees below the horizon; for then ſtars of the ſixth magnitude diſappear in the morning, and appear in the evening. It is of longer duration in the ſolſtices than in the equinoxes, and longer in an oblique than in a right ſphere.

The crepuſcula are occaſioned by the ſun's rays refracted in our atmoſphere, and reflected from the particles thereof to the eye. For ſuppoſe an obſerver in O on the ſurface of the earth, O D F (*Plate* V. *Aſtronomy*, *fig.* 38.) B O A the ſenſible horizon, meeting in A the ſemicircle G A H I bounding that part of the atmoſphere which is capable of refracting and reflecting light to the eye, and the ſun under the horizon at S; and let the ray S E fall into the atmoſphere below the horizon at E. Since it paſſes out of a rarer into a denſer medium, it will be refracted towards the perpendicular, *i. e.* towards the ſemidiameter C E. It will not therefore proceed to T, but touching the earth in D, it will fall upon A, the eaſtern part of the ſenſible horizon; nor can any other ray beſides A D, of all thoſe refracted in E, arrive at A. But, ſince the particles of the atmoſphere reflect the ſun's rays; and ſince the angle D A C is equal to C A O, *i. e.* the angle of incidence equal to the angle of reflection, the rays reflected in A will be tranſmitted to O, the place of the ſpectator; who will therefore ſee the particle A ſhining in the ſenſible horizon, and conſequently the beginning of the morning twilight. In the ſame manner might be ſhewn the refraction and reflection of the ſun's rays in the atmoſphere, in the evening twilight. The ray S E will be the firſt that reaches the eye in the morning, when the dawning begins, and the laſt that falls upon the eye at night, when the twilight ends; for when the ſun is farther below the horizon the particles at A can be no longer illuminated. When the ſun is not more than about 18° below our rational horizon, his rays in the morning firſt reach the eaſtern parts of the air within our viſible horizon; as the time of his riſing approaches, his light ſpreads farther round, and enlightens a larger portion of our air, and it becomes lighter and lighter, till ſun-riſe; in the ſame manner, after ſun-ſet, the light gradually decreaſes, till the ſun has deſcended ſo low that none of his rays can reach the weſtern parts of the air within our viſible horizon, or not in ſufficient quantity to cauſe any ſenſible light there; and then the evening twilight ends: this happens when the ſun's depreſſion below the rational horizon is about 18°.

Kepler, indeed, aſſigns another cauſe of the crepuſculum; *viz.* the luminous matter or atmoſphere around the ſun; which, ariſing near the horizon in a circular figure, exhibits the crepuſculum; but it is in no reſpect, as he conceives, owing to the refraction of the atmoſphere. The ſun's luminous atmoſphere, however, though neither the ſole nor principal cauſe of twilight, may lengthen its duration, by illuminating our air, when the ſun is too low to reach it with his own light. Greg. Aſt. book ii. prop. 8.

The depth of the ſun below the horizon at the beginning of the morning, or the end of the evening crepuſculum, is determined in the ſame manner as the arch of viſion; *viz.* by obſerving the moment wherein the air firſt begins to ſhine in the morning, and that wherein it ceaſes to ſhine in the evening; then finding the ſun's place for that moment: and thence the time till his riſing in the horizon, or from his ſetting in the evening.

Alhazen found it 19°; Tycho, 17°; Rothmannus, 24°; Stevinus, 18°; Caſſini, 15°; Ricciolus, in the equinox in the morning 16°, in the evening 20° 30′; in the ſummer ſolſtice in the morning 21° 25′, in the winter ſolſtice in the morning 17° 25′.

Nor need we wonder at this difference among aſtronomers; the cauſe of the crepuſculum being inconſtant: for, if the exhalations in the atmoſphere be either more copious, or higher, than ordinary; the morning crepuſculum will begin ſooner, and the evening hold longer than ordinary: for the more copious the exhalations are, the more rays will they reflect, conſequently the more will they ſhine; and the higher they are, the ſooner they will be illumined by the ſun. On this account, the evening twilight is longer than the morning, at the ſame time of the year in the ſame place. To this it may be added, that in a denſer air, the refraction is greater: and that not only the brightneſs of the atmoſphere is variable, but alſo its height from the earth: and therefore the twilight is longer in hot weather than in cold, in ſummer than in winter, and alſo in hot countries than in cold, other circumſtances being the ſame. But the principal differences are owing to the different ſituations of places upon the earth, or to the difference of the ſun's place in the heavens. Thus, the twilight is longeſt in a parallel ſphere, and ſhorteſt in a right ſphere, and longer to places in an oblique ſphere in proportion to their nearneſs to one of the poles; a circumſtance which affords relief to the inhabitants of the more northern countries in their long winter nights. And the twilights are longeſt in all places which have north latitude, when the ſun is in the tropic of Cancer; and to thoſe in ſouth latitude, when he is in the tropic of Capricorn. The time of the ſhorteſt twilight is different in different latitudes; in England, it is about the beginning of October and of March, when the ſun is in the ſigns ♎ and ♓. Hence, when the difference between the ſun's declination and the depth of the equator is leſs than 18°, ſo that the ſun does not deſcend more than 18° below the horizon; the crepuſculum will continue the whole night; which is the caſe in England from about the 22d of May to the 21ſt of July.

Prob. I. *Given the Sun's declination*, e. g. 10° N. *and the latitude of the place*, e. g. *London*, 51° 32′ N.; *to find day-break, or the beginning of the twilight in the morning, and the end of twilight in the evening.* In the oblique-angled ſpherical triangle, ☉ *Zenith* N. (*Plate* V. *Aſtronomy*, *fig.* 39.) let ☉ N=80°, the ſun's diſtance from the north pole, *i. e.* 90°−10°; ☉Z=108°, the ſun's diſtance from the zenith =18°+90°; Z N=38° 28′, the complement of the latitude; to find the angle *Zenith* N ☉, meaſured by the arc *a* Æ= the time from noon. The ſolution of the problem by ſpherical trigonometry, will be as follows.

☉N= 80°	Co-ſec. ZN=38°.28′	·20617	r indices.
☉Z=108°	Co-ſec. ☉N=80°. 0′	·00665	
ZN= 38°.28′	Sine 113°.14′	9·96327	
	Sine 5°.14′	8·96005	
2 | 226. 28		2 | 19·13614	
Half ſum 113. 14			
☉Z=108. 0	Coſine 68°.17′.29″	9·56807	
	2		
Remainder 5. 14			

Angle ☉NZ=136°.34′.58″=$9^{h}.6'.20''$, time from noon when the ſun is 18° degrees below the horizon. Conſequently the day breaks at $2^{h}.53'.40''$ in the morning, and twilight ends at $9^{h}.6'.20''$ in the evening, ſuppoſing the ſun's declination to undergo no change between the beginning of twilight in the morning, and the ending thereof at night, being about 18 hours.

The ſame things might have been found from the triangle ☉S *Nadir*, for S☉=90°+10°=100°, *Nadir* ☉=180°—108°=72°, and *Nadir* S=comp. lat.=38°.28′. Then by the method above find the angle ☉SN (meaſured by the arch *a* ♋)=43°.25′.12″=$2^{h}.53'.40''$ as before, the time from midnight, when the ſun is 18° below the horizon.

Suppoſing that the ſun's declination were 10° S., and the place the ſame, we ſhall have in the triangle ☉S *Nadir*, the ſun being on the ſouth ſide of Æ♋;

☉S=90°−10°=80°, the ſun's diſt. from the ſouth pole,
☉*Nadir*=180°−108°=72°, the ſun's diſt. from the Nadir.

S. *Nad.*=comp. lat.=38°.28′	Co-ſec. ☉S =80°	·00665
	Co-ſec. S. *Nad.* =38°.28′	·20617
2 | 190. 28	Sine 95°.14′	9·99819
Half ſum 95. 14	Sine 23°.14′	9·59602
☉ *Nadir*=72. 0		2 | 19·80703
Rem. 23. 14		
	Coſine 36°.47′.47″	9·90351
	2	

Angle ☉SN=73. 35. 34=$4^{h}.54'.22''$ the time from midnight when the ſun is 18° below the horizon. Conſequently day breaks at $4^{h}.54'.22''$ in the morning, and twilight ends at $7^{h}.5'.38''$ in the evening. Admitting the ſun's declination conſtant for 1 day.

Again, if the ſun's declination were 23° 28′ S., and the latitude of the place the ſame, we ſhall have in the triangle ☉S *Nadir*, the ſun being, as before, on the ſouth ſide of Æ♋;

☉S=90°−23°.28′=66°.32′ the ſun's diſtance from the ſouth pole.
☉ *Nadir*=180°−108°=72° the ſun's diſtance from the Nadir.

S. *Nadir*=comp. lat.=38°.28′		Half ſum 88°.30′
		☉ *Nadir*=72. 0
2 | 177. 0		Rem. 16. 30
Half ſum 88. 30		
Co-ſecant ☉S	=66° 32′	·03749
Co-ſecant S. *Nadir*	=38°.28′	·20617
Sine	88°.30′	9·99985
Sine	16°.30′	9·45334
		2 | 19·69685
Coſine	45°. 8′	9·84842
	2	

Angle ☉SN=90° 16′=$6^{h}.1'.4''$, the time from midnight when the ſun is 18° below the horizon. Conſequently day breaks at $5^{h}.58'.56''$, and twilight ends at $6^{h}.1'.4''$ on the ſhorteſt day at London.

When the declination of the ſun, the latitude and declination being of the ſame name, is greater than the difference between the complement of latitude and 18°, the parallel of declination (♋ SSS ♋) will not cut the parallel of 18° (TΦW) below the horizon: conſequently there will be no real night at theſe times, but conſtant day or twilight, as is the caſe at London from the 22d of May to the 21ſt of July.

Since the ſun ſets more obliquely at ſome times of the year than at others, it neceſſarily follows that he will be longer in deſcending 18° below the horizon at one ſeaſon than another.

When the ſun is on the ſame ſide of the equator as the viſible pole, the duration of twilight will conſtantly increaſe as he approaches that pole, till he enters the tropic, at which time the duration of twilight will be the longeſt. It will then decreaſe till ſome time after the ſun paſſes the equinox, but will increaſe again before he arrives at the other tropic; therefore, there muſt be a point between the tropics, where the duration of twilight is the ſhorteſt.

Prob. II. *To find the Sun's declination at the time of the twilight.* Let ab (*fig.* 40.) be the parallel of the ſun's declination at the time required; draw cd indefinitely near, and parallel to it, and TW, a parallel to the horizon, 18° below it; then vPW, sPT meaſure the twilight on each parallel of declination; and when the twilight is ſhorteſt, the increment of the hour angle being $=0$, theſe muſt be equal; hence, $vPr = wz$, and therefore $vr = wz$; and as $rs = tz$, and the angles r and z are right angles, $rvs = zwt$: but $Pvr = 90° = Zvs$, and taking Zvr from each, $PvZ = rvs$: for the ſame reaſon, $PwZ = zwt$; hence $PvZ = PwZ$. Take $ve = wZ = 90°$, then as $Pv = Pw$, and the angle $Pve = PwZ$, therefore $Pe = PZ$; let fall the perpendicular Py, and it will biſect the baſe eZ. Then, by trigonometry, $\text{coſ. } Py = \frac{\text{coſ. } Pv}{\text{coſ. } vy} = \frac{\text{coſ. } Pv}{\text{ſin. } ey}$; alſo, $\text{coſ. } Py = \frac{\text{coſ. } Pe}{\text{coſ. } ey} = \frac{\text{coſ. } PZ}{\text{coſ. } ey}$; hence $\frac{\text{coſ. } Pv}{\text{ſin. } ey} = \frac{\text{coſ. } Pz}{\text{coſ. } ey}$; therefore $\text{coſ. } Pv$, or $\text{ſin. } hv$, $= \text{coſ. } PZ \times \frac{\text{ſin. } ey}{\text{coſ. } ey} = \text{coſ. } PZ \times \text{tang. } ey$: hence rad. : coſ. PZ, or ſin. lat. :: tang. $ey = 9°$: ſin. hv, the ſun's declination at the time of ſhorteſt twilight. Becauſe PZ is always leſs than 90°, and $Zy = 9°$, therefore Py is always leſs than 90°, and therefore its coſine is poſitive; alſo vy is always greater than 90°, therefore its coſine is negative; hence coſ. Pv ($= \text{coſ. } Py \times \text{coſ. } vy$) is negative; conſequently, Pv is greater than 90°, and therefore the ſun's declination is ſouth. N. B. This is M. Cagnoli's inveſtigation, cited by Vince. Aſtr. vol. i. p. 18.

To find the duration of the ſhorteſt twilight. As $wPZ = vPe$, therefore $ZPe = vPw$, meaſuring the ſhorteſt time. Now ſin. PZ, or coſ. lat. : rad. :: ſin. $Zy = 9°$: ſin. ZPy, which doubled gives ZPe, or vPw, and this converted into time gives the length of the ſhorteſt twilight.

E. G. At London, N. lat. 51° 32′, it is required to find the ſun's declination, day of the month, and duration of twilight, when it is the ſhorteſt. For the declination:

Rad.	10.000000
Sin. 51° 32′	9.8937452
Tang. 9°	9.1997125
Sine of 7° 7′ 25″	9.0934577

This declination of the ſun gives the time March 2d and October 11th; between which days the twilight increaſes, and from the latter to the former, it decreaſes. For the duration of twilight:

Coſ. 51° 32′	9.7938317
Rad.	10.0000000
Sin. 9°	9.1943324
Sin. 14° 34′	9.4005007

This doubled gives 29° 8′, which converted into time, gives 1ʰ 56′ 32″ for the duration of the ſhorteſt twilight, ſuppoſing it to end when the ſun is 18° below the horizon. It may be alſo found by taking the difference between the time of ſun-riſe, and day-break, aſcertained for the given declination.

Prob. III. *To find the Sun's declination, when it is juſt twilight all night.* In this caſe, the ſun at a (*fig.* 41.) muſt be 18° below the horizon; hence 18° + the declination $Qa = RQ = EH =$ comp. of lat. of place; hence the ſun's declination = comp. lat. −18°. Find therefore in the "Nautical Almanac," or any good Ephemeris, on what days the ſun has this declination, and you have the time required. The ſun's greateſt declination being 23° 28′, it follows that if the complement of the latitude be greater than 41° 28′, or if the latitude be leſs than 48° 32′, there can never be twilight all night. If the ſun be on the other ſide of the equator, then its declination =18°−comp. lat. "Gregory's Aſtron." b. ii. prob. 41. "Vince's Aſtronomy," vol. i. p. 18, 19. "Robertſon's Nav." b. v. prob. 12. "Keith's Trigonometry," book iii. chap. 2.

To find the beginning and end of twilight by the artificial globe. Rectify the globe for the latitude of the place, bring the ſun's place on the given day to the meridian; ſet the hour-index at 12, then turn the globe towards the eaſt till the point of the ecliptic oppoſite to the ſun's place is 18° above the weſt ſide of the horizon; the ſun's place is then 18° below the eaſt ſide, and the morning twilight begins, the index pointing at the hour. By a ſimilar method the time of the ending of the evening twilight is found by turning the globe till the point of the ecliptic oppoſite to the ſun's place on the given day be 18° above the eaſt ſide of the horizon; the ſun's place will then be 18° below the weſt ſide of the horizon, when the evening twilight ends, the hour-index ſhewing the time.

Suppoſing the depreſſion of the ſun at which twilight begins or ends to be 18°, it is eaſy to determine the height of the atmoſphere. Let A E F G (*Plate* V. *Aſtronomy*, *fig.* 42.) be the earth, the pointed circle ſurrounding it the outward ſurface of the atmoſphere, the height of which D B is to be found: let A be the place of an obſerver, ho his ſenſible, H O his rational horizon; let I K L M be the ſun, E N G the ſhadow of the earth, I B a ray from the upper edge of the ſun, touching the earth in E, and falling upon the outward ſurface of the atmoſphere at B, whence it is reflected to the eye of the obſerver at A in the line of his ſenſible horizon B A: ſince the ſun is larger than the earth, he enlightens a little more than a hemiſphere, or that part repreſented by the arc E F G = 180° 32′, becauſe, E C F + E C N = two right angles, and E C N is leſs than a right angle by the angle E N C = 16′; conſequently, the half of E F G or the angle E C S = 90° 16′; and therefore taking away O C S the ſun's depreſſion = 18°, there will remain E C O = 72° 16′; and as A C O = 90, A C E will be = 17° 44′, and D C A, its half = 8° 52′. Then in the right-angled triangle B A C, the angles and one ſide A C are known, therefore the ſide B C may be found. A C being made radius, B C will be the ſecant of the angle B C A = 8° 52′: therefore 10000000 : 10120948 :: 3967½ the miles in the earth's ſemidiameter : 4015½ the diſtance from the centre to the outward ſurface of the atmoſphere, from which ſubtract the ſemidiameter, and the remainder, 48 miles, will be the height of the atmoſphere. If allowance of 34′ is made for the horizontal refraction, the angle B C A will be 8° 18′, the ſecant of which is 10105851, whence the height of the atmoſphere will be about 42 miles. "Long's Aſt." vol. i. p. 260. See Atmosphere.

Crepusculum is ſometimes uſed to denote a ſmall circle drawn parallel to the horizon at 18° below it, where the twilight begins and ends.

CREPY en Laonnois, in *Geography*, a town of France, in the department of the Aiſne, and diſtrict of Lafou; 1½ league N.W. of Laon.

CRESCENCI, Gio. Batista, in *Biography*, a Roman marquis, born about the year 1597, who ſtudied painting and architecture under the cavalier Pomerancio. He is ſaid to have deſigned with much correctneſs; but he is principally diſtinguiſhed as a patron of the fine arts, to the advancement of which he devoted his time and his fortune.

Pope Paul V. made him ſuperintendant of the works then conſtructing in Rome. Creſcenci afterwards went to Spain, where he was employed in forwarding the works of the Eſcurial; beſides which he built the tomb of Philip III. He is ſaid to have painted flowers with conſiderable ability. He died at Madrid in 1660. Lanzi.

CRESCENDO, *Ital.*, from *creſcere*, to increaſe, a term in *Muſic*, unknown till about the middle of the laſt century. We had long before that time *piano* and *forte*, with their ſeveral ſhades of *piu piano*, and *pianiſſimo*, *piu forte* and *fortiſſimo* (which ſee); but it ſeems as if Jomelli, who had a good band to write for at Stutgard, introduced the terms *creſcendo* and *diminuendo* into Germany, for the gradual increaſe and diminution of ſound; and they were ſoon adopted by the ſymphoniſts of the Manheim ſchool, ſuch as the elder Hamitz, Holtzbamr, Canabich, Toeſchi, Funzt, Filtz, &c. who tried experiments on the minute augmentation and diminution of an orcheſtra in the aggregate, and ſucceeded ſo well as to eſtabliſh the practice throughout Europe.

The firſt time we recollect hearing it in England was in an air by J. Chr. Bach, compoſed for the celebrated tenor, Raaf, to ſing at Manheim; but ſung here by Ciprandi, an excellent tenor. The words were Metaſtaſio's, in Ezio: "Non ſo donde vieni quel tenero affetto." This is the hiſtory of *creſcendo* and *diminuendo*, which have introduced as much chiar' oſcuro in muſic as painting could boaſt. A keyed inſtrument, but above all an organ, by which the *creſcendo* could be obtained, is a grand *deſideratum* in muſic. Grey has in ſome degree acquired this power, by a ſwell of the whole inſtrument.

CRESCENT, formed from *creſco*, *I grow*, in *Aſtronomy*, the new moon, which, as it begins to recede from the ſun, ſhews a little rim of light, terminating in points, or horns, which are ſtill increaſing, till it becomes full and round in the oppoſition.

The term is alſo uſed for the ſame figure of the moon in its wane, or decreaſe, but improperly; becauſe the points or horns are then turned towards the weſt, whereas they look to the eaſt in the juſt creſcent, and becauſe the figure is on the decreaſe.

CRESCENT, in *Geography*, an iſland of the South Sea, ſo called on account of its form, 6 or 7 miles in circumference, and lying in S. lat. 23° 22′. E. long. 225° 30′. The ſhore of this iſland is grey coral ſand and ſtones, thrown up by the violence of the ſea, forming a wall at the S.E. point, about 20 or 30 feet above the ſurface; and on this point were three piles of coral ſtones, two of which were built round and ſmall, and one ſquare, the ſides of which might be about 12 feet and 6 in height, with a hole at one ſide, ſeemingly for the convenience of creeping into the hovel. The natives ſeen by the miſſionary voyagers were 25, including three or four women carrying children at their backs; and theſe were probably all that inhabited the iſland. They are of a light copper colour and middling ſtature. The accent of their language is ſimilar to that of the other iſlanders with whom theſe voyagers were acquainted. Some were quite naked, except a piece of cloth round their middle; others had a long piece of cloth thrown over their ſhoulders, and reaching half way down the leg: one, who was perhaps the chief, wore a piece of very white cloth round his head, in form of a turban. They did not ſeem to have any ornaments. It was difficult to imagine on what they ſubſiſted, as they have neither bread-fruit, cocoa-nuts, nor any fruit-trees whatever: nor on the whole iſland could one canoe for fiſh be perceived; ſo that they muſt be either tranſient viſitors, or, if permanent ſettlers, miſerably provided with means of ſubſiſtence. Miſſion. Voy. p. 116.

CRESCENT, in *Heraldry*, is a bearing in form of a half-moon. The Ottomans bear ſinople, a creſcent montant, argent.

The creſcent is frequently uſed as a difference in coat-armour, to diſtinguiſh it for that of a ſecond brother, or junior family.

The figure of the creſcent is the Turkiſh ſymbol; or rather, is that of the city Byzantium, which bore this device from all antiquity; as appears from medals ſtruck in honour of Auguſtus, Trajan, &c.

When the Tartars, to whom Muſcovy was ſubject 200 years, converted any of the churches into moſques for the uſe of their own religion, they fixed the creſcent, the badge of Mahometaniſm, upon them; and when the grand duke Ivan Baſiovitch had delivered his country from the Tartar yoke, and reſtored theſe edifices to the Chriſtian worſhip, he left the creſcent remaining, and planted a croſs upon it as a mark of its victory over its enemy. See King's Rites and Ceremonies of the Greek Church, p. 23.

The creſcent is ſometimes *montant*, *i. e.* its points look toward the top of the chief, which is its moſt ordinary repreſentation; whence ſome contend, that the creſent, abſolutely ſo called, implies that ſituation; though other authors blazon it *montant*, when the horns are toward the dexter ſide of the eſcutcheon, in which poſition others call it *incroiſſant*.

Creſcents are ſaid to be *adoſſed*, when their backs or thickeſt parts are turned toward each other; their points looking to the ſides of the ſhield.

Creſcent *inverted*, is that whoſe points look toward the bottom: *turned* creſcents are placed like thoſe *adoſſed*; the difference is, that all their points look to the dexter ſide of the ſhield: *conturned* creſcents, on the contrary, look to the ſiniſter ſide: *affronted* or *appointed* creſcents are contrary to the *adoſſed*, the points looking toward each other.

CRESCENT is alſo the name of a military order, inſtituted by Charles I. king of Naples and Sicily, in 1268, who gave the knights a collar of fleurs-de-lis, and ſtars intermixed, and pendent to it a creſcent with this motto, "Donec impleat orbem." The order was revived by Renatus of Anjou, &c. in 1464; the badge, or ſymbol thereof being a creſcent of gold enamelled; on which was engraved, *loz, praiſe;* which, in the ſtyle of rebus, makes *loz in creſcent*, q. d. *by advancing in virtue, one merits praiſe.*

CRESCENT, in *Military Language*, an order of battle among the Turks, in which they encamp as well as engage; ſimilar to which was that called by Frontin, "lunata acies," in which a general keeps back his centre, in order to advance his two wings: an example of which occurs in the battle between P. Scipio Africanus and Aſdrubal. In this order it appears to have been the aim of a general to avoid engaging in the centre, either becauſe he had weakened it with a view of ſtrengthening his wings, or becauſe he had diſcovered that the enemy intended to open the action by attacking it. The Turks, in their creſcent, propoſe to ſurround the enemy with their wings; but, at the ſame time, they wiſh to draw him to their centre, where they always place ſuch of their troops as warrant their chief confidence. M. de Maizeroy obſerves, that the order of the creſcent is fit for none but the large armies of rich and populous ſtates; the object of it being to bring a great number of troops to bear againſt a ſmall one, ſurround them, and then, as it were, trample them under foot. See TURKS. The Moors alſo, whoſe armies are very numerous, and conſiſt chiefly of cavalry, draw them up on the ſame principles with the Turks, and, like them, uſe the creſcent. Of this we have a remarkable inſtance in the battle of Alcazar, between the Portugueſe and the Moors, in which Don Sebaſtian, king of Portugal, periſhed with his whole army. The Mooriſh king, Muley-Moluc, though in a dying ſtate, drew up his troops by his own ſpecial orders, and expecting to expire in battle, gave ſtrict command that his death ſhould be concealed, and that his aids-de-camp ſhould ride up cloſe to his litter, and appear to be receiving his orders as uſual. He was then carried through all the ranks of his army, where, by his preſence and the ſigns he made to them, he inſpired his ſoldiers with a generous reſolution to fight bravely for the defence of their country and religion. The Portugueſe, unapprized of any extraordinary art or deſign in the diſpoſition of the Mooriſh troops, advanced directly into the hollow of the creſcent; and Moluc allowed them to approach, till he ſaw them near enough to be ſurrounded: he then gave a ſignal, upon which all the lines of cavalry, poſted on his wings and in his rear, extended themſelves, and formed an oval, in which they entirely pent up the Chriſtian army. As ſoon as the two extremities of the creſcent were thus joined, the Moors cloſed in, and contracted the circumference of their oval, according to a manœuvre to which they were accuſtomed; and at the ſame time their artillery began to do its duty. After a very ſevere engagement, in which great bravery was manifeſted on both ſides, the Moors obtained a complete victory. See Maizeroy's Syſtem of Tactics by Mante, vol. ii.

Crescent-*Shaped*, *lunatum*, or more properly *lunulatum folium*, in *Botany*, is applied to that very unuſual form of a leaf which reſembles a half-moon, whether the points or horns be directed forwards, from the foot-ſtalk, as in *Paſſiflora lunata*, or backwards, towards that part, like ſome leaves of *Sagittaria obtuſifolia*, and the leaflets, occaſionally, of *Oſmunda Lunaria*, or moonwort, a fern ſo denominated from this reſemblance, which however is very ſlight and uncertain. S.

CRESCENTIA, (from Pietro Creſcentio, an Italian writer on agriculture towards the end of the thirteenth century.) Linn. Gen. 762. Schreb. 1021. Willd. 1160. Juſſ. 127. Vent. 2. 378. Calebaſh tree. Calebaſſier, Couis; Fr. Claſs and order, *didynamia angioſpermia*. Nat. Ord. *Putamineæ?* Linn. *Solaneis affinis*, Juſſ.

Gen. Ch. *Cal.* Perianth one-leafed, two-parted, ſhort, deciduous; diviſions oval, obtuſe, concave, equal. *Cor.* monopetalous, ſomewhat campanulate, irregular; tube ſhort, inflated on one ſide, curved or ſomewhat twiſted; border five-cleft; diviſions unequal, toothed, undulated. *Stam.* Filaments four, (ſometimes five; Jacq.) the length of the corolla, two ſhorter than the others, a little curved; anthers incumbent, oblong, obtuſe. *Piſt.* Germ ſuperior, egg-ſhaped, pedicelled; ſtyle long; ſtigma thick, capitate. *Peric.* Berry large, oval, hard, one-celled. *Seeds* numerous, two-celled, bedded in the pulp.

Eſſ. Ch. Calyx two-parted, equal. Corolla gibbous. Berry one-celled, pedicelled. Seeds numerous, two-celled.

Sp. 1. C. *cujete*. Linn. Sp. Pl. Mart. 1. Lam. 1. Willd. 1. "Leaves wedge-lanceolate; fruit obtuſe; ſeeds heart-ſhaped." α. Cucurbitifera arbor, folio longo mucronata; Pluk. Alm. 123. tab. 171. fig. 1. Comm. Hort. 1. 137. tab. 71. Jacq. Amer. 175. tab. 111. A tree about the height of our pear-tree, and nearly as thick as the human body. *Trunk* crooked, dividing at the top into numerous, very long, thick, nearly ſimple, almoſt horizontal branches. *Leaves* faſcicled, nine or ten together at irregular diſtances, from five to ſeven inches long, about an inch broad, narrowing very gradually towards the baſe, almoſt ſeſſile, terminating in a long point, entire, ſmooth, rather ſhining. *Flowers* on the trunk and branches, pale white, ſolitary, of a diſagreeable ſmell; peduncles thick, an inch long. *Fruit* varying in ſize and figure on different trees, roundiſh, from two inches to a foot in diameter, without a point or nipple at the ſummit, covered with a thin greeniſh-yellow ſkin, which encloſes a thin, hard, almoſt woody ſhell, containing a pale yellow, ſoft, juicy pulp, of an unpleaſant taſte. The ſhell, ſtripped of the external ſkin, and emptied of its juice, is uſed in the Weſt Indies, according to its ſize, for various kinds of domeſtic veſſels, ſuch as water-cans, goblets, coffee-cups, and, it is ſaid, even for kettles to boil water in, it being ſo thin, hard, and cloſe-grained, as to ſtand the fire ſeveral ſucceſſive times before it is deſtroyed. In the Carolinas and Georgia, there is a veſſel of water ſet in a cool part of every houſe, with a calabaſh, prepared for the purpoſe, ſwimming in it, for the family to drink out of, as often as they think fit. Its external ſurface is ſometimes finely poliſhed, and ornamented with engraved figures, which are variouſly coloured with indigo, and other pigments. The pulp is eſteemed by the natives a ſovereign remedy in ſeveral diſorders: taken internally, it is ſuppoſed to cure dropſies, diarrhœas, and inflammations of the cheſt; applied externally, it is thought ſerviceable in bruiſes, burns, and headaches. A native of the Weſt Indies, New Spain, and Guiana. β. Cucurbitifera arbor, ſubrotundis foliis confertis; Pluk. Alm. 124. tab. 171. fig. 2. Rai. Hiſt. 1667. *Leaves* ſhorter than thoſe of the preceding variety, completely wedge ſhaped, ending in a very ſhort obtuſe point, ſeſſile, faſcicled. *Fruit* often larger than the human head. A native of the ſame countries. γ. Cujete minima fructu duro; Plum. Gen. 23. A middle-ſized ſhrub, with ſtiff and widely ſpreading branches. *Leaves* conſtantly faſcicled, linear-lanceolate, of unequal ſize, ſome in the ſame faſcicle being ſcarcely half an inch long, and others an inch and half, not acuminate. *Fruit* reſembling thoſe of the preceding varieties, but ſcarcely larger than a pigeon's egg. A native of St. Domingo. According to Du Tour in Nouveau Dictionaire, it is properly a diſtinct ſpecies. 2. C. *cucurbitina*. Linn. Mant. 250. Mart. 2. Willd. 2. (C. cujete δ; Linn. Sp. Pl. C. latifolia; Mill. Lam. 2. Ill. Pl. 547.; but not the ſection of the fruit *e*, nor the ſeparate ſeed *f*, which belong to C. cujete. Cujete latifolia, fructu putamine fragili; Plum. Gen. 23. Burm. Amer. tab. 109.) "Leaves egg-ſhaped, petioled, alternate; fruit egg-ſhaped, acuminate; ſeeds orbicular, compreſſed." A middle-ſized tree, with a large umbrageous head, nearly upright branches, and a trunk conſiderably thicker than the human body. *Leaves* about ſix inches long and three broad, not faſcicled, entire, quite ſmooth, ſhining, ending in a ſhort point, on ſhort petioles. *Flowers* whiter than thoſe of the preceding ſpecies. *Fruit* nearly the ſhape of a citron, but larger, with a thin brittle ſhell and whitiſh pulp. *Seeds* brown, two-lobed, bitter. A native of St. Domingo. 3. C. *jaſminoides*. Lam. 3. (Arbor jaſmini floribus albis; Cateſ. Car. 1. 59.) "Leaves wedge-ſhaped, obtuſe, emarginate; flowers funnel-ſhaped; border equal, five-cleft." A ſhrub, ſix or ſeven feet high, with a ſtem not thicker than the human finger. *Leaves* nearly the ſize of thoſe of the common laurel, coriaceous, ſtiff, a little folded back at the edges. *Flowers* in terminal branches, reſembling thoſe of the common jaſmine, white, with a mixture of red. *Fruit* yellowiſh-green, oval, obtuſe, peduncled, about the conſiſtence of a ſoft pear, and containing a pulp not unlike caſſia in taſte and colour. *Seeds* blackiſh, ſmall, oval or rhomboid. A native of the Bahama Iſlands. La Marck and Juſſieu have both expreſſed a doubt whether this plant be really a creſcentia; and Ducour is of opinion that it ought to be referred to another genus.

Propagation and Culture.—The calabaſh tree, being a tropical plant, muſt be raiſed and conſtantly kept in the ſtove. It is eaſily raiſed from ſeed brought over in the ripe fruit. In winter it ſhould be placed in the tan-bed, and ſhould have but little water; in ſummer it requires to be watered two or three times a week, and in hot weather ſhould have a good deal of freſh air. The firſt two ſpecies have been long cultivated in England, but, we believe, have never yet flowered.

CRESCENTIA, in *Gardening*, compriſes a plant of the exotic tree kind, the narrow-leaved calabaſh tree (C. *cujete*). There is alſo a broad-leaved variety, which may likewiſe be cultivated.

Method of Culture.—This ſpecies and variety of the calabaſh tree are capable of being increaſed by ſowing the ſeeds, procured from the places of their native growth, as ſoon as they are obtained, in pots of light, freſh, rich earth, plunging them into a bark hot-bed. When the plants have attained two or three inches in growth, they ſhould be removed into ſeparate pots of a ſmall ſize, replunging them in the hot-bed. They ſhould be kept in the hot-bed of the ſtove, and have the management of other tender plants of ſimilar growth. In this climate theſe plants have only a ſhrubby growth, being chiefly introduced for the purpoſe of varieties among ſtove-plants.

CRESCENTINO, in *Geography*, a ſmall town of France, in the department of Seſia, which was formerly a part of Piedmont in Italy. It is the chief place of a canton, in the diſtrict of Santhia, with a population of 3962 individuals. The canton itſelf has but 5 communes, and 8175 inhabitants. Creſcentino is ſituated on the river Po, 24 miles N.E. of Turin.

CRESCENZI, DEL BARTOLOMMEO, in *Biography*, ſo called from his patron mentioned in a former article. His true name was *Cavarozzi*, and he was born in Viterbo. Bartolommeo was one of the beſt ſcholars of Pomerancio, whoſe ſtyle he ſtudied with great ſucceſs. His beſt works are at Viterbo, where his cabinet pictures are much eſteemed. He died young, in 1625. Baglione.

CRESILLA, a fair Grecian, who chiſſelled ſeven ſtatues of Amazons for the temple of Diana at Epheſus. She was accounted the third in merit amongſt the numerous competitors who vied in decorating that famed edifice, being only inferior to Policletus and Phidias. Borghini.

CRESIUS MONS, in *Ancient Geography*, a mountain of Arcadia, N.E. of Megalopolis, and near Tegæa, upon which was a temple of Mars, mentioned by Pauſanias.

CRESPI, BENEDETTO, called *Il Buſtini*, in *Biography*, a painter who flouriſhed in the 17th century. He was a native of Como, and is ſaid to have poſſeſſed no mean abilities. He had a ſon, named Antonio Maria, to whom he taught the principles of his art. Orlandi.

CRESPI, GIO. BATISTA, an artiſt of conſiderable repute, called *Il Cerano* from the place of his birth, a ſmall town near Novara, in the ſtate of Milan. Creſpi was born in the year 1557, and at an early age was taught the art of deſign. His parents ſent him to Rome, and afterwards to Venice; at both which places he ſtaid ſome time to ſtudy the compoſitions of the moſt eminent maſters. Upon his return, he eſtabliſhed himſelf at Milan, where he acquired the favour of the reigning duke. This prince conferred on our artiſt a penſion and many honours, which were continued to him until the year of his death, 1633.

Gio. Batiſta Creſpi was a ſkilful architect, and modelled with great ability. As a painter he poſſeſſed conſiderable talents, joined to great faults. His inventions are novel, his groups well diſpoſed, and his works poſſeſs great force of chiaro-ſcuro; but ſometimes from an affectation, either of grace or grandeur, the attitudes of his figures are extravagant, and the naked parts exaggerated and heavy. One of his beſt pictures is the Madonna del Roſario, in the church of St. Lazzaro at Milan. He was ſome time director of the academy of that city. Lanzi.

CRESPI, DANIELLO, a painter of whom the abbé Lanzi ſpeaks in the higheſt terms, though his works are little known out of the ſtate of Milan. He was born in that city about the year 1590, and at a proper age became the pupil of Gio. Batiſta Creſpi. He afterwards ſtudied under Camillo Procaccini, and is by many ſuppoſed to have equalled, if not to have excelled, that maſter. Creſpi and his whole family were ſwept away by the plague which raged at Milan in the year 1630.

One of his beſt pictures is the Taking down from the Croſs, in the church Della Paſſione at Milan; but even this is excelled by his laſt works, finiſhed in 1629, repreſenting ſtories of the life of St. Bruno, in the church of the Certoſa in the ſame city. Lanzi.

CRESPI, GIUSEPPE MARIA, whom his companions called *Lo Spagnuolo*, from the ſtyle in which he affected to dreſs, a Bologneſe painter of conſiderable eminence, born in 1665. At a very early age he was placed under the tuition of Domenico Canuti, and afterwards became the pupil of Cignani. After having ſtudied the works of the Caracci, and other Bologneſe painters at Bologna, he travelled to Venice, and afterwards to Modena and Parma, where he contemplated thoſe of the divine Correggio. The compoſitions of Baroccio in Urbino and Peſaro next drew his attention; his deſign being to form a ſtyle of his own, by uniting, as far as he was able, the various excellencies of theſe different maſters.

Giuſeppe returned to Bologna, where the fame of his abilities cauſed him to be employed by the principal nobility, for whom he executed many conſiderable performances. He ſpent in that city the remainder of a long life with undiminiſhed reputation, and died in 1747.

The talents of this artiſt were of the moſt verſatile kind. His pencil poſſeſſed a facility which delighted to blend the comic even with his moſt ſerious ſubjects. He frequently deſigned caricatures, which he engraved with his own hand. A certain caprice and affectation of novelty diſtinguiſh his pictures, which are very numerous, and diſperſed into different parts of Europe. The gallery of Dreſden contained ſome of the moſt eſteemed; amongſt which are the following: "the Seven Sacraments," in ſeven pieces; "the Virgin, Chriſt, and St. John;" "an Ecce Homo, attended by two Soldiers." Orlandi. Lanzi.

CRESPI, ANTONIO, and LUIGI, ſons of the laſt-mentioned artiſt, and named as ſome of the beſt of their father's ſcholars; but though their works were much ſtudied, and compoſed with more ſobriety than thoſe of their father, they never attained his eminence in the art. Luigi, indeed, quitted the pencil for the pen, and wrote many conſiderable works relating to the arts; and amongſt others, the Supplement or 3d volume of the "Felſina Pittrice." He died in 1779, and Antonio ſurvived him only three years. Lanzi.

CRESPINI, DE', MARIO, a painter of the Milaneſe ſchool, who flouriſhed about the year 1720. He was a native of Como, and diſciple of Maderno, an artiſt of that city, who is known by his pictures of ſtill life. He, however, excelled his maſter in painting flowers, kitchen utenſils, &c. after the manner of Baſſan. His works are in ſome eſtimation in the ſtate of Milan. Lanzi. Orlandi.

CRESPY, or Crepy, Jean, and Louis, engravers and print merchants, who flouriſhed in Paris at the commencement of the 18th century. We have many portraits by theſe hands, beſides numerous plates from Albano, Le Brun, Guillot, &c. Amongſt them are the following: "a Head of the Duke of Marlborough," a ſmall upright plate; "a Ditto of Mahomet Effendi, the Turkiſh Ambaſſador in France." Heinecken.

Crespy, in Latin *Creſpiiacum*, in *Geography*, a ſmall town of France, in the department of the Oiſe, 15 miles S. of Compiegne, and 45 N.E. of Paris. It is the chief place of a canton, in the diſtrict of Senlis, and contains 2305 inhabitants. The canton itſelf has 30 communes, and counts a population of 11,401 individuals, upon a territorial extent of 242 kiliometres and a half.—Alſo, a commune in the department of Aiſne, 6 miles N. of Laon. Creſpy is famous for the peace concluded here, September 18th, 1544, between the emperor Charles V. and Francis I. king of France; for the articles of which, ſee Robertſon's Hiſt. of Charles V., vol. iii. p. 301.

CRESS, in *Botany*, an Engliſh name given to various plants of the claſs tetradynamia, many of which are eaten in ſallads.

Cress, *Baſtard.* See ſeveral ſpecies of Thlaspi.

Cress, *Briſtol Rock.* See Arabis *ſtricta.*

Cress, *Early Winter*, or *Belliſle.* See Erysimum *præcox.*

Cress, *Fine.* See Lepidium *petræum.*

Cress, *Garden.* See Lepidium *ſativum.* This is the kind commonly uſed as an ingredient in ſpring ſallads.

Cress, *Hoary.* See Thlaspi *hirtum.*

Cress, *Indian.* See Tropæolum.

Cress, *Iriſh Ruſh.* See Subularia *aquatica.*

Cress, *Narrow Wild.* See Lepidium *ſuderale.*

Cress, *Penny.* See Thlaspi *arvenſe.*

Cress, *Rock* and *Shepherd's.* See Iberis *nudicaulis.*

Cress, *Speedwell.* See Draba *muralis.*

Cress, *Swine's.* See Coronopus *ruellii.*

Cress, *Tower-wall.* See Arabis *turrita.*

Cress, *Wall.* See Arabis *thaliana.*

Cress, *Water.* See Sisymbrium *naſturtium.*

Cress, *Winter.* See Erysimum *barbarea.*

CRESSA, (an adjective, denoting a native of Crete.) Linn. Gen. 313. Schreb. 439. Willd. 502. Juſſ. 134. Vent. 2. 397. Claſs, *pentandria digynia.* Nat. Ord. *Undetermined*, Linn. *Convolvuli*, Juſſ.

Gen. Ch. *Cal.* Perianth five-leaved; leaves egg-ſhaped, obtuſe, incumbent, permanent. *Cor.* monopetalous, ſalver-ſhaped; tube the length of the calyx, bellied below; border with five egg-ſhaped, acute, ſpreading diviſions. *Stam.* Filaments five, capillary, long, attached to the tube of the corolla; anthers roundiſh. *Piſt.* Germ ſuperior, egg-ſhaped; ſtyles two, filiform, the length of the ſtamens; ſtigmas ſimple. *Peric.* Capſule egg-ſhaped, one-celled, two-valved, a little longer than the permanent calyx. *Seeds* ovate-oblong, ſolitary, or four in each capſule.

Eſſ. Ch. Calyx five-leaved. Corolla ſalver-ſhaped. Filaments attached to the tube. Capſule two-valved.

Sp. 1. C. *cretica.* Linn. Sp. Pl. Mart. 1. Lam. Ill. 183. Will. 1. (Anthyllis; Alp. Cent. 157. tab. 156. Rai. Hiſt. 215. Magn. Ch. 212. Quamoclit; Tourn. Cor. 4. Chamæpitys incana, exiguo folio; Bauh. Pin. 249. Lyſimachiæ ſpicatæ purpuræ affinis; Pluk. Alm. 236. tab. 43. fig. 6.) "Corollas beardleſs; capſules with one ſeed." A ſhrub, with a very ſlender ſtem, hard and ſomewhat woody at the baſe, dividing at the height of one or two inches into a great number of ſlender ramified branches, which form a cloſe head, five or ſix inches high. *Leaves* alternate, ſeſſile, very ſmall, numerous, entire, villous; whitiſh. *Flowers* ſmall, collected into a head at the end of each branch. La Marck ſuſpects that there are naturally two ſeeds in each capſule, one of them conſtantly abortive. A native of ſalt marſhes in the iſland of Candia, the ſouth of France, and Italy. 2. C. *indica.* Mart. 2. Willd. 2. Retz. Obſ. 4. 24. "Tips of the corollas bearded; capſules with four ſeeds." *Flowers* ſnow-white. It differs from the preceding only in this reſpect, and thoſe exemplified in the ſpecific character. A native of ſalt marſhes in the Eaſt Indies.

CRESSA, in *Ancient Geography*, a port of Aſia Minor, in the Doride. Pliny places it 11 miles from the iſland of Rhodes.—Alſo, a town of Aſia Minor, in Paphlagonia. Steph. Byz.

CRESSANGES, in *Geography*, a town of France, in the department of the Allier; 10 miles S.W. of Moulins.

CRESSERELLE, in *Ornithology*, the name given by Buffon to the Keſtrel; Stannel, or wind-hover of other authors; the *Falco tinnunculus* of Gmelin.

CRESSET, any great light on a beacon, in a light-houſe, or in a watch-tower.

CRESSEY, or Cressy, Hugh Paulin, or Serenus, in *Biography*, an Engliſh Catholic divine, and celebrated writer among the Papiſts, who regard him as one of their eccleſiaſtical hiſtorians, was born at Wakefield in Yorkſhire, in the year 1605. At the grammar-ſchool in that town he received the early part of his education, and when he had laid in a ſufficient ſtore of claſſical literature, he was ſent to Oxford. He was then only 14 years of age, but he applied with ſo much vigour to his ſtudies, that in the year 1626 he was admitted Fellow of Merton college. After he had taken his degrees, he entered orders, became chaplain to lord Wentworth, with whom he continued ſome years, and, in 1638, he went to Ireland, as chaplain to lord Falkland, who, being raiſed himſelf to the office of ſecretary of ſtate, cauſed Mr. Creſſey to be made canon of Windſor in the year 1642, and alſo dean of Laughlin, but owing to the diſtracted ſtate of the exiſting times, he never derived any profit from either of theſe preferments. After the death of his patron, who was killed in the battle of Newbury, he found himſelf almoſt deſtitute of the means of ſubſiſtence, and accepted the propoſal of travelling with Charles Bertie, eſq. who was afterwards created earl of Falmouth, a favourite of Charles II.; but who was killed in a naval battle with the Dutch ſoon after the reſtoration. He left England in the year 1644, and making the tour of Italy with his pupil, he there embraced the Romiſh religion, and made a public profeſſion of his faith at Rome in the year 1646. At Paris, where he went ſhortly after, he publiſhed an account of the motives of his converſion, which was highly applauded by the devotees to that form of religion. From this period he began to think of devoting himſelf to a monaſtic courſe of life, from which he was diſſuaded, but became a member of the Benedictine college of Engliſh monks, when he changed his name from Hugh-Paulin for that of Serenus de Creſſey. He remained at this college ſeven years, during which he publiſhed a large work on theology, in two vols. 8vo. About the time of Charles the Second's reſtoration he was appointed to the miſſion in England, and upon the ſovereign's marriage with Catharine the infanta of Portugal, was nominated chaplain to the queen, and reſided chiefly at Somerſet-houſe in the Strand. He died at Eaſt-

Grinſtead in the year 1674, whither he had retired from his labours and from the controverſies in which he had latterly engaged. Although a zealous advocate for the new ſyſtem which he had adopted, he maintained the character of an open, candid, and good tempered opponent, and ſecured the reſpect and eſteem not only of thoſe who belonged to his own communion, but of his Proteſtant adverſaries. His principal work was "The Church Hiſtory of Britanny, from the beginning of the Norman conqueſt, under Roman Governors, Britiſh Kings, the Engliſh-Saxon Heptarchy, the Engliſh-Saxon, and Daniſh Monarchy, &c." in folio. The author had intended to have publiſhed another volume of this hiſtory, bringing it down to the diſſolution of the monaſteries by king Henry VIII. but his death already noticed prevented the accompliſhment of his deſign. Biog. Brit.

CRESSY, in *Geography*. See CRECY.

CREST, in *Armoury*, the uppermoſt part of the defenſive armour of the head; riſing over the reſt, in manner of the comb or tuft of a cock; to ſuſtain the effort of very keen ſcimitars, &c. It has its name from *criſta, cock's comb.* It likewiſe denotes a tuft or plume of feathers on a helmet. Anciently thoſe *aigrettes*, which the cavalry wore of a greater height than the infantry, were regarded as objects of luxury and ornament, and of terror to the army. They were originally of horſe-hair. Herodotus aſcribes the invention of them to the Ethiopians. They ſtill uſe plumes of bird's feathers, and prefer thoſe of a red colour, on account of its reſemblance to that of blood. Sometimes the ancients put three on one helmet to diſtinguiſh perhaps different ranks or degrees, as the Turks uſe double and triple tails.

CREST, CUP, *Crete*, Fr. in *Fortification*, is employed to denote the earth thrown out of a ditch, trench, &c. It is alſo made uſe of to expreſs the moſt elevated part of a parapet or glacis.

CREST, LE, in *Geography*, a town of France, in the department of the Drôme, ſituated on this river, which divides it north and ſouth, 18 miles S.E. of Valence, 15 N. of Orange, 48 S. by E. of Grenoble, and 432 miles S. by E. of Paris. Its whole population compriſes 4500 individuals, but each part of the town is the chief place of a canton, in the diſtrict of Die; the northern contains 3800, and its canton 11,307 inhabitants, diſperſed in 16 communes, upon a territorial extent of 285 kiliometres; the ſouthern contains only 700, and its canton 7081 inhabitants in 12 communes, and upon an extent of 222 kiliometres and a half.—Alſo, a commune in the department of the Puy-de-Dôme, 12 miles S. of Clermont.

CREST, a town of France, in the department of the Puy-de-Dôme, 2 leagues S. E. of Clermont-Ferrand.

CREST, in *Heraldry*, denotes the uppermoſt part of an armoury; or that part riſing over the caſk, or helmet.

Next to the mantle, ſays Guillim, the creſt or *cognizance* claims the higheſt place, being ſeated on the moſt eminent part of the helmet; yet ſo, as to admit an interpoſition of ſome eſcrol, wreath, chapeau, crown, &c.

The ancient warriors wore creſts to ſtrike terror in their enemies, as the ſight of the ſpoils of animals they had killed; or to give them the more formidable mien, by making them appear taller, &c.

In the ancient tournaments, the cavaliers had plumes of feathers, eſpecially thoſe of oſtriches and herons, for their creſts; theſe tufts they called *plumarts;* and they were placed in tubes, on the tops of high caps, or bonnets. Some had their creſts of leather; others of parchment, paſteboard, &c. painted or varniſhed, to keep out the weather; others of ſteel, wood, &c. on which were ſometimes repreſented a member or ordinary of the coat; as, an eagle, fleur-de-lis, &c. but never any of thoſe called honourable ordinaries, as pale, feſſe, &c. The creſts were changeable at pleaſure; being reputed no other than as an arbitrary device, or ornament.

Herodotus attributes the riſe of creſts to the Carians, who firſt bore feathers on their caſks, and painted figures on their bucklers: whence the Perſians called them *cocks.*

The creſt is eſteemed a greater mark of nobility than the armoury, as being born at Tournaments; to which none were admitted, till they had given proof of their nobility. Sometimes it ſerves to diſtinguiſh the ſeveral branches of a family. It has alſo ſerved, on occaſion, as the diſtinguiſhing badge of factions. Sometimes the creſt is taken from the device; but more uſually it is formed of ſome piece of the arms: thus, the emperor's creſt is an eagle; that of Caſtile, a caſtle, &c. Families that exchange arms, as the houſes of Brunſwick and Cologne have done, do not change their creſts; the firſt ſtill retain the horſe, and the latter the mermaid.

The creſt of the arms of England is a lion paſſant gardant, crowned with an imperial crown; that of France, a fleur-de-lis.

CREST, among *Carvers*, an imagery, or carved work, to adorn the head, or top, of any thing: like our modern corniche.

CRESTED, in *Heraldry*, is a term applied to a cock, or other bird, whoſe creſt is of a different tincture from other parts.

CRESTED *graſs*. See GRASS.

CRESTED *ſtalk*. See STALK.

CREST-FALLEN, is ſpoken of a horſe, when the upper part of the neck, on which the mane grows, does not ſtand upright, but hangs either to one ſide or the other.

CRESTI, DOMENICO, in *Biography*. See DA PASSIGNANO.

CRESTON, or CRESTONO, in *Ancient Geography*, a town of Thrace, and probably the capital of Creſtonia, a province of that country.

CRETA, in *Natural Hiſtory*, and in *Medicine*. See CHALK.

CRETE, in *Ancient Geography*, now called *Candia* from its capital, but known in very ancient times by the names of Aeria, Chthonia, Idæa, Curete, and Macaris, is one of the largeſt iſlands in the Mediterranean; and lies between the Archipelago to the north, the African ſea to the ſouth, the Carpathian to the eaſt, and the Ionian to the weſt. Its name Crete is derived by ſome from the Curetes, who are ſaid to have been its firſt inhabitants, by others from the nymph Crete, daughter of Heſperus, and by others from Cretus, the ſon of Jupiter, who is ſuppoſed to have reigned here. This iſland, in remote ages, was celebrated for its fertility; it abounded in all ſorts of grain, as its plains were covered with a deep rich ſoil, and it was plentifully watered by ſmall rivers. The fruits, according to Pliny's account, were much ſuperior to thoſe of any other countries; and its wines have been univerſally commended. The air was anciently deemed very pure and ſalubrious, and ſtill retains the ſame property, though under the Mahometan yoke great part of the country lies uncultivated. From the fruitfulneſs of its ſoil, and the purity of its air, it obtained the appellation of Macaris, or the fortunate iſland. In former times 100 cities were reckoned in this iſland, 90 before the Trojan war, and 10 more after the Dorians ſettled here; whence ſprung the name of Hecatompolis. Of theſe 100 cities 40 remained in the time of Ptolemy, for he enumerates ſo many. The moſt noted of theſe were Gnoſſus, Cydonia, Gortyna, Lycus, Hierapytna, Eleuthera, Rithymna, now Retimo, Heraclea, Præſos, Opteron, and Arcadia. The principal mountain of this iſland is Ida, and next to this are Dicte and Leuci. Its rivers are few and inconſiderable; but this defect is ſupplied by many creeks and bays, and ſome capacious and ſafe harbours. The labyrinth of Dædalus near mount Ida has been recorded among its ancient curioſities, but no traces of it were diſcoverable in the time of Pliny. The firſt inhabitants of Crete were, according to Diodorus Siculus, the Idæi Dactyli, 100 in number, who inhabited mount Ida. (See DACTYLI *Idæi.*) Next to theſe were the 9 Curetes. (See CURETES.) Contemporary with theſe were the *Titans*, which ſee. According to ſeveral ancient authors, the Curetes and Idæi Dactyli were the ſame people, and did not ſettle in Crete till the time of Minos. Bochart ſuppoſes, from a ſimilarity between the appellation Curetes and that of Cerethites, a tribe among the Philiſtines, that they came from Paleſtine. But long before they ſettled in Crete a colony of Pelaſgians had peopled the eaſtern coaſt of the iſland. After them, Teutamus, the grandfather of Minos, brought thither a colony of Dorians from Laconia, and the territory of Olympia, in Peloponneſus. Theſe inhabitants occupied caves and huts, and ſubſiſted on the ſpontaneous productions of the earth; but were at laſt reduced into one kingdom in the reign of Minos, who was their firſt law-giver, built many towns, and introduced the arts of ploughing and ſowing. In the reign of Minos, Rhadamanthus his brother tranſported ſeveral colonies into the neighbouring iſlands, which he beſtowed upon the commanders of his army. The Trojans, as the moſt ancient writers have ſaid, were Cretans. The government of the Cretans was at firſt monarchical. The firſt king, who reigned in Crete, was, according to Euſebius, Cres or Cretes, of whom we have many diſcordant and fabulous accounts. In the liſt of ſovereigns we find that Strabo and Pauſanias diſtinguiſh two under the name of Rhadamanthus, and two under that of Minos. The famous Rhadamanthus, who, according to the poets, was judge of the infernal regions, was brother to Minos II. Minos, the famous law-giver of Crete, was the firſt of the Grecians who equipped a fleet, and gained the dominion of the ſea; the father of Deucalion the Argonaut, and alſo of Androgeus, who was privately murdered by Œgeus king of Athens; in conſequence of which outrage Minos denounced war againſt the Athenians. But finding all attempts to revenge the death of his ſon unſucceſsful, he made his appeal to the gods, who are ſaid to have afflicted the Athenians with peſtilence and famine; upon which they conſulted the oracle of Delphi, and were informed that they muſt not expect any relief, till they were reconciled to Minos. The Cretan king, as the condition of their deliverance, impoſed upon them a yearly tribute of 7 boys and 7 girls, whom he condemned to be devoured by the Minotaur, during the ſpace of 7 or 9 years. Minos, having for 3 ſucceeding years exacted this ſanguinary tribute, Theſeus, who had performed many glorious exploits, voluntarily offered himſelf to be one of the unhappy victims; and accordingly, ſailing with his devoted companions to Crete, he there killed the Minotaur, and reſcued his country from the bloody Cretan tribute. Minos was, according to Plato and Ariſtotle, the inſtitutor of thoſe laws, which they have highly commended. He firſt baniſhed idleneſs and luxury from his dominions; and finding means of employment for all his ſubjects, either at home or abroad, he would not ſuffer any of them, whatever might be their rank, to lead an indolent life; but obliged them either to ſerve in the army, or apply to agriculture, which he raiſed into great reputation. In order to eſtabliſh a kind of equality among his ſubjects, he decreed, that in each city the children ſhould be educated together, in the ſame maxims, exerciſes, and arts; that they ſhould be accuſtomed to bear hunger and thirſt, heat and cold; to enure themſelves to labour and difficulty; to ſkirmiſh with each other in ſmall parties, and to exerciſe themſelves in a kind of dance with their armour, which was afterwards called the Pyrrhic. They were alſo accuſtomed to the uſe of the bow, in which they excelled. The poor and rich took their repaſts together, and ſubſiſted on the ſame diet; and the expence of their meals was defrayed by the public; one part of the revenues of the ſtate being applied to the purpoſes of religion, and the ſalaries of the magiſtrates, and the reſt allotted for the public feaſts. After their repaſt, the old men diſcourſed of the actions and virtues of their anceſtors, and of ſuch as had diſtinguiſhed themſelves, either by their valour in war, or their wiſdom in peace; and the youth, who were preſent at theſe entertainments, were exhorted to propoſe theſe great perſons to themſelves, as models for the forming of their manners, and for the regulation of their conduct. Another of the inſtitutions of Minos, which Plato admires the moſt, was to inſpire the youth betimes with a high reſpect for the maxims, cuſtoms, and laws of their own country. He would not ſuffer them to queſtion the wiſdom of their conſtitution; but commanded them to conſider the laws as dictated by the gods themſelves. He paid the ſame regard to the magiſtrates and aged perſons, whom he enjoined every one to treat with reſpect and honour: and that nothing might leſſen the reverence due to age, he ordained, that if any defects were obſerved in them, they ſhould never be mentioned in the preſence of the youth. Slaves were alſo better treated at Crete than any where elſe; for here it was a cuſtom, on occaſion of the feaſts of Mercury, for the maſters to wait on their ſlaves at table, and to perform the ſame offices which they received from them during the reſt of the year. This cuſtom was deſigned to remind men of the primitive ſtate of the world, in which all men were equal; and to ſignify to the maſters, that their ſervants were of the ſame nature with themſelves. The laws of Minos were anciently in ſuch repute, that Lycurgus paſſed a conſiderable time in Crete, in order to ſtudy the Cretan conſtitution, that he might form his laws upon the model of thoſe which then obtained in the iſland. Plato tells us, that Crete, under the government of ſo wiſe a prince, became the abode of virtue, probity, and juſtice; and that the laws which he eſtabliſhed were ſo well founded in juſtice and equity, that they ſubſiſted in their full vigour even in his time, that is, above 900 years after they had been firſt publiſhed. It is true, the Cretans afterwards degenerated from their ancient probity; and at length, by an entire change of manners, became the moſt vicious nation that was known either to the Greeks or Latins. Polybius (l. vi.) aſſerts, that the Cretans in his time were avaricious and ſelfiſh to ſuch a degree, as to think no lucre ſordid. Suidas and Callimachus (Hymn. in Jov. v. 8.) give them the character of liars and impoſtors; and juſtify the character given of them by St. Paul, on the teſtimony of one of their own poets, probably Epimenides, who paints them in very diſgraceful colours. The impurity of their amours is too well known from the accounts given of them by Strabo (l. x.), Servius (Æn. l. x. v. 325.), and Athenæus (Deipnos. l. xiii., &c.) Nevertheleſs, this change of manners does not affect the probity of the ancient Cretans, nor leſſen the glory of their legiſlator. We cannot forbear mentioning, however, that whilſt by his inſtitutions every citizen was obliged to marry, he contrived to prevent their having too many children by very unwarrantable means. Whether in Crete the fertility or extent of the lands did not correſpond to the number of the inhabitants, or that the men were more robuſt, and the women more fruitful, Minos authorized, by his laws, a paſſion which nature diſavows, and permitted an exceſs which modeſty can never name without horror. (See Ariſt. l. ii. c. 20. Strabo, l. x. Athen. l. xiii.)

We learn from Suidas, that the race of Minos poſſeſſed the ſovereignty of Crete, till the abolition of the monarchical government. Upon the introduction of a republican form, the chief power was veſted in the ſenate, compoſed of 30 members, called by Ariſtotle (De Republ. l. ii. c. 10.) the public council of the nation. The reſolutions of this body, however, were of no force till the people had confirmed them by their ſuffrages. Next in authority to the ſenate were the "coſmi," magiſtrates, as their name imports, appointed for the maintaining of good order (κοσμος) in the ſtate. They were 10 in number, and reſembled the Spartan ephori; they were choſen out of the whole body of the people, and were intended as a balance between the people and the ſenate, and a check upon both; for, without their approbation, no decree had any validity. They commanded the armies of the republic with abſolute power, but were liable to be called to account; whereas the ſenators were not reſponſible for their adminiſtration. Out of this body the ſenators were choſen. In this condition the iſland of Crete continued for many years. But it was occaſionally diſtracted by civil conteſts. In the time of Philip, the father of Perſes, the Gnoſſians and Gortynians had reduced all the other cities of the iſland, and divided their conqueſts; ſo that the Cretans were no longer free, but ſubject to one of theſe cities, and obliged to acknowledge their ſubjection by an annual tribute. (Polyb. l. iv.) By theſe internal commotions the Cretans became ſkilled in the arts of war; and their reputation in this reſpect was ſo general among other nations, that moſt ſtates and princes always maintained in their armies ſome bodies of Cretan bowmen and ſlingers; the Cretans having been, in all ages, as Pauſanias obſerves (in Attic.), remarkable for their dexterity and experience in the uſe of the ſling and bow. Xenophon informs us (lib. iv.) that they were of great ſervice in the retreat of the 10,000. And if we credit Arrian (De Exped. Alex.), many of Alexander's victories were owing to the Cretan auxiliaries. Livy alſo mentions (lib. xxxvii. c. 41. lib. xxxviii. c. 21.) the advantages which the Romans derived from the archers and ſlingers of Crete, in the famous battle fought near mount Olympus. After the Romans became acquainted with Crete, they employed the inhabitants in all their expeditions, keeping conſtantly in their pay a numerous body of Cretan auxiliaries, who, in general, diſtinguiſhed themſelves by their gallantry. (Livy, ubi ſupra.) However, notwithſtanding the alliance formed between them and the Romans, the Cretans entered into meaſures with other potentates, without conſulting the Roman ſenate. This conduct furniſhed the Romans (B. C. 68.) with a ſpecious pretext for enſlaving an iſland, which, till that time, had been free from all foreign ſubjection. The Romans had formed a purpoſe of conquering Crete; and finding or feigning an occaſion of quarrel, they employed means for this purpoſe. The Cretans endeavoured to conciliate their enemies; but their ambaſſadors returned from Rome without ſucceeding in their embaſſy. The conditions impoſed upon them were ſo humiliating, that they choſe rather to hazard a war, than to enjoy peace upon ſuch terms. As ſoon as the ambaſſadors were diſmiſſed, Metellus embarked with three legions, and arriving on the coaſt of Crete, landed without oppoſition. Such was the progreſs of his arms, that the inhabitants of the iſland were compelled to ſubmit to the Roman yoke (B. C. 66.) Metellus changed their form of government; obliged them to live according to the laws of Rome; impoſed an annual tribute upon the whole iſland; and reduced it to a Roman province, after it had enjoyed its liberties for a ſeries of ages. According to Velleius Paterculus, Eutropius, and other hiſtorians, the Romans ſpent three whole years in this work of ſubjugation, having to encounter with men no leſs brave than themſelves. Metellus was honoured with a triumph, and the ſurname of Creticus or the Cretan, ſo important did the Romans deem this conqueſt. For the ſubſequent hiſtory and preſent ſtate of this iſland, ſee Candia.

Crete, *Sea of*, or *Cretan ſea*, is properly that part of the Ægean ſea, or Archipelago, which lies about Crete, and which contained the iſlands of Claude, Dia, Letoa, Ægilia, Calymna, Aſtypalæa, Thera, &c.

CRETEA, a country of the Peloponneſus, in Arcadia, where, and not in Crete, according to Pauſanias, Jupiter was brought up.

CRETHOTE, a town of the Thracian Cherſoneſus, on the borders of the Propontide.

CRETI, Donato, in *Biography*, a painter, who was born at Cremona, in 1671, and educated at Bologna, in the ſchool of Lorenzo Paſſinelli; but, although he is conſidered one of the beſt diſciples of that maſter, his ſtyle partakes more of that of Simone da Peſaro, whoſe beautiful etchings were the admiration of Creti. By ſtudying theſe, he acquired that delicacy and facility of drawing with the pen, which have rendered his ſketches ſo generally and ſo deſervedly eſteemed. As a painter, he is little known out of Bologna; but ſome of his pictures there exiſt, particularly an altar piece in the church of the Padri Predicatori, and the Feaſt of Alexander, in the Palazzo Fava, which poſſeſs great merit, although the colouring of them is ſomewhat crude and diſagreeable. Donato died in 1749. Lanzi. Orlandi.

CRETIC, Creticus, in *Proſody*, a triſyllabic foot; conſiſting of one ſhort ſyllable between two long ones; as in the words ε̄ψŏμαῑ, quōvĕ nūnc.

CRETIN, Guillaume Dubois, dit, in *Biography*, an old French poet, was a native of Lyons, and died in the year 1525. He was hiſtoriographer to the king, under the reign of Charles VIII., Louis XII., and Francis I. of France. His works were reprinted at Paris in 1724. They are full of puns, conundrums, and equivocal expreſſions, as has juſtly been obſerved by Rabelais in his Pantagruel, where Cretin is deſigned by the name of old Rominagrobis. Nouv. Dictionaire Hiſtorique.

CRETINS, is the name given in the republic of Valais in Switzerland, and in the department of Mont Blanc in France, formerly the duchy of Savoy, to helpleſs idiots, whoſe organization is ſo incomplete, that the moſt preſſing wants of life ſcarcely draw from them any ſymptoms of ſenſation. They generally lie on couches, or on the ground, like ſenſeleſs brutes. Sometimes, ſays Mr. Coxe, in his "Travels through Swiſſerland," they are ſeen baſking in the ſun, with ſtaring eyes, open mouths, their tongues half out, and their heads hanging down, exhibiting the moſt affecting ſpectacle of intellectual imbecility that can poſſibly be conceived. Mr. J. G. Le Maitre, in his travels after the peace of Amiens, ſaw, at Martigny in the Valais, innumerable idiots with diſtorted forms, "grinning horribly a ghaſtly ſmile" in almoſt every window.

According to the author of the "Recherches ſur les Américains," Cretins are deaf, mute, and almoſt inſenſible to blows; but they are neither furious nor malevolent; they have no other ſtimulus than their phyſical wants, are never contradicted or inſulted by children, and are approached with veneration by old people.

Every humane attention is paid to theſe miſerable objects, be their parents ever ſo poor. A fortunate prejudice preſerves their exiſtence. The inhabitants of the countries where they are found imagine that it is a mark of divine favour to have an idiot of this kind born in their family. They eſteem them "Bleſſings from Heaven," and call them "Souls of God without Sin;" becauſe, as they are incapable of intentional criminality, they conſider them as certain of happineſs in a future ſtate. Inſtead of neglecting theſe unhappy mortals, they treat them with the moſt affectionate kindneſs, and deprive themſelves of common neceſſaries in order to afford all the conveniences of life to theſe ſuppoſed favourites of heaven.

Mr. Coxe ſays, that theſe idiots are ſuffered to marry, as well among themſelves as with others. However, Mr. F. J. Durand, in his "Statiſtique Elementaire de la Suiſſe," publiſhed at Lauſanne in 1795, aſſures us that they do not perpetuate their race. Their organization is incomplete from their birth, and often in a family of five or ſix children there is but one cretin. This monſtroſity, therefore, cannot, as it has been aſſerted, ariſe from the diſguſting filthineſs of the parents, for the want of cleanlineſs in the inhabitants of thoſe countries has been greatly exaggerated; and there are cretins in families of the utmoſt cleanlineſs and of the firſt opulence. Nor can it be owing to their phyſical education; for the idiots from the cradle are fed and brought up like their brothers and ſiſters, who labour under no intellectual imbecility. Neither can it be attributed to the exceſſive heat of the valleys, or to the unwholeſomeneſs of the water, ſince theſe cauſes would operate equally on all the inhabitants.

Theſe remarks are amply confirmed by the learned Ramond, in his "Obſervations ſur les Pyrénées." He affirms, that the idiots of the Valais are inferior both in number and imbecility to thoſe of the valley of Luchen, and other vallies in the Pyrenées. "On obſerving this ſad conformity," ſays he, "who would not ſuppoſe that the cauſes of this degradation muſt be the ſame?" And yet the cretins of the Valais are found towards the ſouth in confined valleys, on a moiſt ſoil, and having none but ſtagnant water; whilſt, in the Pyrenées, they are moſtly in ſpacious vallies to the north, in an open country, in a dry and temperate atmoſphere, and ſurrounded by pure and limpid ſprings.

Beſides, theſe idiots are not abſolutely confined to the Alps and Pyrenées; they are alſo met with in other countries, yet not ſo frequently. Sir George Staunton informs us, in his "Embaſſy to China," that he found traces of cretinage in a very mountainous diſtrict of that country. Some years ago there was at Hull, a female cretin of the name of Southern, and another at Plymouth, a boy, ſon to Mr. Cowley, the inn-keeper. All that can be affirmed with truth is, that idiots are more abundant in ſome diſtricts of the Valais, than perhaps in any other part of the globe.

A phyſician of Lyons, happening to be at Sion, the capital of the Valais, three days after the death of a cretin, ſolicited, in vain, permiſſion to open the body, although the cauſes of this extraordinary appearance have not yet been ſatisfactorily explained. The abbé Richard, in his "Voyage d'Italie," has publiſhed ſeveral ingenious conjectures on this ſubject under the article SAVOYE. M. de Sauſſure aſcribes this diſorder to the concentrated heat and ſtagnant air; but for further particulars we refer to the article GOITRE.

CRETIO, in *Antiquity*, a certain number of days allowed the heir to conſider whether he would act as heir to the deceaſed or not; after which time if he did not act, he was excluded from the eſtate.

CRETOPOLIS, in *Ancient Geography*, a town of Aſia, in Carbalia, a country of Pamphylia.

CREVACORE, in *Geography*, a ſmall town of France, in the department of Seſia, which formerly conſtituted part of Piedmont in Italy. It is the chief place of a canton, in the diſtrict of Verceil. The town contains 919, and the canton 6792 inhabitants, diſperſed in 18 communes. Before the revolution it was ſtyled a marquiſate, and had a very fine caſtle.

CREVALCORE, DA, ANTONIO, in *Biography*, a painter, whoſe family name was Leonelli, but who was called da Crevalcore, from the place of his birth, a town in the Bologneſe ſtate. This artiſt flouriſhed at Bologna in the year 1490, and diſtinguiſhed himſelf as a portrait painter. He alſo repreſented, with ſucceſs, fruits, flowers, and animals, and was beſides a celebrated muſician. Orlandi.

CREVALCORE, DA, PIETRO MARIA, the ſcholar of Dionigio Calvaert, deſigned and painted with great bravura at Bologna. His pictures ſhew that he ſtudied the works of the Caracci with ſome advantage. He flouriſhed in the year 1580. Lanzi.

CREVASTA, in *Geography*, a town of European Turkey, in the province of Albania; 36 miles S.S.E. of Durazzo.—Alſo, a river of European Turkey, which runs into the Adriatic, 8 miles S. of Joannina, in the province of Albania.

CREVECOEUR, a ſmall town of France, in the department of the Oiſe; 15 miles N. of Beauvais, which, before the revolution, conferred the title of marquis on the lords of the manor. It is the chief place of a canton, in the diſtrict of Clermont, and has ſome manufactures of woollen cloth. The town contains 2013, and the canton 11,207 inhabitants, in 20 communes, upon a territorial extent of 155 kiliometres.

CREVECOEUR, a Dutch fort and factory in Africa at Acra, on the Gold Coaſt, ſituated within cannon-ſhot of the Engliſh fort James, on the extremity of a high rock; the beach for landing being under the fire of the artillery and muſketry of the fort. It is a ſquare building, flanked with batteries joined by long curtains, of ſuch irregular conſtruction that it cannot withſtand a long attack.

CREVELT, a town of France, in the department of the Roer, which formerly conſtituted a part of the duchy of Juliers, in Weſtphalia. It is the chief place of a diſtrict, and very neatly built. It has a ſub-prefect, a court of juſtice, a regiſter-office, and 7443 inhabitants; ſeveral of whom are Memnonites, and whoſe manufactures of woollen and linen cloth, ſilk, velvet, ribbands, ſoap, and tobacco, are exceedingly flouriſhing. The diſtrict has beſides excellent paſtures, is famous for its good butter, and abounds with all ſorts of corn, hemp, and flax. It contains 11 cantons, 192 communes, and 137,215 inhabitants, upon an extent of 1375 kiliometres.

CREVIC, a town of France, in the department of the Meurthe, and diſtrict of Luneville; $1\frac{1}{2}$ league N.W. of Luneville.

CREVIER, JOHN BAPTIST LEWIS, in *Biography*, was born at Paris in 1693, ſtudied under the celebrated Rollin, was profeſſor of rhetoric at the college of Beauvais; and, after the death of his maſter, completed his unfiniſhed Roman Hiſtory in 8 volumes. He alſo edited Livy, with notes, in 4to., wrote the Hiſtory of the Roman Emperors, in 6 vols. in 4to., the Hiſtory of the Univerſity of Paris, in 7 vols. 12mo., and a French Rhetoric, in 2 vols. 12mo., which has been reprinted at Liege in 1787. All his works breathe the pureſt attachment to the cauſe of religion and virtue. His ſtyle, however, is inferior to that of Rollin. He died at Paris on the 1ſt of December, 1765, in his 74th year. His obſervations on Monteſquieu's Eſprit des Loix have ſunk into merited oblivion. Nouv. Dict. Hiſtorique.

CREUILLY, in *Geography*, a ſmall town of France, in the department of Calvados; 12 miles N.W. of Caen, and 6 miles E. of Bayeux. It is the chief place of a canton, in the diſtrict of Caen, and has a population of 1060 individuals. The canton itſelf contains 31 communes, and 14.059 inhabitants, upon a territorial extent of 127 kiliometres and a half.

CREUS, or CRUZ, *Cape*, a cape of Spain, on the coaſt of Catalonia in the Mediterranean. N. lat. 42° 29′. Long 19° 53′ E. of the peak of Teneriffe.

CREUSE, a river of France, which gives its name to one of the nine central departments. It has its ſource in the ſouth, in the mountains which border the department of Correze, flows to the north, and, paſſing by Aubuſſon, Argenton, Le Blanc, La Roche Poſay, and La Guerche, it throws itſelf into the river Vienne, below La Haye, at a place called *Le Bec des Eaux*. It takes up the Little Creuſe and the Gartempe. The Creuſe is navigable only in ſome places: its courſe is about 230 kiliometres.

CREUSE, *the Department of the*, is the ſeventh central department of France. Its capital is Guéret. It conſiſts of the province formerly called La Marche, and owes its name to the river Creuſe.

To the northweſt this department is bounded by that of the Indre; to the north-eaſt by that of the Allier; to the eaſt by that of the Puy-de-Dôme; to the ſouth by that of the Correze; and to the weſt by that of the Upper Vienne. Its principal rivers are the Creuſe, the Little Creuſe, the Tardes, Thorion, Ardour, and Gartempe.

The climate is ſerene and ſalubrious, but rather cold. The ſoil is not favourable to wheat, but it produces rye, oats, garden-fruits, and the vine. There are good paſtures for horſes, cattle, and ſheep; coal mines, marble quarries, and mineral ſprings. The principal trade is in cattle, wool, and cheeſe.

The department of the Creuſe has ſome capital manufactures of tapeſtry, coarſe woollens, and linen cloth. Its territorial extent is 5794 ſquare kiliometres and a half. The number of inhabitants amounts to 216,255, or 751 individuals to the ſquare league. The average contribution of each individual annually is about 4*s.* 3*d.* ſterling.

Beſides the capital, Guéret, the principal towns are Aubuſſon, Bonnat, Evaux, Felletin, Bourganeuf, and Bouſſac.

CREUSIS, in *Ancient Geography*, a maritime town of Bœotia, ſituated in the gulf of Corinth. It was the arſenal of the Theſpians. Pauſanias, l. ix. Bœotic. c. 32.

CREUSSEN, in *Geography*, a ſmall town of Franconia, in Germany, 9 miles W. of Egra, with a flouriſhing manufacture of earthenware. It is alſo called Creuſen, in Latin *Cruſina*, and belonged to the king of Pruſſia as margrave of Anſpach.

CREUTZBERG, or CREUTZBURG, a ſmall town of Pruſſia, in the duchy of Sileſia, on the little river Brinnitz, in the principality of Brieg, 39 miles E. of Brieg, famous for its very briſk trade in honey, bees' wax, leather, and linen cloth.—Alſo, a ſmall town of Saxony, in the principality of Saxe Eiſenach, ſituated on the river Werra, over which there is a handſome ſtone bridge. The place contains 320 houſes and about 1600 inhabitants, whoſe chief induſtry conſiſts in agriculture.—Alſo, a ſmall town of Pruſſia, in the circle of Natangen in Eaſt Pruſſia, with an old ruined caſtle.

CREUTZFELDER, JOHAN GEORG, in *Biography*, a portrait painter, who died at Nuremberg in 1633. We have, amongſt many others, the following portraits engraved after this artiſt: Gottlieb, count of Oetlingen, a ſmall plate, by L. Kilian: Philip Gottlieb, count of Hohenloe, a large oval ditto by Hainzelman. Heinecken.

CREUTZNACH, in Latin *Cruciniacum*, in *Geography*, a ſmall town of France, in the department of Rhine and Moſelle, on the river Nahe, 24 miles S.W. of Mayence. It is the chief place of a canton, in the diſtrict of Simmern, and has 3187 inhabitants. The canton contains 17 communes, and a population of 9265 individuals. The ſalt-ſprings near Creutznach are very important, and produce annually to the value of from 220 to 230,000 French livres to the public revenue.

CREUTZOFF, a town of the duchy of Courland; 16 miles S.S.W. of Mittau.

CREUX, a term in *Sculpture*, much uſed by the French; though not yet, that we know of, naturalized among us; but the want of a word of equal import in Engliſh, as it has frequently put us under a neceſſity of uſing this in the courſe of the preſent work; ſo it pleads ſtrongly for its admiſſion into our language.

Creux originally ſignifies a *hollow*, *cavity*, or *pit*, out of which ſomething has been ſcooped, or dug: hence it is uſed to denote that kind of ſculpture, and graving, where the lines and figures are cut and formed within the face, or plane of the plate, or matter engraven on.

In which ſenſe, it ſtands oppoſed to *relievo*; where the lines and figures are emboſſed, and appear prominent above the face of the matter.

CREUZBURG, in *Geography*, a town of Bohemia, in the circle of Czaſlau; 10 miles N.E. of Teutſch-Brod.

CREW, the company of ſailors belonging to a ſhip, boat, or other veſſel.

The ſailors that are to work and manage a ſhip are regulated by the number of laſts it may carry; each laſt making two tun.

The crew of a Dutch ſhip, from 40 to 50 laſts, is ſeven ſailors and a ſwabber; from 50 to 60 laſts, the crew conſiſts of eight men and ſwabber; and thus increaſes at the rate of one man for every ten laſts; ſo that a ſhip of 100 laſts has twelve men, &c. Engliſh and French crews are uſually ſtronger than Dutch; but always in about the ſame proportion.

In a ſhip of war there are ſeveral particular crews, or gangs, as the boatſwain's *crew*, the carpenter's *crew*, the gunner's *crew*, &c.

CREW, NATHANIEL, in *Biography*, an Engliſh prelate who flouriſhed in the ſeventeenth and eighteenth centuries, was born in 1633, and was the fifth ſon of lord Crew. In the year 1652 he was admitted commoner of Lincoln college in Oxford, where he took his degree in February 1655-6, and ſhortly after was choſen fellow of that college. At the reſtoration of Charles II. he became a zealous adherent of the royal cauſe, and was ſoon made one of the proctors of the univerſity. In the following year he took the degree of doctor of laws, and then went into holy orders. He was elected rector of Lincoln college, and in the following April he was inſtalled dean of Chicheſter, with which he held the precentorſhip. He became a favourite of the king, and was appointed clerk of the cloſet, and in 1671 was raiſed to the ſee of Oxford. He had held this ſituation but three years, when he was elevated to the more important biſhopric of Durham, which was given him in conſequence of ſome ſervices rendered by him to the duke of York, to whoſe meaſures he ſeems to have been but too ſubſervient. In 1676 he was admitted to the rank of privy-counſellor; and on the acceſſion of James II. to the throne, he obtained the appointment of dean of the chapel-royal in the room of Dr. Compton, biſhop of London, who was rendered unfit by his honeſt and zealous oppoſition to popery. The principles of biſhop Crew ſeem never to have ſtood in his way of preferment; he could change with the times, and join in any acts that his ſuperiors might deem fit to be performed. He was accordingly ſelected as one of the eccleſiaſtical commiſſioners to carry into effect the determinations of James, which finally coſt the ill-fated ſovereign his crown. In this commiſſion Crew was the abettor of many of the cruel projects which diſgraced that age. He took an active part in the ſuſpenſion of the biſhop of London, and in the perſecutions inflicted upon Mr. Samuel Johnſon, an eminent divine; and he countenanced by his preſence another proſecution carried on againſt Dr. Peachy. In the ſame year he offered to attend the pope's nuncio at his public entry into London, but it is ſaid his coachman refuſed to drive him that way. He proceeded on in this courſe without any remorſe, or apparent anxiety, till he found the prince of Orange's party likely to prevail; he then began to contrive means for eſcaping the puniſhment due to his miſdeeds. When William aſcended the throne, the name of Crew was omitted in the pardon granted to thoſe who had been active for the fallen monarch. The biſhop abſconded, and offered to reſign his office if he might be allowed a thouſand a-year during life. By the interceſſion of Dr. Tillotſon he was permitted to make his peace, and retain his dignity on very eaſy terms. In 1691 he ſucceeded to the title and eſtates of his late father, owing to the death of the laſt of his elder brothers, and from this time he paſſed through life without much notice, and ſpent his time in works of munificence, hoſpitality, and charity. He died in September, 1721, aged 88, having held the ſee of Durham 47 years, and his office as biſhop full half a century, which, with the exception of Bourchier, archbiſhop of Canterbury, was a longer period than any Engliſhman had ever enjoyed that diſtinguiſhed honour. His lordſhip died without iſſue; nor did he leave any works as a literary character to render his name illuſtrious, and his conduct as a man and a courtier have no claim to the gratitude of poſterity. They deſerve, however, notice, in order that others may be deterred from acting ſo inglorious a part when temptations to wealth or to worldly honour are held out to draw them from the line of duty and ſtrict integrity. Biog. Brit.

CREWKERNE, in *Geography*, a market town in Somerſetſhire, England, conſiſts of five ſtreets, and is ſituated in a pleaſant well-wooded valley, remarkable for the ſalubrity of the air and the high cultivation of the ſurrounding lands. The Saxon name was *Crucerne*, derived, according to ſome topographers, from *Cruce*, a croſs, and *Carne*, a cottage. Leland mentions his having ſeen the former when at Crewkerne, and deſcribes it as then environed by ſmall pillars. The church, with a body and tranſepts, and a handſome embattled tower, ſupported by maſſy pillars, deſerves the antiquary's attention, as it is decorated with many curious ſculptures and has a confeſſional behind the altar. The door of entrance on one ſide is ſurmounted by the repreſentation of two ſwine, intended as emblematic of the polluted ſoul of the penitent previous to confeſſion and abſolution, the purity conferred by which is denoted in the figures of two angels over another door. There are two alms-houſes, a large charity ſchool endowed by Dr. Hody, a free grammar ſchool, a work-houſe, and a handſome town-houſe, though greatly out of repair. It has ſome manufactures of dowlas, ſail-cloth, girt-web, and ſtockings. By the return of the population act, 41 Geo. III., the number of inhabitants was 489, and of perſons 2576, of whom 1154 are males and 1422 females, 406 employed in agriculture, and 551 in trade, manufactures, or handicraft. The market on Saturdays is well ſupplied with proviſions and corn, and here is an annual fair in September. Crewkerne is 131½ miles W.S.W. of London. Collinſon's Hiſtory of Somerſetſhire, 3 vols. 4to.

CREX, in *Ornithology*, the daker-hen or rail of Ray, Willughby, and Albinus, the crake-gallinule of Pennant and Latham, and rallus with red-ferruginous wings of Linnæus and Gmelin. See Rallus *Crex*.

Crex is alſo the name given by Bellonius, Aldrovand, Willughby, and Ray, to the ſpotted red-ſhank of Pennant or ſpotted ſnipe of Latham, the Scolopax *totanus* of Gmelin, which ſee.

CREXA, in *Ancient Geography*, an iſland of the Adriatic ſea, on the coaſt of Illyria, according to Pliny; called by Ptolemy *Crepſa*, and now Cherſo.

CRIB, in the Engliſh *Salt-Works*, the name given to a ſort of caſe uſed in ſome places inſtead of the drab, to put the ſalt into as it is taken out of the boiling pan.

Theſe cribs are like hay-racks, wide at the top, and tapering to a narrow bottom, with wooden tops on each ſide, placed ſo cloſe, that the ſalt cannot eaſily fall through them. Through theſe apertures, however, the ſuperfluous ſaline liquor drains out, and leaves the ſalt, after a few days, dry enough to be added to the heaps that ſtand ready for ſale. At Lymington, and in ſome other places, they uſe, inſtead of theſe cribs, a ſort of wooden troughs with holes in the bottom, through which the ſaline liquor drains from the ſalt, and falls into veſſels placed underneath to receive it; and in other places they uſe barrows or wicker baſkets, out of which the liquor runs with great eaſe on all ſides at once.

Crib-*biting*, a vice of *horſes*; this term is of purely Engliſh origin, which is not frequent with the terms uſed in the management or diſeaſes of the horſe, which are for the moſt part French or Latin ſtrangely corrupted.

The crib denotes, in more modern phraſe, the manger, from *manger*, French, to eat; the crib being left for the fodder of the cows, to which the name is at preſent excluſively applied; the original crib, ſince oats have been introduced, being fixed to the wall of the ſtable for the horſe, has obtained the name of *rack*, ſo that the term crib-biting to ſome would appear improper, to others too antique, or entirely obſolete. The crib-biting horſe has generally a lean conſtricted appearance, the ſkin being contracted about the ribs, a ſunken watery eye, or elſe too dry; the muſcles of the face alſo, as well as the ſkin, drawn up with rigidneſs; when unemployed in eating, his almoſt conſtant amuſement is to graſp the rail of the manger with his front teeth, then to draw himſelf up to it as to a fixed point, by a general contraction of all the muſcles of the head, neck, and trunk: at the ſame time the effort is attended with a grunting ſound, apparently from air expelled by the mouth; a relaxation ſucceeds, and then a new effort, ſlavering the manger very much with the tongue, as the mouth being held open, the ſaliva naturally takes this direction.

The horſe that has contracted this unſightly habit grows lean, his digeſtion is ſometimes impaired, and it is generally conceived he draws air into his ſtomach, which is the cauſe of this; his temper becomes ſoured, and more or leſs weakneſs and unfitneſs for ſervice enſue, according to his natural ſtrength; for ſome do not appear materially in this reſpect to be injured by it; while others are obviouſly rendered much weaker by it, and more incapable of a proper day's work; it appears indeed that horſes of a fiery, hot, and unkind temper get the moſt eaſily into this vice.

How this extraordinary propenſity is firſt created, has not been, we believe, much attended to; with ſome it appears to ariſe naturally, as though the ſucking of air gave them pleaſure, or a relief from ſome ſort of ſuffering: at firſt we imagined pains of the ſtomach from acidity, or other cauſes might create it, as horſes eat dirt, or gnaw the walls, to alleviate unpleaſant feelings of this organ. The bad digeſtion and foul feeding are probably only a conſequence and not a cauſe of this malady. That horſes at all diſpoſed to it may be eaſily led into it by the practices of the grooms in cleaning them, we have little doubt; if they clean them before the manger, and irritate them with too ſevere a comb, and in parts where they cannot endure it, they ſeize upon the manger for a counter action to their ſufferings, and in doing this muſt firſt get a habit of it, and may extend it to the removing of other pains, or diſtreſsful feelings. By this means, eſpecially if the grooms, and ſome have a happy knack of this, after every bite, put in a blow or ſtroke of the comb, till they follow each other in regular ſucceſſion, they create a vice which may or may not continue afterwards, according to the ſituation and circumſtances attending the individual. Some are ſaid to get it by imitation of other horſes; whether or not the ſame practices of the groom applied to ſeveral horſes in the ſame ſtable, ſhould not be rather apprehended to be the cauſe, we are not aſſured; in one inſtance, we think, we obſerved this ſatisfactorily enough to be the cauſe, though it paſſed for imitation.

To break horſes of this vice is difficult; cutting off the end of the tongue has been recurred to by ſome as a cure for it; the ſoreneſs created by this means deſtroying the inclination to the trick for a time; when the habit once being interrupted, might or might not again return.

Another and more uſual way with theſe horſes is to buckle a ſtrap tight about their neck, ſo tight as to prevent, by the conſtriction of the throat, the power of doing it, or at any rate, creating ſufficient uneaſineſs to diſincline them to it.

In preventing the habit, it appears but reaſonable with regard to ſuch horſes as are inclined to it, always to turn them from the manger before they are cleaned, with their heads to the heel-poſts, or to clean them in the open air, or by other means, to avoid as much as poſſible irritating thoſe that have preternaturally thin and irritable ſkins, by too rough an iron comb, and to break through any regular habit of inducing biting after each ſtroke of the comb, for they learn to do this at firſt only in the moſt ſenſible parts, as the flanks, the inſide of the thighs, the belly, &c. and afterwards in every part on the ſlighteſt touch of the comb, or even the ſight of it. Some horſes, it muſt be admitted, are truly difficult to clean; many alſo are rendered more ſo than they need be by inconſiderate raſhneſs, and ill applied ſeverity, to prevent theſe aſſociations and miſchief. Proper precautions cannot be taken too early againſt a habit of this kind, for once formed, it is not eaſily afterwards to be ſubdued, even by great patience and well-judged meaſures.

In concluding theſe remarks, we may obſerve, that in the purchaſe and ſale of horſes this vice is not unfrequently a ſubject of litigation: ſhould we venture to interpoſe an opinion on the queſtion uſually agitated on thoſe occaſions, whether a horſe be unſound or not, or, in other words, returnable or not with this defect, we ſhould ſay if the warranty extended to ſoundneſs only, the horſe is not returnable, as horſes are often found with it as to their going; but if vice is ſtated in the warranty, the horſe is unqueſtionably returnable, as it may be ranked among the worſt of them.

CRIBBAGE, a game at cards, wherein no cards are thrown out, and the ſet makes ſixty-one: it being an advantage to deal, by reaſon of the crib, it is proper to lift for it; and he who has the leaſt card deals.

CRIBBATH *Lime-works*, in the ſouth-weſt corner of Brecon county, in South Wales, are the property of Matthew Gwyn, eſq. leaſed to Shearby and Co. who have made a rail-way extenſion of the line of the Swanſea canal, of three-quarters of a mile in length, to reach theſe quarries, which are ſituate on the northern edge of the mineral baſon or coal diſtrict of South Wales. (Phil. Tranſ. 1806, p. 342.) See SWANSEA CANAL.

CRIBBLE, in *Rural Economy*, a term ſometimes employed provincially to ſignify a coarſe ſort of meal, which is but very little finer than bran.

CRIBRARIA, in *Botany*, a genus in the claſs *cryptogamia*, and the order of fungi, formed by Schrader out of the ſpherocarpi of Bulliard. It has for its eſſential character a pericarp, the upper part of which has numerous apertures, through which the ſeeds are ejected in the form of a powder. It contains ſpherocarpus trichioides, and ſemi-trichioides of Bulliard, and ſeveral other ſpecies, all which are found in autumn on rotten wood.

CRIBRATION, in *Pharmacy*, *ſifting*; the act of ſeparating the finer parts of a medicine, whether dry or humid, from the groſſer; the latter by means of a pulping ſieve, the former by a fine ſearce.

With reſpect to cribration, Quincy makes the following remark, in order to obviate the miſchiefs and inconveniences which, through inadvertency or haſte, frequently happen in the practical ſhops: which is, that whatſoever is to be powdered, the whole ingredient or ingredients, with all their parts, to be uſed, ſhould paſs the ſieve, and be all mixed equally together before any be uſed. For through neglect of this caution, ſeveral medicines which come under this kind of management, will, in their different parts, be of different efficacies, according as that part of moſt virtue, being more or leſs friable, may paſs through firſt, which will make that much too ſtrong, or remain behind to the ſame prejudice. In compoſition likewiſe of ingredients of different textures or coheſions, ſome run through much ſooner than others; ſo that there is an abſolute neceſſity of mixing the whole carefully after all is paſſed.

CRIBRIFORME, or *Cribroſum os*, in *Anatomy*, appellations which are ſometimes given to the ethmoid bone.

CRICELASIA, formed of κρικος, *ring*, and ελαυνω, *I drive*, among the Greeks, the exerciſe of rolling the circle, or *trochus*. This was a ſpecies of exerciſe in uſe among the ancients; and is, though not very diſtinctly, obſerved by Oribaſius, in his Medicinal collections, lib. vi. cap. 26. from Antyllus. It ſhould ſeem to be little more than driving the hoop, as is now practiſed by boys. The hoop was ſo large as to reach as high as the breaſt of the perſon who uſed it: the inſtrument by which it was driven along was of iron, with a wooden handle; and ſmall rings, κρικοι, were faſtened to the hoop, to jingle and divert the perſon who exerciſed himſelf with it; which Oribaſius conſiders of importance. This exerciſe was recommended for rendering the limbs pliable, and ſtrengthening weak nerves.

CRICETUS, in *Zoology*, the name of an animal of the mouſe kind; the hamſter of Buffon, the German marmot of Pennant, and Mus *Cricetus* of Gmelin, which ſee.

CRICH, in *Geography*, a vicarage in the hundred of Morleſton, in the county of Derby.

The church ſtands on an eminence, and has a ſpire of conſiderable height, which makes it a conſpicuous object towards every quarter but the N.W., in which direction the hill riſes, to that high and remarkable iſolated maſs of lime-ſtone, on which the round tower or monument was erected ſome years ago, as a proſpect-houſe. To the geologiſt, Crich-hill preſents one of the moſt curious and ſtupendous diſlocations of the ſtrata which Derbyſhire perhaps any where furniſhes; the mineral lime-ſtone here ſeen, forming the ſummit of the hill, is lifted and ſupported, at not leſs, perhaps, than 1000 yards above the level of the ſame ſtratum ſurrounding it at a diſtance on every ſide. On the N.W. N. and E. ſides of the monument-hill or cliff, the lime-ſtone rock dips in an angle of 30 or 40 degrees, and is ſoon covered by the ſhale, grit-ſtone, and coal-meaſures, dipping almoſt equally faſt. The town ſtands upon a conſiderable tract of the elevated lime-ſtone, lying nearly in an horizontal poſition, a fiſſure paſſing on its S.W. ſide, acroſs which we paſs in going towards Wirkſworth, at once from the ſurface of the lime-ſtone ſtratum to the ſurface of the ſecond grit-ſtone ſtratum, without being at firſt ſenſible of any diſlocation, although the grit is naturally ſituate ſo far above the lime. A new ſongle for the draining of the Crich-cliff lead-mines is now driving from Fritchley Brook. To the ſouthward of the town the great lime-works are ſituate, and kilns, from which the country S. and E. for a great way is ſupplied with lime, by means of the Cromford canal, from whence a rail-way branch extends up into the works. The ſtone here burns to a very white lime, and is highly eſteemed for agricultural purpoſes as a manure for building and alſo as a flux at the ſeveral iron ſmelting furnaces in the neighbourhood. The chaſe, and a common in this pariſh of about 200 acres, were incloſed by act of parliament in the year 1786. Here alſo is a large poor-houſe, whoſe plan is worthy perhaps of imitation in other diſtricts; ſeveral of the ſurrounding pariſhes are joined for its ſupport, and ſend their paupers hither to work and be maintained, paying a ſettled ſum per week for each to the general fund which is managed by truſtees on the ſpot, who ſuperintend the eſtabliſhment, and account annually to a general meeting of the pariſh officers and chief inhabitants of the pariſhes intereſted. It is impoſſible for each ſmall pariſh to have its *work-houſe*, as the law preſumes, but ſuch are almoſt ſure, for want of proper management, to degenerate into haunts of idleneſs, vice, and miſery; in larger eſtabliſhments perſons of ſufficient abilities and of character can be retained as governors and maſters, &c. and order, and uſeful labours by ſuch as are able, may be enforced. There are other ſimilar eſtabliſhments in Derbyſhire.

CRICHTON, James, in *Biography*, who, on account of his very extraordinary talents, obtained the epithet of "The Admirable," was deſcended from a good family in Scotland, where he was born about the year 1551. He was educated at Perth and St. Andrew's, and made a moſt rapid progreſs in the whole circle of ſciences, as they were then taught and underſtood. Mr. Rutherford was, at that time, profeſſor at St. Andrew's, but Crichton was not indebted to him alone for his knowledge. He was educated with James I., and had the advantage of inſtructions from Buchanan and other celebrated profeſſors: to them, as well as to his own natural powers, he muſt have owed much, for it appears that before he was 20 years of age he had made himſelf maſter of all the ſciences, and could ſpeak and write to perfection in ten different languages. He had likewiſe improved himſelf to the higheſt degree in the arts of riding, dancing, and ſinging, and likewiſe in that of playing upon almoſt all ſorts of inſtruments. Thus accompliſhed, Crichton went on his travels, and we find him firſt at Paris, where he gave the moſt ſplendid proofs of his talents. He invited, by public advertiſement, all thoſe who were verſed in any art or ſcience, to diſpute with him in the college of Navarre, that day ſix weeks, by nine of the clock in the forenoon, where he would attend, and be ready to anſwer whatever ſhould be propoſed to him in any art and ſcience, and in any of the twelve languages; Hebrew, Syriac, Arabic, Greek, Latin, Spaniſh, French, Italian, Engliſh, Dutch, Flemiſh, and Sclavonian; and this either in verſe or proſe, at the diſcretion of the ſeveral diſputants. During this time, while the whole ſtrength of the learned was preparing for the conteſt, Crichton regarded nothing but his amuſements; nevertheleſs, when the appointed day arrived, he acquitted himſelf beyond all expectation, though the diſpute was carried on from nine in the morning till ſix in the evening. The preſident, at length, after extolling him very highly, on account of the rare and excellent endowments beſtowed on him, roſe from the chair, and accompanied by four of the moſt eminent profeſſors of the univerſity, gave him a diamond ring, and a handſome preſent of money, as a teſtimony of reſpect and eſteem. Henceforward he was denominated the "admirable Crichton." A diſplay of a ſimilar kind is attributed to him next at Rome, where he appeared, in the preſence of the pope, many cardinals, biſhops, and profeſſors of ſcience, and diſplayed ſuch wonderful proofs of his univerſal knowledge, that he excited no leſs ſurpriſe than he had done at Paris. At Venice he conciliated the public favour by a Latin poem in praiſe of the city, and contracted an intimate acquaintance with ſeveral eminent literary characters. Among theſe was Aldus Manutius, who has borne his teſtimony to the extraordinary powers of Crichton, and who has aſſerted, that he poſſeſſed the knowledge of ten languages, as well as of all kinds of ſcience, and all gymnaſtic exerciſes; that he had ſpoken with the greateſt applauſe before the doge and ſenate of Venice, and in many aſſemblies of learned men, who flocked from all parts to behold him, and that, in particular, he had held a ſolemn diſputation before the univerſity of Padua, with the moſt eminent profeſſors, on a variety of topics, eſpecially the Ariſtotelian philoſophy. He afterwards ſuſtained a ſcholaſtic conflict for three days, againſt all oppoſers, in any form which they choſe. His great reputation cauſed him to be choſen by the duke of Mantua, preceptor to his ſon Vincenzo, a diſſolute youth, who was ſuſpected of having contrived the death of his tutor. The ſtory has been related very differently; but the following ſeems to be as near the truth as any: One night, during the time of the Carnival, as Crichton was walking along the ſtreets of Mantua, and playing upon his guittar, he was attacked by half a dozen people in maſks: the aſſailants were unable to maintain their ground againſt him, and the leader, who proved to be his pupil, being diſarmed, pulled off his maſk, and beſought his own life. Crichton fell on his knees, and expreſſed his concern for what had happened; alleging, that he had only engaged in ſelf-defence, and that if Gonzaga had any deſign upon his life, he might be always maſter of it. Then taking his own ſword by the point, he preſented it to the prince, who immediately ſeized it, and with ſavage fury ran him through the heart. This fatal cataſtrophe happened in June 1583, and excited the greateſt affliction among thoſe who were the friends and aſſociates of the deceaſed. The high pretenſions of Crichton have been accurately and candidly examined by the late excellent biographer Dr. Kippis, who has ſtated the queſtion with impartiality, but who denies upon good authority, we think, that he has any thing like the claims to celebrity that have been aſcribed to him. There is no doubt that he poſſeſſed uncommon dexterity of body and quickneſs of underſtanding, with a conſiderable degree of confidence.

"One method," ſays the candid doctor, "yet remains, by which we may be enabled to form a judgment of Crichton's genius, and that is, from the peruſal of the four poems of his which are ſtill extant." Theſe, by the fair rules of criticiſm, will be found poſſeſſed of a very moderate degree of merit: they are faulty in language and proſody, and muſt, according to another valuable writer, ever exclude him from the rank of the eminent and cultivated ſcholars of that age. Theſe poems are to be found in the notes to the article in the Biographia Britannica. And the author of that article concludes with ſaying, that "it is evident that he was a youth of ſuch lively parts as excited great preſent admiration, and high expectations with regard to his future attainments. He appears to have had a fine perſon, to have poſſeſſed a peculiar facility in learning languages, to have enjoyed a remarkably quick and retentive memory, and to have excelled in a power of declamation, a fluency of ſpeech, and a readineſs of reply. His knowledge was likewiſe uncommon for his years, and this, in conjunction with his other qualities, enabled him to ſhine in public diſputation. But whether his knowledge and learning were accurate or profound may juſtly be queſtioned, and it may equally be doubted whether he would have ariſen to any extraordinary degree of eminence in the literary world." Biog. Brit.

CRICKEITH, or Cricaeth, in *Geography*, a poor borough-town of North Wales, in the county of Caernarvon, ſituated near the coaſt of the Iriſh ſea, with a weekly market on Wedneſday. It is chiefly diſtinguiſhed by the ruins of a caſtle, placed on an eminence projecting into the ſea, and preſenting a fine view acroſs the bay towards Harlech, and its once magnificent caſtle: 21 miles S. of Caernarvon, and 236½ N.W. of London.

CRICKET, in *Entomology*. See Gryllus.

Cricket is alſo the name of an exerciſe, or game, with bats and a ball.

CRICKHOWEL, in *Geography*, a ſmall town, or rather village, of South Wales, in the county of Brecon, ſituated in a beautiful vale near the river Uſk, and the line of the *Brecknock* and *Abergavenny* Canal, and principally diſtinguiſhed by an ancient caſtle, now in ruins. The keep ſeems to have been a very ſecure building, ſeated upon a lofty artificial elevation: 6 miles W.N.W. from Abergavenny, 13 E.S.E. from Brecknock, and 149 W.N.W. from London

CRICKLADE, a town of England, in the county of Wilts and hundred of Highworth; ſituated on the river Iſis, and near to the line of the Thames and Severn Canal, and alſo in the line formerly marked out for the intended Thames and Avon canal. (See Canal.) Cricklade is a borough-town, but the inhabitants having been convicted of corruption before a committee of the houſe of commons in 1782, an act of parliament was paſſed to diſqualify thoſe electors who had accepted bribes, and to extend the right of voting for the future to the freeholders of the ſeveral hundreds of Highworth, Staple, Cricklade, King's-bridge, and Malmeſbury. It has a weekly market on Saturday; 30 miles W. of Oxford, and 83½ W.N.W. of London. By the laſt return (41 Geo. III.) Highworth, Cricklade, and Staple contain 1722 inhabited houſes, occupied by 1999 families, and the total of inhabitants is 9587, of whom 4539 are males, and 5048 females; 6245 employed in agriculture, and 650 in trade, manufacture, or handicraft.

CRICO-ARYTENOIDEI Musculi, in *Anatomy*, muſcles of the larynx. See Larynx.

CRICOIDEA Cartilago; from κρικος, a *ring*, or *circle*, and ειδος, *form*; a cartilage of a circular form, belonging to the larynx. See Larynx.

CRICO-PHARYNGEUS Musculus. Under this name are deſcribed thoſe fibres of the inferior conſtrictor of the pharynx, which have their origin from the cricoid cartilage.

CRICO-THYREOIDEUS Musculus; a muſcle of the larynx. See Larynx.

CRI Des Armes, or *Cri d'Armes*, or *Cri de Guerre*, Fr. the cry or ſhout of arms, or war-hoop: an ancient cuſtom, which is ſtill preſerved by the Turks and other uncivilized nations whenever they go into action. The French, Spaniards, Engliſh, and every nation in Europe formerly practiſed it. The national acclamations were Montjoie and St. Denys for the French, St. James for Spain, St. George for England, St. Malo or St. Yves for the dukes of Britanny, St. Lambert for the principality of Liege, St. Andrew for Scotland, St. Patrick for Ireland, &c. The war-hoop of the ſavages in America may be conſidered as of this nature.

Every ſort of noiſe however is now exploded among the nations of Europe, the Turks excepted. When two armies are ready to engage, the ſoldiers, on both ſides, are attentive to the word of command, and a profound ſilence, till it is given, prevails. And when the action once commences, nothing is heard but the noiſe of drums, trumpets, and cymbals, of cannon and muſquetry.

The French ſoldiers ſometimes call out *tué, tué*, in making any deſperate attack, or in charging with the bayonet, or when one battalion or ſquadron is directly oppoſed to another. And the Spaniards ſometimes baul out *amal.* Such effuſions or exclamations, however, are apt to lead to confuſion and diſorder.

CRIEFF, in *Geography*, a town of Scotland, in the county of Perth; 17 miles N. of Sterling, and 16 W. of Perth.

CRIEL, a ſmall town of France, in the department of the Lower Seine; 6 miles S.W. of Eu.

CRIER, Common, an officer in the city of London, to whom, and to the ſerjeant at arms, it belongs to ſummon all executors and adminiſtrators of freemen to appear, and to bring in inventories of the perſonaal eſtates of freemen, within two months after their deceaſe; who is alſo to have notice of the appraiſements. He is alſo to attend the lord-mayor on ſet days, and at the courts held weekly by the mayor and aldermen.

CRILLON, Lewis de Berthon de, in *Biography*, diſtinguiſhed as a military character, was born in 1541. He ſerved at the ſiege of Calais at the age of 15, and afterwards ſignalized himſelf in many battles againſt the Hugue-nots. In 1571, at the battle of Lepanto, he was wounded, but fixed upon as a knight of Malta to carry the news of the victory to the pope and the king of France. He was a great favourite with Henry III., yet ſcorned to do a baſe act at his deſire. When Henry urged him to aſſaſſinate the duke of Guiſe, his own, as well as his ſovereign's foe, the ſoldier ſcorned to be concerned in ſo foul a deed. By Henry IV., whom he ſerved with fidelity, he was regarded as a brother in arms, and the monarch ever deſignated him as the brave Crillon, and treated him with the familiarity of a friend; but never rewarded him according to his merits. Ill health obliged Crillon to retire from ſervice, and he ſpent his latter days in exerciſes of piety and penitence. He died in his 75th year at Avignon. Many amuſing and intereſting anecdotes have been told of this warrior; of theſe we ſhall mention but one. Being awakened in the dead of night by the young duke of Guiſe, and informed that the enemy was in poſſeſſion of the town, he was urged to eſcape, rather than to become priſoner. Crillon quietly took his arms, and declared

clared he had rather die at his poſt. When he was apprized that it was a mere trick to try the preſence of his mind; he looked ſternly at the youth, and ſeizing him, ſaid, "Young man, never amuſe yourſelf with ſounding the courage of a man of character. Had I in this inſtance betrayed any weakneſs, I would have run you through."

Crillon, in *Geography*, a ſmall town of France, in the department of Vaucluſe, formerly called the Comtat Venaiſſin; 6 miles N.E. of Carpentras.

CRIM, Eski Crim, *Crim Staroï*, or *Old Crim*, a ſmall town of the Crimea, from which the whole peninſula has probably derived its name, is ſituated in a fertile plain on the ſlope of a mountain, and was doubtleſs the *Cimmerium* of the ancients. It is remarkable for numerous and extenſive ruins. The firſt that ſtrike the eye on coming from Burunduk are thoſe of two Tartar moſques near the road, a fountain, and the remains of a large Armenian church. Beyond the town are ſome vineyards of the tockay plant. Its modern name is *Leucopolis.*

The ancient palace of the Chans who reſided in this place before they removed to Baktſhiſarai is in a tolerable ſtate of preſervation, and until the year 1800 the Ruſſian biſhop of the Taurida inhabited here a very handſome and extenſive palace, which had been built for the empreſs Catharine II. when ſhe made her famous tour through the Crimea.

The beautiful orchards which ſurrounded Eſki Crim are almoſt deſtroyed, and few are left of thoſe numerous mulberry trees which induced prince Potemkin to eſtabliſh a nurſery for rearing ſilk-worms and a ſilk manufactory near this place. Both eſtabliſhments have dwindled into nothing. Profeſſor Pallas obſerves that if ever the Crimea were peopled with colonies of Georgians and Armenians, they would ſoon increaſe the commerce of Ruſſia by ſeveral hundred poods of ſilk and promote other uſeful branches of trade.

All the environs of Eſki Crim contain traces of a formerly conſiderable population. It was conſidered as the capital of the country by the Genoeſe when they were in poſſeſſion of the peninſula. "Pallas's Travels through the Southern Provinces of the Ruſſian Empire," vol. iii.

Crim *Steppe.* See Nogait.

Crim *Tartars*, or *Crimſkoï Tartars*, a race of Tartars inhabiting the Crimea, who, like the genuine unmingled Tartars from whom they ſpring, are of a middling ſtature and lean, the mouth and eyes ſmall, the hair dark brown and the teeth firm and white. Temperance and cleanlineſs form a law of their religion, which is that of Mohammed. They are extremely hoſpitable. Their manners are mild and generous. Their Kaima Chan, or commandant, is ſupreme judge of all litigious matters and offences, except caſes of murder; and he pronounces without appeal on the ſole authority of the Koran. They have ſome difficulty to accuſtom themſelves to European manners and to the domination of the Ruſſians. Their murzas, chiefs, or nobles, generally reſide in the country.

The houſes in the towns, as well as in the villages, are for the moſt part of ſquare timbers, having the interſtices filled with brick-work or with turf. The chinks and crannies are made tight with clay and then plaiſtered within and without. Only the moſques, minarets, and baths are of ſtone, and a few of marble. They have chimnies in the rooms, but no ſtoves. Their cuſtom is to ſit upon low ſofas with Turkiſh coverings and cuſhions, or upon a clay ſeat raiſed a little above the ground and ſpread with a carpet.

The reſidence of the chans was at Baktſhiſheraï, which is ſtill the principal Tartar town of the Crimea.

The Tartar mountaineers of Kikeneis Limena and Simaus in the ſouth have a particular phyſiognomy. Their faces are uncommonly long, their noſes aquiline and out of all proportion, their heads high and flat at the ſides, their beards and hair of a clear brown, reddiſh, or white colour, which is ſo very rare in the Crimea. Their feet are admirably light, and they jump from ſtone to ſtone like dancers. Their huts are, like thoſe of almoſt all the inhabitants of the ſouth of the peninſula from Balaklava to Ajuſhta, built in general againſt the terraces of the rock and partly excavated in the rock itſelf, having but two oblique and tranſverſe walls in front; the roof, which is flat, is covered with turf, and is commonly on a level with the terrace of the mountain, ſo that they can paſs from the rock to the roof. The interior of theſe huts contains a ſpacious fire place and a tunnel for the ſmoke. The ſtony nature of the ſoil in their vicinity will not admit of their uſing the great Tartarian wheeled plough; they employ a pole with a ploughſhare. To bring their wood for building and fuel down from the mountains they make uſe of a particular kind of truck called kaſak, to which they fix two oxen; and theſe animals, which are generally ſmall, are of the ſame advantage to them as mules, in aſcending or deſcending the mountains.

The mountain Tartars keep a few horſes, which are likewiſe ſmall, but uncommonly hardy and very ſurefooted; they have numerous herds of goats, and their ſheep, like the goats, are of a ſmall ſize with a little fat tail, but covered with a very fine wool which might be brought to the greateſt perfection by means of Spaniſh rams.

Theſe mountain Tartars are of an entirely different race, and even their dialect differs conſiderably from that of the Tartars who inhabit the valleys to the north. They muſt be the deſcendants of other nations who had been driven to the peninſula or who came from the ſea coaſt. For this reaſon thoſe who are properly called the Tartars of the Crimea conſider them as foreigners, and give them the contemptuous name of *Tat.* "Tooke's View of the Ruſſian Empire," vol. ii. "P. S. Pallas's Travels through the Southern Provinces of the Ruſſian Empire," vol. iii.

CRIME, a breach or tranſgreſſion of a law, or an action contrary to the purport of a law, either natural or divine, civil or eccleſiaſtical: to which a penalty is annexed.

The term crime includes in it the idea of a determination and deſign formed to do an injury. It is derived from the Latin *crimen*, of κρινω, *judico*, *I judge.*

The Romans diſtinguiſhed two kinds of crimes; *viz. private*, which only affected particular perſons; the proſecution whereof was not allowed by the laws to any but thoſe intereſted therein; as adultery, &c. and *public* crimes; the proſecution whereof was permitted to all perſons, though in no-wiſe immediately intereſted.

A *crime*, conſidered as an act committed, or omitted, in violation of a public law, either forbidding or commanding it, is a term ſynonymous with *miſdemeſnor;* and both may be comprehended under this general definition; though, in common uſage, the word "crimes" is made to denote ſuch offences as are of a deeper and more atrocious dye; while ſmaller faults, and omiſſions of leſs conſequence, are compriſed under the gentler name of "miſdemeſnors" only. The diſtinction of public wrongs from private, of crimes and miſdemeſnors from civil injuries, ſeems principally to conſiſt in this; that private wrongs, or civil injuries, are an infringement or privation of the civil rights which belong to individuals, conſidered merely as ſuch; whereas public wrongs, or crimes and miſdemeſnors, are a breach and violation of the public rights and duties, due to the whole community, conſidered as a community, in its ſocial aggregate capacity. In all caſes the crime includes an injury; every public offence is alſo a private wrong, and ſomewhat more; it affects the individual, and it likewiſe affects the community. Accordingly, in taking cognizance of all wrongs, or unlawful acts, the law has a double view; *viz.* not only to redreſs the party injured by either reſtoring to him his right, if poſſible; or by giving him an equivalent; but alſo to ſecure to the public the benefit of ſociety, by preventing or puniſhing every breach and violation of thoſe laws, which the ſovereign has thought proper to eſtabliſh for the government and tranquillity of the whole. See PUNISHMENT.

Military crimes and offences are, ſtrictly ſpeaking, thoſe crimes and offences that are cognizable by courts martial, and are deſcribed in the articles of WAR, which ſee.

CRIME, *Quaſi.* See QUASI.

CRIMEA, or CRIM TARTARY, anciently the *Cherſoneſus Taurica*, a ſouthern province of Ruſſia, in Europe, in the government of Taurida, between the 44° 44′ and 45° 65′ of northern latitude; bounded to the ſouth-weſt and north-weſt by the Black Sea, to the eaſt and north-eaſt by the ſea of Aſoph; and joined to the continent on the north by a narrow iſthmus or neck of land; whence it is alſo called the Crim Peninſula, or Peninſula of the Crimea. This iſthmus is not above ſix miles in breadth from the ſea of Aſoph, or rather an arm of it called the Sivaſh, to the Black Sea. The moat which ſeparates the peninſula from the main land is not very wide; in the middle of it is a handſome bridge adorned with the arms of Ruſſia. This moat is only two miles diſtant from the fortreſs of Perecop, called by the Tartars *Or-Capi*, which is but an inſignificant village. See PERECOP.

As the whole peninſula of the Crimea is connected with the continent by the iſthmus of Perecop only; profeſſor Pallas conjectures that the Crimea was formerly detached from it and conſtituted a complete iſland; but this muſt have been at a time when the Black Sea had a much higher bed; and that its bed was higher is ſufficiently atteſted by paſſages of the ancients. Pliny, in the fourth book of his Natural Hiſtory, chap. xxvi., ſays: "Sed a Carcinite Taurica incipit quondam mari circumfuſa et ipſa, quo nunc jacent campi; deinde vaſtis attollitur jugis."

At a very ancient period this iſthmus had been fortified in order to protect the peninſula from the irruptions of the Tauro-Scythians. The means of defence conſiſted of a wall furniſhed with turrets, from which the place received the Greek name of *Neon Teichos*, or the new wall.

The firſt known inhabitants of the Crim were *Cimmerians*, a great and martial people of the race of the Thracians. Of all their extenſive poſſeſſions, which were raviſhed from them by the Scythians, they retained the Crim the longeſt. Six hundred and ſixty-five years before the Chriſtian æra, they were, it ſeems, driven from the plain by theſe their ſtronger neighbours; but maintained their ſtation in the mountains under the name of Taurians or mountaineers. From them the whole peninſula obtained the appellation *Taurica*.

In the former half of the ſixth century Greeks began to ſettle in the Crim. The Mileſians built Panticapæum or Boſphorus, at preſent called Kertſch, and Theodoſia, now called Caffa; and an uncommonly flouriſhing commerce was carried on here by the Greeks.

About a hundred years afterwards, the Scythians were for the moſt part exterminated by the Sarmates. The Taurians then extended their dominion over nearly the whole peninſula. They preſſed ſo hard upon the empire of Boſphorus, that it ſubmitted 112 years before the birth of Chriſt to the great Mithridates, king of Pontus, who, ſubduing the Taurians, made himſelf maſter of the whole peninſula.

In the beginning of the Chriſtian æra, the Alans forced the Boſphorian kings to pay them tribute, and drove away the Taurians. They maintained their power about one hundred and fifty years, and were ſucceeded by the Goths, during whoſe dominion Chriſtianity was firſt introduced into the Crimea, in the time of Diocletian and Conſtantine the Great. But the Goths in their turn were obliged to ſubmit to the Huns, and to take refuge in the mountains, where they had their own ſovereigns, who were Chriſtians; and the kingdom of Boſphorus was entirely extinct towards the cloſe of the fourth century.

The Hungarians who, with the Bulgarians, had conquered all the country between the Don and the Dnieſter, entered the Crimea in 464. The Goths and Alans went to Taman.

The deſcendants of the Hungarians took the name of Aoultziagrians, and led a wandering life in the Crimea, but were obliged to ſubmit to the Khatyares, who made likewiſe the Goths in the mountains, and the Grecian towns on the coaſt, their tributaries.

In the year 840, the emperor Theophilus erected a government at Cherſon, to which he ſubjected all the other towns of the Crimea and Cuban; for though theſe countries were tributary to the Khatyares, they yet acknowledged the ſupremacy of the Byzantine court. However, from the time that the Khatyares had firſt conquered the Crimea, that peninſula had taken the name of Khat or Gatyaria, except the mountainous part, which was called Gothia from the Goths, and Tſikia from the remaining Alans. Jews were then numerous in the Crimea.

The Petſchenegers, or Kanglians, in 882, drove the Hungarians from the Crimea, and about the middle of the eleventh century were forced in their turn to fly before the Komanes, otherwiſe called Uzes, Butyes, Poloſtzes or Polouzes, who alſo extorted a tribute from the Greeks and Goths that were left in the Crimea. About this time the town of Sougdaia or Sugdaya, now Sudak, roſe into ſuch conſideration by its commerce, that all the Grecian poſſeſſions in the Crim received the name of Sugdania; and, in 1204, the Greeks no longer acknowledged the ſupremacy of the Byzantine empire. They ſubmitted to different princes. When the Ottomans made themſelves maſters of the empire, there exiſted two principalities in the Crimea, one called Theodor, now Inkerman; and the other Gothia, now called Mangoute.

At length the Komanes were ſubdued by the Mongoles or Tartars, in 1237, and from that time the Crim formed a province of the Kaptſchakian Tartar empire. The people were governed in clans by their own princes, to whom the name or title of ulutz-bey, or oulough-beigh, was given, and who roamed about the plain with their hordes. The Greeks and Goths paid tribute to the Mongoles, as they had before done to the Komanes.

In the beginning of the Tartar dominion, a number of Tcher, Caſſes, or Circaſſians, eſtabliſhed themſelves in the Crimea in 1333, and Kertſch was governed by a prince of that nation.

While they were maſters of Conſtantinople, the Latins, and eſpecially the Venetians, carried on a very important commerce with the Crim and Taman. But, in later times, the Genoeſe appropriated it excluſively to themſelves, and, in the bloody wars which enſued in conſequence, they often gained the ſuperiority. By permiſſion of the Mongoles they rebuilt Caffa, and made that town the centre of their commerce. They conquered Sudak and Cembalo, now called Balaklava. They paid duties and impoſts to the Mongoles, when they were in full force: but when the hordes were agitated by inteſtine commotions, they bid them defiance, and even the princes of the Tartars were frequently elected and depoſed at the diſcretion of the Genoeſe. It was at this period that the trade from India to the Crimea was divided into two branches; one over the Amoor, the Caſpian Sea, and through Aſtrakan to Tana; the other by the way of Bagdad and Tauris to Trebizond and Sevaſtopolis. Tana belonged to both the Genoeſe and the Venetians, but under Mongolian ſupremacy.

In 1441, the Crim was formed into a ſeparate Chanate, under the dominion of the Tartars; and the Chans were deſcendants from the houſe of Tſchinghis-Khan. The proper founder of the Tartar Crimean ſtate was Mengly Gheray, a deſcendant of the Tſchingiſes. While yet very young, he had been taken priſoner in an engagement by the Genoeſe, who cauſed him to be well educated, and in all reſpects treated like a prince. On being driven to extremities by the Tartars, young Mengly was ſent with ſome of the principal Genoeſe to Conſtantinople, for the purpoſe of moving Mohammed II. to take them under his protection. The ſultan ſhewed great affection to Mengly, and when the Tartars petitioned Mohammed to give them a Chan of their own, he appointed this young prince, who, in return, acknowledged the ſupremacy of the Porte. This ſtate of dependence not proving agreeable to the Tartars, Mengly, not long after his arrival in the Crim, was obliged to apply for aſſiſtance to the Turks, with which he not only reduced the Tartars to obedience in 1475, but even annihilated the Genoeſe authority in the peninſula. Elated with his conqueſts, Mengly was thinking of withdrawing himſelf entirely from the ſupremacy of the Porte, when the Turks ſent garriſons to the principal towns of the Crimea, and reduced the Chan to a dependance, which, particularly from the year 1584, ſunk into a complete ſubjection. Not contented with keeping ſtrong garriſons in the forts of the Crimea, and ſetting up and depoſing the Chans at pleaſure, the Turks ſhut up the entrance of the Black Sea, to other nations, and completely ruined the commerce of the peninſula.

Under the auſtere deſpotiſm of the Turks, the Crim continued till the year 1774, when the empreſs of Ruſſia, Catharine II., by the peace of Kutſchuk Kainardgi, procured the independence of the Chan of Crim Tartary; and obtained for the Ruſſian empire ſome ſtrong places on the frontiers as a ſafeguard againſt the predatory incurſions of the Tartars.

But this pretended independency of the Crimea created new troubles. Sahim Gheray, the Chan who had been placed over the Tartars of that peninſula by the power and influence of Ruſſia, made a more oſtentatious diſplay of his attachment and even vaſſalage, than was ſuited either to his character as Chan, or to that of the people whom he governed. They had always conſidered liberty as the moſt invaluable of human bleſſings, and preferred a connection with the Ottomans with whom they had been ſo long united, who were of the ſame religion, and in conjunction with whom they had ſhared ſo much glory and ſpoil in war, to their new alliance with a Chriſtian nation which they had been in the habit of regarding either with enmity or with contempt. Their diſcontents broke out in 1781. They elected a new Chan. A civil war enſued. Sahim Gheray was worſted. Ruſſia ſent her forces into the Crimea to ſupport him againſt the rebels. The Ruſſians defeated the uſurper, and obliged him to abandon the peninſula. His adherents were either diſperſed or ſubdued. In 1783, Sahim Gheray abdicated his power and transferred it to Ruſſia, and in the beginning of the year 1784, by a treaty ſigned at Conſtantinople between the Ruſſian plenipotentiary Bulgakoff, and the miniſters of the Grand Signior, Ruſſia retained the ſovereignty of the Crimea, of the iſle of Taman, and a great part of the Cuban. In 1787, the empreſs viſited her new provinces, where ſhe was met by the emperor Joſeph II. of Germany. But the unfortunate Sahim Gheray was no longer in the Crimea. He had been dragged from the place of his retreat in Moldavia to the iſland of Rhodes, and was aſſaſſinated by the Turks in the houſe of the French conſul, where he had taken refuge.

The principal remains of antique monuments are found in the ſouth-weſt angle of the peninſula around Sevaſtopol, or Atkiar, which is true claſſic ground. The whole of this angle, which is interſected on one ſide by the port of Atkiar, and on the other by that of Balaklava, was formerly called the *Heracleotic Cherſoneſus*, from ſome Greek coloniſts that came from the town of Heraclea, in Aſia Minor. It forms exactly, as Strabo obſerves, a large cape or promontory. "In littore, præter quod navigatur, meridiem verſus expoſitum eſt magnum promontorium, continenter porrectum, portio totius peninſulæ; inque eo ſita eſt urbs Heracleotarum, colonia eorum qui ſunt in Ponto, nomine Cherroneſus." And farther, is (portus Symbolon, the port of Balaklava;) "cum alio portu, Ctenuntem appellant," (which can be no other than that of Atkiar), "iſthmum conſtituit, ſtadiorum quadraginta; is eſt iſthmus, qui parvam peninſulam claudit, quam magnam peninſulæ partem eſſe diximus, et in ſe habere cognominem ſibi urbem Cherroneſum." Between the great port of Atkiar and the point of Fanary are four bays, which might form as many ports: "inter urbem," (Cherroneſum, adds Strabo,) "et promontorium (Parthenium), portus ſunt tres." He, probably, does not reckon the round bay, which is not ſo convenient for a port. The next to that of Atkiar, and at the ſame time the ſmalleſt of theſe bays, to the eaſt of which is the town of Korſun, or Cherroneſus, is alſo, at the preſent time, called by the Tartars Tſhortſhun, and by the Ruſſians Karantinnaya Bukta, on account of quarantine being performed at this place.

Veſtiges of antiquity are ſcattered in every direction over the whole Heracleotic Cherroneſus: but there are no traces of old buildings, except in the vicinity of the monaſtery of St. George, along the ſouthern coaſt, where are three remains of a wall and ſome ſquare and round towers, which probably indicate the place on which ſtood the wall that, according to Strabo, formerly incloſed the Cherroneſus from the port of Balaklava to that of Atkiar to the extent of forty furlongs, or eight verſts. "Cum autem hi (Scythæ) et murum quo intercluſus erat iſthmus ad Ctenuntem aggrederentur, ingeſtiſque calamis foſſam implerent; regii quantum ab his interdiu quaſi ponte facto ſtratum fuerat, noctu incenderunt." There is, however, no longer any veſtige of a ditch.

Not far from thence are the remains of a ſingular building which profeſſor Pallas ſuppoſes to have been the *Fanum Dæmonis Virginis* mentioned by Strabo. There are alſo ſeveral frames of ſtone, in a circular form, which Mr. Pallas takes for the ancient tombs of the Cherſonites.

The moſt remarkable diſtrict, however, of the Cherſoneſus, in point of antiquity, is the remoteſt part of the tongue of land called Fanary, which, in ſome maps, is erroneouſly denominated Cape Famar; and there is every reaſon for ſuppoſing it to be the ancient Cherroneſus of Strabo. "Inter urbem, (the new Cherroneſus) et promontorium (Parthenium) portus ſunt tres; ſequiter vetuſta Cherroneſus, diruta, et poſt hanc portus anguſto introitu; portus ſymbolorum dicitur." Therefore, the ſituation of the ancient town muſt have been between the latter bay and Balaklava, the port of which was Symbolon, which the Genoeſe called Cembalo. Ruins of fortifications, and foundations of large buildings are numerous here. But the light-houſe, at the corner of the moſt advanced weſtern point, appears to have been a modern building, and either the work of the Genoeſe or the new Cherſonites. The name of Fanary (lanthorn), ſufficiently indicates that this tower was uſed as a pharos, from whence the whole cape has derived its name.

The ruins of the new town of Cherroneſus, which flouriſhed in the time of Strabo, are ſeen near Atkiar. Mr. Pallas found a fine inſcription on white marble, relating to the repairs which the fortreſs underwent in the reign of the emperor Zeno. Broken columns, ſculptured marble, and copper and ſilver coins of the reigns of Gordianus, Aurelian, Aurelius, Conſtantine, and even Auguſtus, are frequently found, together with remains of enamel and common glaſs; but gold coins are ſcarce.

Another very remarkable piece of antiquity, but of a later date, is the ancient fortreſs of Inkerman, ſituated at the extremity of the bay of Atkiar, with ſome very curious caverns; which town Formalioni in his "Philoſophical and Political Hiſtory of the Commerce and Navigation of the ancient Colonies in the Black Sea," publiſhed at Venice in 1789, ſuppoſes to have been the *Ctenus* of the ancients. But the caverns appear to be the work of the monks, under the emperors of the middle age. Similar cells are obſerved in other parts of the Crimea.

When Ruſſia obtained poſſeſſion of the Crimea, the following countries were conſidered as forming part of the peninſula, *viz.*: the eaſt and weſt Nogaik Tartary between the Dnieper and the Berda, which the Ruſſians call the Crim Steppe; an extenſive tract of Beſſarabia between the Dneiſter and the Danube, the Black Sea, and Moldavia, called the Budgiak; the Cuban or eaſternmoſt part of the continent, and the iſle of Taman. But the Crimea itſelf has only 225 Engliſh miles in circuit, and its extent does not exceed 1242 Engliſh ſquare miles. Its climate is mild. Its temperature unequal, but ſalubrious, the ſummer's heat being tempered by frequent winds, and the winter having rarely more than three conſecutive days of ſevere froſt, which never exceeds the tenth degree of Reaumur's thermometer.

Three fourths of the peninſula to the north form an undulated plain, the ſoil of which varies very much. At its ſuperficies, and in its greateſt extent, but particularly at the angle between Perecop and Koſlof, it conſiſts of ſand combined with clay. In the vicinity of the ſalt lakes it is of an argillaceous quality.

The whole country from Perecop to the river Salgir abounds with ſalt marſhes and lakes, from whence the neighbouring Ruſſian governments, as well as the Crim itſelf, Anatolia, and Beſſarabia, are ſupplied with ſalt. Caffa alone uſed to export 200 cargoes annually.

The Crimea may be divided into the flat country and the mountainous. The former, which extends from Perecop to Koſlof, and from the river Bulganak to Karaſubazar, Caffa, and Yenikaly, is ſprinkled with a number of ſmall Tartar villages; which, however, have been greatly deſerted ſince Ruſſia acquired the country. The care which the Tartars take in their towns and villages, to procure water from the heights at a diſtance, cannot be too highly commended. They employ tunnels of clay, which run under ground into ſtone reſervoirs; the water of which ſerves to irrigate their gardens, and to ſupply the ditches, which carry off the impurities of the ſtreets. The Tartarian police carefully watches over this canal ſyſtem, which, in the Ruſſian towns, is ſuffered to go to deſtruction by careleſſneſs and neglect. The mountainous part of the Crimea is towards the ſouth, along the Black Sea. The oldeſt and higheſt mountains extend from Balaklava to the vicinity of Theodoſia or Caffa. Their elevated platforms are covered with ſnow to the end of May. The Tartars, who feed their flocks on them in hot ſummers, call theſe Alps Yaila. The Tſhatyrdagh, or mountain of the Tent, near the village of Shuma, or Shumai, is reckoned the higheſt of the mountains of the Crimea: its perpendicular elevation is nearly 1200 feet above the level of the ſea. No traces of metals have yet been diſcovered; but among the calcareous rocks is an excellent marl, of the nature of fuller's earth, of a greyiſh colour, and poſſeſſing the property of ſoap. The mountains are covered with foreſts, which yield excellent ſhip timber. The vallies produce all ſorts of corn, chiefly wheat, barley, and millet; fine garden fruits, and excellent wine, particularly in the neighbourhood of Sudak, where it reſembles champaign both in colour and in ſtrength.

Elevated plains and agreeable vallies, covered with the fineſt verdure, and ſituated between perpendicular calcareous mountains, eſpecially on the ſouth ſide of the peninſula, form a moſt enchanting ſcenery. The valley of Baidari, ſo extolled by all travellers, but particularly by the margravine of Anſpach (lady Craven), on account of its charming ſituation, was given to prince Potemkin, and is really enchantingly intereſting. The fine and rich wood of this valley, which is only interrupted by open and well cultivated lands, conſiſts of every leafy kind; among which there are ſome large oaks and walnut trees. One of the latter, in a garden of the village of Urkuſta, affords in ſome ſeaſons from 80 to 100,000 nuts. Mr. Pallas himſelf had one in his garden at Shulu, which was not much ſmaller; and in the grounds of admiral de Rebas, near the Belbek, was an oak of a monſtrous ſize, meaſuring, at the height of a man, 30 feet in circumference. The valley of Sudak is thickly planted with vines.

From the number of plants mentioned by profeſſor Pallas, it appears that the vegetation of the Crimea is extremely luxuriant. The wild horſe-radiſh, or *crambe orientalis*, is in particular very abundant between the rivers Salgir and Suga, and often thicker than a man's arm. The margravine of Anſpach affirms, that it is the ſtrongeſt and beſt flavoured horſe-radiſh ſhe ever taſted; and that the root is as long and as big as the ſtouteſt leg ever ſeen by the late margrave of Anſpach.

The two moſt conſiderable rivers of the Crimea are the Salgir and the Karaſu; beſides which the peninſula is interſected by numerous other rivers, as the Alma, Belbek or Kabarta, Byuk or Kaſikly Uſeen, Aithodor, Bulganack, Badrak, Katſha, Daſtaſu, Burultſha, which in other mountainous countries would only be conſidered as rivulets, but which after a ſtorm are really rapid and dangerous torrents.

The preſent capital of the Crimea, for the choice of which prince Potemkin toſſed up with his generals, is Akmetſhet, or Sympheropol. The latter is its modern Greek name. The other towns of the Crimea are Perecop, Baktſhiſeray, Karaſubazar, Mangup, Koſlof or Eupatoria, Leucopolis, Inkerman, Baluklava, Aljuchta, Sudak, and Ynikale.

The maritime town of Sevaſtopol, or Atkiar, was founded immediately after the occupation of the Crimea by the

the Ruſſians, on account of its excellent harbour. Caffa or Theodoſia and Kertſch are reckoned the next beſt ports.

The peninſula of the Crimea was formerly extremely populous; but the long troubles which preceded its ſubjection to the Ruſſian empire, have cauſed numbers of Turks, Jews, Greeks, and Armenians, to emigrate; and the Tartars have ſince fled in ſuch numbers, that Mr. Tooke rates the population of the Crim, in 1782, at only 50,000 individuals, whoſe numbers, as it appears from later accounts, have not been conſiderably increaſed. Tooke's View of the Ruſſian Empire, vol. ii. Life of Catharine II., 2d edition, 1798, vol. iii. Voyage en Crimée, Paris, 1802. P. S. Pallas's Travels through the ſouthern Provinces of the Ruſſian Empire, vol. iii. Margravine of Anſpach's (Lady Craven's) Journey through the Crimea to Conſtantinople, 1789.

CRIMELN, a town of Germany, in the circle of Upper Saxony, and territory of Neuſtadt; 2 miles N. of Weyda.

CRIMEN Falsi, in *Law*. See Falsi.

CRIMHILL, or Crimble *Paſſage*, in *Geography*, the extremity of a point of land in Plymouth-dock, in Cornwall. The exact ſituation of the obeliſk was determined, in the government trigonometrical ſurvey in 1795, by an obſervation from Butterton ſtation, diſtant 69,376 feet, and bearing 74° 7′ 9″ N.E. from the parallel to the meridian of Butterton; and another from Kitt hill, diſtant 63,803 feet: whence is deduced its latitude 50° 21′ 38″.6, and longitude 4° 9′ 53″.3, or 16$^{m.}$ 39^{s}.5 W. of Greenwich.

CRIMINAL Conversation, in *Law*, is uſed as ſynonymous with *adultery*.

Criminal *Law*, is that which diſcuſſes the nature of crimes, and inflicts ſuitable penalties; or, as it is more uſually denominated in England, the doctrine of the Pleas *of the crown*; which ſee. For the method of pronouncing capital ſentence on criminals in the canton of Bern, ſee Bern.

From an account, juſt now printed, of the number of criminals executed in the city of London and county of Middleſex, from the year 1749 to the year 1806 incluſive, ſhewing the proportion in each ſeven years, and diſtinguiſhing years of war from years of peace, it appears, that during the ſeven years of peace which preceded the war of 1756, the number of criminals, executed in the city of London and county of Middleſex, was very conſiderable, being on an average 43 a year:—in the ſeven years of war which ſucceeded, they were reduced to about 15 a year:—in the ſeven years which followed the peace of 1763, the number again increaſed, but not to more than 26 a year upon an average:—in the ſeven years which followed, from the year 1770 to 1776 incluſive, which was likewiſe a period of peace, the number further increaſed to 38 a year:—from the year 1776 to the year 1783, a period of war, firſt with America, and afterwards ſucceſſively with France, Spain, and Holland, the number, inſtead of decreaſing as in the former war, ſtill further increaſed, the average being, during theſe ſeven years, about 39 a year:—from the year 1783 to the year 1790, a period of peace, the average continued increaſing to 54 a year, and the years 1785 and 1787 were great beyond all former example: from 1793, the year in which the exiſting police eſtabliſhment was firſt inſtituted, to the preſent period, the numbers appear to have progreſſively diminiſhed; till within the laſt ſeven years the average has not been 12 a-year. This period has, with the exception of one intervening year of peace, been a period of war; but during that year, though the militia was diſbanded, ſome part of the army, and a conſiderable part of the navy, reduced, the number of capital convicts does not appear to have increaſed. The example of the American war, and of the year 1802, are ſufficient to prove that the increaſe of capital offences cannot be traced excluſively or even principally to the different operations of war or peace; though it is natural to ſuppoſe that the firſt may have ſome effect in diminiſhing, and the latter in increaſing, the number of them.

From an account of the number of criminals executed in the city of London and county of Middleſex, between January 1, 1749, and December 31, 1806, ſhewing the various crimes of which they were convicted, it appears, that the whole number amounted, within this period, to 1788:—that the number of murders, from the year 1771 to the preſent period (1808), have remained nearly the ſame; but that they were conſiderably more upon an average, in the 20 years preceding:—and that a moſt important change has taken place reſpecting the crimes of burglary and highway robbery; theſe offences in their aggravated character, in which it is found neceſſary to apply capital puniſhment to them, having nearly diſappeared, within the county of Middleſex. From other ſtatements it appears, that the number of priſoners committed to Newgate during the laſt ſix years (from 1802 to 1807 incluſive), charged with criminal offences of various kinds in the cities of London and Weſtminſter, and county of Middleſex, amounted to 6254, of whom 4284 were males, and 1970 females: the total of perſons executed in theſe ſix years includes 61 males, 7 for murder and 16 for forgery, and 3 females.

From an account of the number of criminal offenders, committed to the ſeveral gaols of England and Wales for trial, in the years 1805 and 1806, it appears that in the former year were committed 3267 males and 1338 females, and in the latter year 3120 males and 1226 females; and in the former year 350 received ſentence of death, and 68 were executed; and in the latter, 325 were ſentenced to die, of whom 57 were executed. From an account diſtinguiſhing the commitments in each county, it appears that the number of offenders in the county of Middleſex amounts to more than one-fourth of the whole; and that the number, in proportion to the population, in the counties moſt contiguous to London, is nearly double the number of the ſame population in the more remote counties.

It appears likewiſe, that the northern counties poſſeſs a very great advantage, both with reſpect to the ſmall number of offenders and paupers, when compared with the reſt of England. This obſervation applies, not only to the counties within the northern circuit, but likewiſe as far as relates to paupers generally, to all the more northern counties. The counties of Lincoln, Nottingham, Derby, and Rutland, the moſt northern counties in the midland circuit, and thoſe of Staffordſhire and Shropſhire, the moſt northern in the Oxford circuit, appear to be, in this reſpect, in the ſame comparatively favourable ſituation as the counties within the northern circuit, when compared with the other more ſouthern counties of England, Middleſex, Monmouth, and Cornwall alone excepted.

CRIMISA, or Crimissa, in *Ancient Geography*, a promontory of Italy, in the country of the Brutii.—Alſo, a town of Italy, in the ſame country, ſituated on the forementioned promontory, before Crotona and Thurium, and ſaid to have been founded by Philoctetus. It is now *Ciro*.

CRIMISUS, or Crimissus, a river of Italy, in the country of the Salentini, whoſe mouth was in the gulf of Crotona.—Alſo, a river of Sicily, which diſcharged itſelf into the Hypſas. This river was famous among the ancients for its god, who, in the ſhape of a dog, found favour in the eyes of Segeſta, and is repreſented in that form on the Segeſtan coins. Some have ſuppoſed that this was the preſent San Bartolomeo; but Cluvier thinks that the Belici was, by its ſize and depth, better adapted to the deſcription given us of the victory obtained on its banks by Timoleon over the Carthaginians.

CRIMMITZSCHAU, in *Geography*, a ſmall town of Saxony, on the river Pleiſſe, in the circle of the Ertzgebirge, famous for its woollen and cotton manufactures, conducted on the Engliſh plan, and provided with excellent machinery. The chief ſale of theſe manufactures is at Leipzig, but great quantities are alſo exported immediately from Crimmitzſchau to Ruſſia, Poland, Turkey, Italy, Spain, and Portugal.

CRIMNOIDES, or CRIMOIDES, formed of κριμνον, *bran*, in *Medical Writers*, is uſed for urine with thick ſediments at the bottom, like bran.

CRIMSON, in *Dyeing*, is produced by various proceſſes according to the nature of the ſubſtance employed, and the kind of ſtuff deſtined to receive the colour. Wool and ſilk are dyed either with cochineal or Brazil; with the former the colour is more fixed and permanent, and is called the true or fine crimſon; Brazil gives a fine colour, but does not reſiſt the action of the ſun and air ſo well.

All the proceſſes for dyeing wool crimſon with cochineal may be reduced to two. Either the ſhade deſired is given to cloth previouſly dyed ſcarlet, or the cloth is dyed crimſon at once.

The natural colour of cochineal is crimſon, and it affords this colour both with alum and the ſolution of tin, when its effects are not modified by the action of tartar, as has been ſhewn by Bancroft. When cloth therefore that has been dyed ſcarlet in the uſual way is boiled in a ſolution of alum, the natural hue of the cochineal is reſtored, and the cloth becomes crimſon. Alum, ſalts with earthy baſes in general, the fixed and volatile alkalies all effect this change; the quantity neceſſary to produce any determinate ſhade, varies conſiderably with the nature of the water employed. Some which is loaded with earthy ſalts will anſwer the purpoſe without the addition of alum, or any other ſubſtance whatever.

Hellot tried ſoap, ſoda, and potaſh; all theſe ſubſtances produced the colour deſired, but ſaddened it and gave it leſs luſtre than when alum was employed. Ammonia, on the contrary, produced a very good effect; but it evaporates quickly from the bath and requires a conſiderable quantity. Hellot replaced the uſe of it, by adding equal quantities of muriate of ammonia, or common ſal ammoniac, and potaſh; the ammonia was diſengaged in the bath, and in this way the cloth inſtantly took a very bright colour. He aſſerts that the colour is ſo much heightened as to render leſs cochineal neceſſary. Mr. Poerner has given nearly the ſame proceſs. He directs the cloth to be boiled an hour in a ſolution of common ſalt in the proportion of 2½ ounces to 1 lb. of wool, and to let the cloth remain in it 24 hours after it is become cool. A bath is prepared with 1 ounce of cochineal, 2 drams (gros) of tartar, and 2 ounces of ſolution of tin for every pound of cloth, and in this it is boiled one hour. When waſhed it is ſteeped in a vat, in which equal quantities of ſal ammoniac and potaſh, in the proportion of 6 drams of each to a pound of cloth, have been previouſly diſſolved; it is ſuffered to remain here 24 hours, frequently turning and moving it in the liquor. It is afterwards taken out and waſhed. The colour is a reddiſh crimſon inclining to blue.

This mode of producing crimſon by the action of alkalies or alum, is generally reſorted to when cloth dyed ſcarlet has been ſtained or ſpotted by accident. Theſe defects are thus remedied or rendered leſs glaring. Muriate of ſoda, or common ſalt, has alſo the property of converting ſcarlet to crimſon, and has long been uſed for this purpoſe in Languedoc, according to the teſtimony of Hellot.

To dye crimſon at once, a ſolution of two ounces and a half of alum, and an ounce and a half of tartar to every pound of cloth, is uſed for the boiling; the cloth is afterwards dyed with 1 ounce of cochineal. Solution of tin is commonly added, but in leſs proportion than for ſcarlet. The proceſſes employed vary greatly according as the ſhade required is deeper or lighter, or more or leſs removed from ſcarlet. Some uſe common ſalt for the boiling.

Mr. Poerner directs the boiling to be made with 3 ounces of common ſalt and 3 of alum, to 1 pound of cloth, and after ſuffering it to remain 24 hours in the ſolution after cooling, to boil one hour in a bath compoſed of 1 ounce of cochineal, 2 drams of tartar, and 2 ounces of ſolution of tin. The cloth takes a reddiſh crimſon.

A bright reddiſh crimſon of very agreeable hue may be obtained by boiling 1 lb. of cloth a full hour in a bath prepared with 3¾ ounces of alum and 2½ ounces of tartar, ſuffering it to remain 24 hours in the liquor after cooling. Then boil an hour and a half in a bath compoſed of 1 ounce of cochineal only, without any other ingredient. If this cloth be ſteeped 24 hours in a cold ſolution of 1½ ounce of ſal ammoniac, and 1½ ounce of potaſh in 20 lbs. of water, the colour becomes deeper, and another ſhade of crimſon is by this means obtained.

Archil and potaſh are frequently uſed for ſaddening crimſons and giving them more bloom, but the hue thus imparted ſoon vaniſhes.

The boiling for crimſon is ſometimes made after a ſcarlet dyeing, by adding alum and tartar to the bath, and ſome particular ſhades of crimſon are ſaid to poſſeſs more bloom when dyed this way, than when freſh baths are uſed.

Crimſons in half grain are ſometimes dyed by ſubſtituting madder for half the quantity of the cochineal, following in general the ſame proceſſes as for the grain crimſon. Other proportions of madder may be uſed inſtead of half, according to the effect required.

The colour produced by Brazil is not ſo permanent on wool as cochineal, it is nevertheleſs employed. The cloth is boiled in a ſolution of alum, to which a fourth of its weight, or even leſs of tartar is added. A greater propor- of tartar inclines the colour too much to the ſcarlet or yellow hue.

The cloth thus impregnated ſhould remain ſeveral days in a cool place; after which it is dyed by boiling gently in Brazil liquor. The colouring matter which is firſt depoſited does not yield ſo fine a colour, the coarſeſt goods ſhould therefore be paſſed through the bath firſt, and afterwards the finer ones. In this way a colour is obtained which ſtands the action of the air tolerably well.

Mr. Poerner directs 1 lb. of cloth prepared with 5 ounces of alum, and 1 ounce of tartar, to be boiled one hour in a bath containing 6 ounces of Brazil, and 6 ounces of alum. The cloth acquires a deep brick red. When ſteeped 24 hours in a cold ſolution of potaſh, it becomes a fine reddiſh crimſon. By preparing the cloth with alum and tartar, Mr. Poerner obſerves that very good and uſeful colours may be obtained from Brazil, which are deeper and richer than thoſe obtained on cloth prepared with alum, tartar, and ſolution of tin, or with tartar and ſolution of tin without alum. By varying the proportion of the ingredients, and ſtill more by the action of potaſh and ſal ammoniac, theſe ſhades of crimſon may be greatly modified. Colours obtained from Brazil may thus be rendered tolerably permanent, yet they are not comparable in this reſpect with thoſe obtained from cochineal or madder. A bloom is ſometimes given to madder colours by paſſing them through a decoction of Brazil, but this ſlight tinge ſoon fades and periſhes.

Mr. Guhliche gives a proceſs, by which he pretends that fine and more permanent colours are obtained than by thoſe in general uſe. He directs pure vinegar, or *aceto-citric* acid, or aqua regia, to be poured on Brazil raſped or chipped, till it is covered with the liquor; the mixture to be well ſhaken, then left to ſettle for 24 hours, after which it muſt be decanted, filtered, and kept for uſe. On the reſiduum, freſh water or vegetable acid is to be poured, and this to be repeated till all the colouring matter is extracted, when the wood will be found to be black. All theſe liquors are then to be mixed together for uſe.

The ſtuff having been prepared with a ſlight galling of ſumac, or white galls, is ſlightly alumed. After rinſing, it is entered wet into a bath prepared as follows: Some of the acid ſolution of Brazil is diluted with water proportionate to the quantity of ſtuff, or the ſhade of colour to be given. When this is ſo hot that the hand will juſt bear it, ſolution of tin is poured in till it is of a fire colour: it is then ſtirred and the ſtuff entered. In half an hour it is taken out and waſhed. The remainder of the bath may be uſed for lighter ſhades, but thoſe ſtuffs only muſt be galled that are for deep ones. The aceto-citric acid, as it is called by Berthollet, is a liquor of which Mr. Guhliche makes great uſe in dyeing under the name of vegetable acid ſpirit, which he prepares in the following manner: He takes any quantity of lemons; thoſe of which the rind is rotten will do, removes the peel and the ſkin that adheres to it, and ſlices them into a veſſel, which ſhould not be made of wood. He ſprinkles them with a quantity of good vinegar, and then ſqueezes out the liquor through a flannel by means of a preſs, and filters the expreſſed liquor through paper. It may be uſed with ſucceſs in this ſtate, but it is apt to grow mouldy and the acid is watery. In order therefore that it may keep, and not dilute the baths into which is put, he directs it to be purified and concentrated as follows: The liquor is to be expoſed to the ſun till a ſediment forms and it becomes clear, it is then to be filtered and diſtilled on the ſand bath. The receiver is to be changed when the liquor that drops becomes acid, and the diſtillation continued till oily ſtreaks are perceptible in the neck of the retort.

The acid found in the receiver is to be kept for uſe.

On the foregoing proceſs for obtaining aceto-citric acid, we ſhall obſerve that if the acid be uſed in its recent ſtate, as expreſſed from the lemons, it is indeed a mixture of citric and acetous acid, but the rectified and concentrated ſpirit of Mr. Guhliche is, after all, nothing but diſtilled vinegar. Citric acid will not riſe in diſtillation; it may be decompoſed by heat, but cannot be driven on like acetous acid; this proceſs of rectification is therefore a ſeparation of the acid of the lemons from the vinegar they were ſprinkled with, and proves the inutility of one of the ingredients at leaſt of this compoſition. Of the efficacy of galls in rendering the colouring matter of Brazil more permanent there can be little doubt, but it has a tendency to debaſe the colour, and it is with reaſon, that Mr. Guhliche obſerves that the galling ſhould be employed only for the deeper ſhades.

Silk acquires from cochineal a colour which is diſtinguiſhed from the falſe crimſon obtained by means of Brazil.

Silk intended for cochineal crimſon ought not to be boiled with more than 20lb. of ſoap to 100 of ſilk, as the yellow caſt which ſilk has when imperfectly ſcoured is favourable to this colour. It is ſometimes imparted to it by a ſlight tinge of annotto, when white ſilk is to be dyed crimſon.

When the ſilk is well cleaned from the ſoap by waſhing, it is ſoaked in a ſtrong ſolution of alum, in which it is generally left all night, and next day is wrung, waſhed, and twice beetled at the river.

The bath is prepared as follows: Into the dyeing veſſel, half, or two thirds filled with boiling water, from one to two ounces of pounded white galls are thrown in for every pound of ſilk. After boiling a few minutes, two ounces of cochineal or more, according to the ſtrength and fulneſs of the ſhade required, are added for every pound of ſilk, and for every pound of cochineal, one ounce of tartar. When this is diſſolved, an equal weight of the ſolution of tin is added; the ingredients are all well ſtirred, and the bath filled up with cold water. The proportion is generally about eight or ten quarts to every pound of ſilk. In this the ſilk is entered and worked till it appears quite uniform in colour; the fire is then increaſed, and the bath made to boil two hours, turning the ſilk from time to time. The fire is then withdrawn, and the ſilk left in the bath a few hours longer. It is then waſhed at the river, twice beetled, wrung, and dried. The ſolution of tin for this proceſs ought to contain more tin than is uſed in the compoſition for ſcarlet, otherwiſe the colour is too bright, and not ſufficiently full and deep. Macquer directs the ſolution to be made with one pound of nitric acid, two ounces of ſal ammoniac, two ounces of tin, and twelve of water.

If the colour is to be ſaddened, the ſilk after waſhing is paſſed through a ſolution of ſulphate of iron, more or leſs ſtrong, according to the ſhade required: if the crimſon ſhould have a tinge of yellow, a greater or leſs proportion of the decoction of fuſtic muſt be added to the ſolution.

White galls are preferred, becauſe the black or blue galls debaſe the colour of the cochineal; and even white, when uſed in too great a quantity, dull the crimſon very much. Macquer pretends that the galls ſerve only to increaſe the weight of the ſilk; their general effect, however, is that of giving greater permanency to the colours, and in crimſons of the deeper ſhades their uſe is indiſpenſable.

The quantity of ſolution of tin employed in the foregoing proceſs is very ſmall. If uſed in the bath in the ſame proportion as for dyeing wool ſcarlet, the ſilk would loſe its luſtre, and acquire but a faint colour. Macquer and Scheffer have however each publiſhed proceſſes for dyeing ſilk roſe or poppy colour, which differ only in a few particulars from the ordinary mode of dyeing ſcarlet, the ſolution of tin being employed cold to avoid its ſtrong action on the ſilk.

In the proceſs which Macquer publiſhed in 1768, the ſolution is prepared by adding three ounces of tin by little at a time, to a mixture of four ounces of nitric, and two of muriatic acids. When the ſolution is finiſhed, 6 lbs. of ſilk that have already had a ſlight ground of annotto, are immerſed, and remain in it half an hour. It is then wrung and waſhed till it no longer renders the water turbid. It is dyed with four ounces of cochineal, and one ounce of tartar, for every pound of ſilk. Theſe are boiled up in water, and afterwards cooled down till the hand can bear the heat. The ſilk is then entered, and the fire increaſed; after boiling one minute it is withdrawn and waſhed. By this proceſs the ſilk has acquired an increaſe of one fourth of its weight. Its colour reſiſts ſoap, and is much more permanent than that which Carthamus affords.

In 1751, Scheffer publiſhed a deſcription of the following proceſs. He diſſolved one ounce of tin in a mixture of four ounces of nitric acid, and one of common ſalt. The ſolution was diluted with twice its quantity of water, and the ſilk ſteeped in it 24 hours. When withdrawn it was waſhed till the water no longer appeared milky, and dyed with four fifths of its weight of cochineal in a ſmall quantity of water. The bath retains a conſiderable portion of colouring matter which may ſerve for dyeing ſilk a lighter ſhade, or even for dyeing crimſon by the ordinary proceſs. It may be uſed alſo for dyeing wool.

Scheffer deſcribes the following varieties of his proceſs for obtaining different ſhades. If the ſilk be wrung out of the ſolution of tin, left all night in a cold ſolution of one ounce of alum in a quart of water, wrung, dried, waſhed, and afterwards dyed with cochineal, it will take only a pale poppy colour. If the ſilk be ſteeped twelve hours in the ſolution of tin diluted with eight parts of water, and then left all night in the ſolution of alum, waſhed, dried, and paſſed through two baths of cochineal as before, adding to the ſecond bath a little ſulphuric acid, the colour will be a fine poppy red.

In the experiments made by Berthollet on this ſubject, the ſolution of tin, which anſwered beſt for dyeing ſilk, is that which he has directed for the ſcarlet dye, and is made by diſſolving ſlowly in one pound of nitric acid, two ounces of tin, and two ounces of ſal ammoniac: the ſalt to be diſſolved firſt, and the tin added afterwards in ſmall portions at a time, ſtirring it frequently to incorporate the ſolution fully. When finiſhed and decanted from the black ſediment which is depoſited, it is diluted with one fourth of its weight of water. The nitric acid employed ſhould be of the ſtrength of 30° of the hydrometer of Beaumé, which correſponds with a ſpecific gravity of about 1.26.

Solutions containing a greater proportion of tin gave deeper ſhades. The colour obtained by the above, was a fine cherry colour ſufficiently bright.

Brazil wood is uſed for dyeing ſilk what is called *falſe* crimſon, to diſtinguiſh it from that produced by means of cochineal, or *grain* crimſon, which is much more permanent. Vinegar is uſed to diſtinguiſh the true colour from the falſe, but this proof is fallacious, ſince the Brazil crimſon dyed with the ſolution of tin, reſiſts the action of vinegar like cochineal, though that dyed with alum does not.

Silk intended for this crimſon, ſhould be boiled with ſoap in the proportion of twenty pounds to a hundred of ſilk, and afterwards alumed. Leſs alum is required for this than for grain crimſon. After rinſing in the river, it is paſſed through a bath more or leſs charged with the decoction of Brazil according to the ſhade required. If water, free from earthy ſalts, be uſed, the colour is too red for crimſon; the proper hue is given to it by paſſing the ſilk through a ſlight alkaline ſolution, or by adding a little alkali to the bath.

Working the ſilk in hard water till it has acquired the proper ſhade, will anſwer the ſame purpoſe.

Logwood liquor may be added to the Brazil, to deepen the ſhade of crimſon, and a little alkali uſed with it alſo when the ſhade deſired requires it.

There is the ſame objection to the uſe of the ſolution of tin in dyeing ſilk crimſon with Brazil as with cochineal; ſilk has not that powerful attraction for the colouring matter combined with tin that wool has; the greater part therefore ſeparates and contracts no union with the ſtuff. Bergman, however, remarks that the colours imparted to ſilk by different dye woods, may be much improved by ſteeping the ſilk in a cold ſolution of tin. A ſtrong decoction of Brazil, ſays he, gives to yellow ſilk prepared in this way a ſcarlet colour inferior indeed to that of cochineal, but finer and more permanent than if it be ſteeped in alum only, and as capable of ſtanding the proof by vinegar as crimſon or poppy in grain. Mr. Guhliche deſcribes a proceſs, in which he uſes ſolution of tin in the bath to give ſilk a fire colour. He directs the ſilk to be galled with a ſolution of galls in white wine, aſſerting that an aſtringent ſolution thus made preſerves the brightneſs required in ſilks much better than one prepared with water. With this ſolution he mixes water till it has acquired a yellow colour, and impregnates the ſilk well with it, leaving it to ſteep cold for ſeveral hours. He then preſſes out the liquor ſtrongly, but without rinſing the ſilk which he dries, and afterwards ſoaks for twelve hours in a ſolution of alum, containing four ounces for every pound of ſilk. The ſilk taken out of the alum water is wrung, and entered wet into a bath of Brazil, after adding to it an ounce of ſolution of tin. The remainder of the bath may be exhauſted for lighter ſhades. If the colour be required more approaching to orange, the ſilk is not to be galled, but to be alumed cold with two ounces of alum to the pound of ſilk, after which it muſt be dyed orange with annotto, without boiling, and before it dries dyed in the Brazil bath. The author confeſſes that theſe colours, particularly the latter, are not very permanent. For roſe colours he omits the galling, and for the aluming uſes only two ounces of alum to the pound of ſilk. For light ſhades he recommends the ſolution of alum to be decanted from the ſediment that may have been depoſited, and prefers dyeing them cold, uſing a bath richer in colour. The ſilk is to be taken out as ſoon as it has acquired the proper tint, and the bath may be exhauſted for other ſhades. With theſe precautions he aſſures us, that fine colours of tolerable permanency may be obtained.

The crimſon imparted to cotton or linen by cochineal and Brazil, has little ſolidity, and is on that account but little uſed, more eſpecially as madder imparts to theſe ſubſtances, properly prepared, one of the moſt beautiful and permanent colours which the art of dyeing can produce.

As this however is not the place in which to enter into a detail of the operations of the Turkey or Adrianople red, which we purpoſe to treat at large under another head, we ſhall give ſome account of the proceſſes that have been propoſed and practiſed with more or leſs ſucceſs for producing a fine crimſon colour upon cotton by means of cochineal and Brazil.

Mr. Poerner has made many experiments with different mordants, as alum, ſolution of tin, ſal ammoniac, potaſh &c. for dyeing cotton with Brazil, uſed either in the bath or in the preparation of the cotton. He could not produce a colour, however, that would ſtand waſhing with ſoap, though ſome would ſtand the action of the air and waſhing with ſimple water very well. He recommends cotton thus dyed, to be dried in the ſhade.

Mr. Berthollet received from Mr. Brown the following proceſs for dyeing cotton a crimſon colour, which is uſed by ſome manufacturers.

A ſolution of tin is prepared in the proportion of nitric acid two pounds, muriatic acid one pound, tin eight ounces and water one pound. The liquids being well mixed, the tin is added by little and little. For a piece of cotton velvet weighing fifteen or ſixteen pounds, a bath is prepared conſiſting of boiling water four parts, ſtrong decoctions of galls two parts. Having raked up the bath, the piece is entered and worked for half an hour, and left to ſoak two hours, when it is taken out and left to drain. Another bath prepared with three buckets of boiling water, and one of decoction of Brazil wood, alſo boiling, is to be raked up and the piece worked in it an hour. This bath is to be thrown away, the veſſel waſhed out and then filled with a pure decoction of the wood, in which the piece is to be worked half an hour, and then raiſed on the winch. A bath of very clear river water, with a quart of ſolution of tin, being prepared and raked, the piece is to be worked in it a quarter of an hour. It is then wound on the winch, and ſet on the veſſel containing the decoction of Brazil, one ſixteenth of which is to be taken out and replaced by an equal quantity of boiling decoction. This being raked, the piece is worked in it half an hour, wound on the winch and carried back to the veſſel containing the ſolution of tin. Theſe operations are performed alternately ſix or eight times, obſerving each time to take out a ſixteenth of the bath of Brazil wood, and replace it with an equal quantity of boiling decoction of the ſame wood, to rake the bath of compoſition each time, and to finiſh the dyeing with the latter. The piece is to be waſhed in the river, and dried in a dark place.

With the aluminous mordant cotton takes a full and tolerably bright crimſon from Brazil, the permanency of which is conſiderably increaſed by previouſly ſubjecting the cloth to the operation of galling. The printer's mordant prepared with acetite of lead and alum, is beſt for this purpoſe. When uſed diluted, the ſhades of crimſon and roſe colour are very delicate, but ſo fugacious as not to ſupport the action of the ſun and air unimpaired a ſingle day. Sumac uſed in the bath along with Brazil contributes greatly to its fixity; the ſtronger ſhades dyed this way ſupport the action of the air tolerably well, and have greatly the appearance of a madder red.

Cochineal is little uſed for dyeing cotton and linen, ſince the colour is much leſs permanent than that obtained from madder. Scheffer however has deſcribed a proceſs which may be employed. The cotton is to be ſteeped 24 hours in a cold ſolution of tin, it is then wrung, waſhed, and boiled a quarter of an hour with four-ſixths of its weight of cochineal. It takes a light red, and reſiſts the ſun and air for a time, but not ſoap. Little uſe appears to have been made of this proceſs of Scheffer, though it is probable that Dr. Berkenhout availed himſelf of it ſome years afterwards, when he pretended to have diſcovered the means of dyeing ſcarlet crimſon, and other colours upon cotton and linen; and though his proceſs was not materially different from Scheffer's, nor in any reſpect preferable, he obtained 5000 *l.* from the Britiſh government, as a reward for making it public.

As it excited conſiderable intereſt and ſome contention at the time, we ſhall preſent our readers with the following detail of the proceſs, as it was communicated by order of the lords of the treaſury to the company of dyers in the city of London, Aug. 16th. 1779, *viz.*

" Cotton or linen, either in yarn or piece, ſhould be perfectly wet with hot water, and then wrung out, as is the common practice.

" This being done, it muſt be perfectly ſoaked in a ſolution of tin diluted with an equal quantity of clear ſoft water.

" The cotton or linen being ſo far prepared, muſt be wrung out, but not forcibly; it is then to be nearly dried, laying horizontally upon a hurdle with a double linen ſheet between them, and covered with the ſame.

" The ſolution of tin being for ſcarlet, muſt be made of nitrous acid, and not of aquafortis; but for crimſon, aquafortis muſt be uſed, and the bloom is to be given after it comes out of the dye, by a ſmall quantity of ſal ammoniac and pearl aſhes diſſolved perfectly in warm water, but this water muſt not be more than milk warm.

" The colouring vat for the ſcarlet or crimſon is ſimply cochineal in water no hotter than the hand will bear, and as vegetable matter receives only the ſmall particles of the colour from the nature of its pores, two ounces to a pound of the materials dyed may be neceſſary: but cotton or linen freſh prepared, will draw from the ſame vat, heated as before, all the inferior ſhades from ſcarlet and crimſon, and if any colour ſtill remains in the vat, it may be taken out entirely, by wool prepared in the uſual manner.

" The ſame preparation of tin ſerves for the green and yellows, with the ſame materials only that are employed by dyers, except the beſt yellow, which is produced from turmeric.

" It is neceſſary to obſerve, that after the preparation has been made uſe of for ſcarlet or crimſon, the reſidue continues ſufficiently ſtrong for greens or yellows, even after it has been kept a conſiderable time.

" N. B. To make the beſt ſolution of tin with nitrous acid, it is neceſſary to have the ſtrong ſmoaking ſpirit, to which an equal quantity of the pureſt river water muſt be added, and the proportions of the following ingredients are to the weight of ſpirits $\frac{1}{16}$ ſal ammoniac, $\frac{1}{32}$ refined nitre, diſſolved by little at a time. In this aqua regia, diſſolve $\frac{1}{8}$ of granulated tin alſo by ſmall quantities, to prevent too great an ebullition which would weaken the ſolution conſiderably. The ingredients and proportions are the ſame when a ſolution is to be made with aquafortis, but that ſpirit in general will not bear any water when a perfect ſolution is intended."

Beſides the fugitive nature of the colour dyed by the above proceſs, it was found that the texture of the cloth was conſiderably injured, and it was ſoon laid aſide, or rather was never adopted. If, notwithſtanding the want of ſufficient permanency, however, the colour which cochineal affords, ſhould ſtill be required; the beſt way of producing it, according to Dr. Bancroft, is to ſoak the cotton (previouſly moiſtened) about half an hour in a diluted ſolution of murio-ſulphate of tin; then wring or preſs out the ſuperfluous part of the ſolution, and plunge the cotton into water, in which as much, or nearly as much clean potaſh has been diſſolved as will neutralize the acid ſtill adhering to the cotton, ſo as to precipitate the oxyd of tin, and cauſe it to be more copiouſly depoſed or fixed in the cloth, which being afterwards rinſed in clean water may be dyed with cochineal in the uſual way. A full bright colour may be given to cotton in this way, which will bear a few ſlight waſhings with ſoap, and a conſiderable degree of expoſure to air. The murio-ſulphate of tin, on which Dr. Bancroft lays great ſtreſs, as well for the above proceſs as for dyeing ſilk crimſon, is prepared by diſſolving 14 ounces of tin in a mixture of two pounds of oil of vitriol with three of muriatic acid. The muriatic acid ſhould be firſt poured upon the granulated tin in a large glaſs veſſel; and the oil of vitriol afterwards added ſlowly; and theſe acids mixed ſhould be left to ſaturate themſelves with tin, which they will do in time without artificial heat; but the ſolution will be rapidly promoted by a ſand heat.

Under the head of cochineal we have given a ſhort account of its uſe in calico-printing in dyeing crimſon, to which we muſt refer our readers as well as to the article Colour for other details connected with the ſubject. The colours produced from madder with the aluminous mordant in the ordinary proceſſes of this art, ſtrictly ſpeaking, belong not to the claſs of crimſon, yet by repeated branning, boiling in ſoap or alkalies, the yellow or faun coloured principle which this root contains, may be nearly extracted, and tolerable crimſons obtained. The addition of a ſmall quantity of ſolution of copper to the acetite of alumine, gives the colour a crimſon hue of no great luſtre, but very permanent.

The following proceſs by Mr. Grouſe, affords a colour of leſs intenſity indeed, and ſolidity, but ſcarcely inferior in beauty, to the Adrianople red.

Prepare a mordant by diſſolving 4 lbs. of acetite of lead, and 4 lbs. of alum in a gallon of pure water, and after decanting the ſupernatant clear ſolution from the precipitate which forms, thicken it with gum to the conſiſtency required. If the work requires the mordant to be *ſightened*, add a little infuſion of cochineal till it is ſufficiently tinged to enable the printer to obſerve the progreſs of his work. Keep the goods from four to ſix days after printing, in a warm place, to facilitate the liberation of the acid; rinſe them five minutes in a copper of water at 120°, with two good ſpade-fulls of cow dung, after which waſh and rinſe them in clean water ſeveral hours, alternately winching, waſhing, and ſuffering them to ſteep in the river. Laſtly, winch five minutes in a clean hot water copper at 120°, and after rinſing and waſhing again in the river, dye them as follows. Into a dye copper of 300 gallons capacity three parts filled with clean water, free from all accidental impurities, and not diſcoloured either by rain or floods, put 20 lbs. of the beſt crop madder, and 60 lbs. of good ſweet bran. Mix well, and bring them up quickly to a boil, and keep them in a ſtate of ebullition 20 minutes. Add cold water ſufficient to take the copper off the boil, then enter two pieces, winching them briſkly and keeping them down with the copper ſtick the whole time they are in. Bring the copper up to a boil again, and in 8 or 10 minutes, according as the ſhade required, the goods will have acquired their full colour. Enter two more pieces after theſe are withdrawn, and keep them in a few minutes longer; they will be ſcarcely inferior to the former, but as the copper becomes exhauſted, every ſucceeding ſet will acquire leſs colouring matter than the preceding, and if the operation be continued upon ſeveral ſets without refreſhing the copper, the laſt will acquire only a pale but delicate roſe colour. If the whole are required to be full deep colours, the copper muſt be ſupplied with a regular charge of bran and madder after every ſecond ſet, but to exhauſt the bath fully, and proceed with due regard to economy, the ſtrong colours ſhould be dyed firſt, and the pale and more delicate ſhades afterwards.

Waſh them well after dyeing, and bran them at a boil. The colour improves much by this laſt operation, which may be repeated on the ſtronger ſhades till the colour has acquired its proper hue, and the whites are good. See Madder.

Crimson-*Graſs Vetch*, in *Botany*. See Lathyrus *Niſſolia*.

CRINAN Loch, in *Geography*, is a branch from the ſound of Jura, in Argyleſhire, in Scotland, connecting with Craigneſs loch, and terminating at the weſt end of the Crinan canal: the town of Glaſsre is ſituate not far from its ſouthern ſhore.

Crinan *Canal*, a ſhort canal of very large dimenſions, for the paſſage of ſhips between loch Crinan and loch Fine, when coming or going northward to or from the Clyde river, by which a very circuitous navigation round the mull of Cantire is avoided. See Canal.

CRINED, in *Heraldry*, a term denoting that the hair of the head of a man or woman, or the mane of a horſe, unicorn, &c. is repreſented.

CRINGLE, in *Rural Economy*, a term which is provincially applied to ſignify a withe or twiſted wooden rope which is employed in faſtening a gate, from whence to "cringle up" implies to faſten with a wooden rope or withe.

CRINGLES, in *Sail-making*, ſmall holes formed on the bolt-ropes of ſails by intertwiſting the ſtrand of a rope alternately round itſelf and through the ſtrands of the bolt-rope, till it aſſumes the ſhape of a ring. To the cringles the end of a rope is faſtened, to haul the ſail up to the yard, &c. They ſhould be made of the ſtrands of new bolt-rope, half an inch ſmaller than the bolt-rope on the ſail.

CRINIERE, Fr. The mane of a horſe, literally ſpeaking. This name is alſo given to a tuft of horſe hair fixed in the creſt of a dragoon's helmet, and flowing or waving down to the lower part of the ſame, on the ſide thereof, like a garland.

CRINITA, in *Botany*, capenſis; Hoult. See Pavetta *cafra*.

CRINITUS applies to any plant, or part of a plant, that reſembles a tuft or head of hair, as the infloreſcence of *Hedyſarum crinitum* of Linnæus, and *Phleum crinitum* of Schreber. It differs from *comoſus* in being more preciſely and neceſſarily compoſed of hair or briſtles, and not reſtricted to a flowing or pendulous form or poſture. In ſome caſes it is equivalent to *capillatus*. The roots of *Meum athamanticum* and *Triglochin bulboſum* are *radices capillatæ, vel crinitæ*, being each crowned with a denſe tuft of upright hairs or briſtles, originating from the fibres of decayed leaves or leaf-ſtalks, and ſerving to protect the root, or young plant, from cold, or other injuries, in a remarkable manner. S.

CRINITZ, in *Geography*, a town of Germany, in the circle of Lower Saxony, and territory of Erzgeberg; 6 miles S. of Zwickau.

CRINODENDRUM, in *Botany*, (from κρινον, *a lilly*, and δενδρον, *a tree*.) Schreb. Gen. 1114. Willd. 1267. (Patagua; Enc.) Claſs and order, *monadelphia decandria*. Nat. Ord. *Undetermined*, Juſſ. 431.

Gen. Ch. *Cal.* none. *Cor.* bell-ſhaped; petals ſix, oblong, erect, ſpreading at the tip. *Stam.* Filaments ten, united at the baſe into a tube; anthers egg-ſhaped, erect. *Piſt.* Germ ſuperior, egg-ſhaped; ſtyle ſimple, awl ſhaped, a little longer than the ſtamens. *Peric.* Capſule coriaceous, obtuſely three-cornered, one-celled, opening elaſtically at the top with three valves. *Seeds* three, roundiſh, nearly the ſize of a pea.

Eſſ. Ch. Calyx none. Corolla bell-ſhaped. Petals ſix. Capſule with three ſeeds, one-celled, trigonous, opening elaſtically at the top.

Sp. C. *patagua*. Mart. Poir. Willd. Molin. Chil. 179. Cavan. Diſ. 5. 300. tab. 158. fig. 1. A ſuperb evergreen tree, with a trunk often ſeven feet in diameter. *Leaves* bright green, oppoſite, lanceolate, acute, ſerrated, without ſtipules; petioles ſhort. *Flowers* ſolitary, axillary, peduncled, ſmelling like a lily. A native of Chili. Juſſieu ſuſpected that the capſules ſent to Europe by Dombey, under the name of Patagua, might belong to a plant of this genus; but Ruiz and Pavon aſſert that Dombey's plant, which produces the true Patagua of Chili, conſtitutes a diſtinct genus, which they call Tricuſpidaria. The trivial name given to the preſent plant is therefore erroneous and tends to miſlead. See Tricuspidaria.

CRINONES, from *crinis*, *hair*, in *Medicine*, a ſort of worms, ſometimes found under the ſkin, in children; reſembling ſhort thick hairs, or briſtles.

They are called *dracunculi*, and *comedones*, from the Latin *comedere*, *to eat;* from their preying upon the ſubſtance of the child, or conſuming its nouriſhment. See Dracunculi.

The common way of getting out theſe worms is by the point of a needle; and to prevent their forming there again, the uſual cuſtom is to waſh the parts with wine or vinegar, with alum, nitre, or common ſalt, or with a ſtrong lixivium of oak aſhes, and afterwards anointing them with an ointment of the common kind, uſed for ſcorbutic eruptions, with a ſmall mixture of quickſilver.

CRINONIA, a kind of cap, worn by the emperors of Conſtantinople on ſolemn occaſions.

CRINUM, in *Botany*, (κρινον; Theophr. a name given by the Greeks to the lily, and ſome other plants with ſhewy flowers.) Linn. Gen. 405. Schreb. 553. Willd. 618. Claſs and order, *hexandria monogynia*. Nat. Ord. *Spathaceæ*, Linn. *Narciſſi*, Juſſ.

Gen. Ch. *Cal.* Involucre ſpathe-ſhaped, of two or more oblong leaves, umbelliferous, reflexed after it has opened. *Cor.* monopetalous, funnel-ſhaped; tube oblong, cylindrical; border half ſix-cleſt; ſegments lanceolate-linear, obtuſe, channelled, reflexed; three alternate ones, in moſt ſpecies, diſtinguiſhed by a hooked appendicle. *Stam.* Filaments ſix, awl-ſhaped, the length of the border and inſerted in its baſe, converging; anthers oblong, linear, riſing upwards, incumbent. *Piſt.* Germ inferior; ſtyle filiform, the length of the flower; ſtigma ſimple, or three-cleft. *Peric.* Capſule ſomewhat egg-ſhaped, three-celled. *Seeds* numerous.

Eſſ. Ch. Corolla funnel-ſhaped, half ſix-cleſt; tube filiform; border ſpreading, recurved; ſegments lanceolate-linear, channelled. Filaments inſerted in the baſe of the border, diſtinct. Germ inferior.

Obſ. It differs from pancratium in the want of a nectary. The crinum of Gærtner and La Marck has a ſuperior germ, and is formed for the crinum Africanum of the Species Plantarum, which has that character, and on that account has been made by Schrader a diſtinct genus under the name of Agapanthus. La Marck, however, has included in his crinum, C. americanum and C. tenellum, becauſe he thinks their germ is not decidedly inferior. Such as are ſo he has removed to amaryllis.

Sp. 1. C. *aſiaticum.* Linn. Sp. Pl. 2. Mart. 1. Willd. 1. Lour. Cochinch. 197. "Leaves keeled." Linn. "Leaves linear, acuminate, keeled; flowers ſeſſile; tube longer than the border; ſpathe two-leaved." Willd. *Root* ſolid, top-ſhaped, ſurrounded with long branching fibres. *Stem* ſhort, thick, coated, white, ſingle. *Leaves* three feet long, three inches broad, ſubulate-linear, erect, ſtriated, thick, imbricated. *Scapes* axillary, cylindrical, the length of the leaves. *Flowers* white, large, in a ſingle flat umbel; common involucre oblong; ſegments of the corolla equal, not hooked; ſtamens diſtant. *Capſule* roundiſh, irregularly lobed. Lour. There has been ſome confuſion with reſpect to this ſpecies. Oſbeck, a pupil of Linnæus, obſerved it in 1751, embelliſhing the ſandy-ſhores of the iſland of Java; and in the year following, brought into Europe, not only bulbs preſerved in ſand, but alſo the plant itſelf in a flower-pot, which arrived perfectly alive in Sweden. About the ſame time Mr. Miller received from Panama and Carthagena two diſtinct plants, the ſmaller of which he ſuppoſed not to differ from the Aſiatic ſpecies, and accordingly figured it under that name in his coloured plates. Linnæus, miſled by Miller, quoted that figure as really belonging to his C. aſiaticum. In this error he was probably confirmed by obſerving in Miller's figure no appearance of a hooked appendicle at the ſummit of the alternate ſegments of the corolla; and hence ſeems to have conſidered that appendicle itſelf as a ſufficient ſpecific diſtinction of the larger American plant. We apprehend, however, that it was left out in Miller's plate by the negligence of the engraver; for we have now before us a dried ſpecimen of a plant cultivated many years ſince by Mr. Saliſbury at Chapel Allerton, under the name of crinum aſiaticum, in which that particular character is diſtinctly viſible. The real C. aſiaticum does not appear ever to have been ſeen by Miller; nor was it known at Kew when the Hortus Kewenſis was publiſhed; but the author of the ſpecific characters in that work had diſcovered Miller's miſtake, and removed the reference to the new ſpecies *erubeſcens*, C. americanum *β* of Linnæus. Gærtner quotes the C. aſiaticum of Linnæus, as his bulbine aſiatica; Mr. Saliſbury, however, aſſures us that the bulbine is certainly a plant not in our collections, and that he is yet ignorant what it is, but that if he ſhould gueſs at any one in particular, it would be the cæpa ſylveſtris of Rumphius, quoted by L'Heritier, as a ſynonym of his crinum nervoſum. See Parad. Lond. 52. 2. C. *americanum.* Linn. Sp. Pl. 3. Mart. 2. Willd. 2. Hort. Kew. 413. (Lilio-aſphodelus americanus maximus; Comm. Rar. 14. tab. 14. Dill. Elth. 194. tab. 161. fig. 195.) "Leaves oblong-lanceolate, quite ſmooth at the edge, contracted and hooked at the end; flowers pedicelled; tube ſhorter than the border." *Scape* a foot and half high, the thickneſs of a finger, ſlightly compreſſed, coming out from the root on one ſide of the leaves. *Leaves* two feet long or more, three inches broad, furrowed on the upper ſurface, keeled on the lower, ſmooth, ſtiff, light green, ſlightly undulated at the edge, thickiſh, ſharp-pointed, punctured with numerous and rather large pores. *Flowers* milk white, opening ſucceſſively, and each laſting only one or two days; tube about two inches long; ſegments of the border keeled; ſtamens long, bending in, white at the bottom, purple at the top; ſtyle ſhorter than the ſtamens, of a deeper purple colour. Some very ſlender threads adhere to the involucre, and to the pedicels of the flowers. A native of South America; cultivated at Eltham by Dr. Sherard in 1732. 3. C. *erubeſcens.* Hort. Kew. 413. Mart 3. Willd. 3. (C. americanum *β*; Linn. Sp. Pl. C. aſiaticum; Mill. tab. 110. Lilio-aſphodelus minor; Com. Rar. tab. 15.) "Leaves lanceolate, cartilaginous-crenulate, drawn out and unfolded at the end: flowers ſeſſile; tube longer than the border." *Scape* riſing from the root at the outſide of the leaves. *Flowers* eight or ten, forming an umbel, cloſely joined at their baſe, but ſpreading above; petals delicate, not continuing in beauty more than four or five days. A native of the Spaniſh Weſt Indies. 4. C. *bracteatum.* Willd. 4. "Leaves oblong-lanceolate, attenuated at the baſe, cartilaginous and ſmooth at the edges, ſomewhat callous at the tip; flowers pedicelled; tube ſhorter than the border; ſpathes numerous, longer than the tube." *Flowers* white; ſegments of the border narrow, reflexed, channelled, hooked at the tip; bractes or ſpathes oblong-lanceolate. Deſcribed by Willdenow from a living plant; native country unknown. 5. C. *nervoſum.* Mart. 6. Willd. 5. L'Herit. ſert. angl. 8. (Cæpa ſylveſtris; Rumph. Amb. 6. p. 160. tab. 70. fig. 1.) "Leaves roundiſh, nerved; filaments dilated at the baſe." *Leaves* cordate-rounded, entire, acuminate, with concentric nerves. *Scape* many-flowered, with a many-leaved involucre. *Flowers* on rather long peduncles; tube of the corolla filiform; ſegments of the border lanceolate, acute, ſpreading; filaments ſhorter than the ſegments of the corolla, ſtraight, not declining. A native of the Philippine iſlands, obſerved by Monſ. Poivre.

Crinum *africanum;* Linn. See Agapanthus *umbellatus.*

Crinum *anguſtifolium;* Linn. jun. See Cyrtanthus *anguſtifolius.*

Crinum *caſpium;* Pall. See Amaryllis *caſpia.*

Crinum *falcatum;* Jacq. See Amaryllis *falcata.*

Crinum *latifolium;* Linn. See Amaryllis *latifolia.*

Crinum *lineare;* Linn. jun. See Amaryllis *linearis.*

Crinum *longifolium;* Thunb. See Amaryllis *longifolia.*

Crinum *obliquum;* Linn. jun. See Cyrtanthus *obliquus.*

Crinum *ſpecioſum;* Linn. jun. See Amaryllis *purpurea.*

Crinum *tenellum;* Linn. jun. See Strumaria *filifolia.*

Crinum *zeylanicum;* Murr. See Amaryllis *zeylanica*, under which genus it was originally placed by Linnæus. Mr. Gawler Kerr declares (Bot. Mag. 923.*) that after a diligent reſearch, he is aſſured of the ſpecific identity of the Indian amaryllis zeylanica, and the African ornata, and has publiſhed the crinum giganteum of the Botanical Repoſitory, tab. 169, as an obvious variety. Mr. Saliſbury thinks the A. ornata and crinum giganteum diſtinct, and is inclined to refer both to the genus crinum. His C. yuccæflorum, figured in Paradiſus Londinenſis, Pl. 52. is, as he himſelf acknowledges, ſo ſimilar to A. ornata, cultivated in the ſtoves about London, that he cannot find a ſatisfactory ſpecific diſtinction. It differs ſo much, however, in the ſtructure of its anthers, that he thinks it ſafeſt for the preſent to ſeparate it. He ſays that theſe plants and the C. longifolius of Thunbery, ſince removed to amaryllis, may be diſtinguiſhed from that genus by the herb alone, as well as by the fruit. See Par. Lond. 52.

Crinum, in *Gardening*, comprehends plants of the flowery tuberous and bulbous-rooted perennial kinds; of which the ſorts moſtly cultivated are, the keel-leaved Aſiatic crinum, (C. *aſiaticum*); the great American crinum, (C. *americanum*); and the ſmall American crinum, or aſphodel lily, (C. *erubeſcens*).

Method of Culture.—All theſe three ſorts are capable of being increaſed, by planting the off-ſets of their roots in pots filled with good freſh earth, plunging them in the bark-bed of the ſtove, where they ſhould be continued until they begin to ſhow flowers. After this they may be removed, when neceſſary, to the ſhelves or other parts of the hot-houſe where they muſt be kept.

It is neceſſary that the roots of all the different ſorts ſhould be ſhifted every two years, at the period when the ſtems decay, in order to ſeparate the off-ſets for the purpoſe of increaſe, and to refreſh the plants with freſh mould.

The ſucculent ſtalks and beautiful flowers of theſe plants afford a good effect among other ſtove plants, when properly placed in mixture with them.

CRIO, Cape, in *Geography*, a cape on the W. coaſt of Aſiatic Turkey. N. lat. 36° 40′. E. long. 27° 8′.—Alſo, a cape of the iſland of Candia; 7 miles S.W. of Canea.

CRIQUES, Fr. in *Fortification*, ſmall ditches, which are made in different parts of the ground for the purpoſe of inundating the country in the environs of a place, to render the enemy's approach to it either difficult or impracticable.

CRIQUETOT Lesneval, in *Geography*, a ſmall town of France, in the department of the Lower Seine, 9 miles ſouth of Fecamp. It is the chief place of a canton in the diſtrict of Havre, and contains 1650 inhabitants. The canton has 26 communes, upon a territorial extent of 140 kiliometres, with a population of 14,748 individuals.

CRISCUOLO, Gio Filippo, and Gio Angiolo, in *Biography*, two brothers, natives of Gaeta, who enjoyed conſiderable reputation at Naples in the 16th century, as hiſtorical painters. Gio Angiolo was the ſcholar of Marco di Siena. Gio Filippo was a diſciple of Andrea da Salerno, and afterwards travelled to Rome, where he ſtudied the compoſitions of Raffaele with great profit. The works of theſe two artiſts are deſcribed by Dominici in his lives of the Neapolitan painters. Gio Angiolo died in 1572; Gio Filippo ſurvived him 12 years, and died at the age of 75. Lanzi. Storia Pitt.

CRISIS *of diſeaſes*, a ſudden change for the better, in the ſymptoms of acute diſeaſes, preceded by a conſiderable diſturbance of the functions, and accompanied by ſome evacuation.

This appears to be the ſenſe in which the term was generally underſtood by Hippocrates and Galen, and the other ancient phyſicians, who adopted the doctrine of *criſes.* It is, however, not only a ſudden alteration towards recovery, which they have denominated a criſis; but a rapid change for the worſe, or to death itſelf, alſo received the ſame denomination; but the epithet *bad* was in that caſe added. And thoſe diſturbances, which only make ſome conſiderable change, without entirely removing the diſeaſe, or which are followed by an exacerbation or return of the ſymptoms, were called *imperfect* criſes. The word *criſis*, *κρίσις*, literally ſignifies *judgment*, from *κρίνω, I judge;* and Galen is of opinion that the term was originally the contrivance of vulgar and uninformed perſons, rather than of phyſicians. The change being always preceded by great diſturbance of the body, and alarming ſymptoms, the friends and attendants, affrighted by the violence of the diſeaſe, pronounced that a deciſive *judgment*, as to the death or recovery of the patient, might ſpeedily be formed; hence they called the change of the ſymptoms themſelves, the *criſis*, or *judgment.* The diſturbances, the violent ſymptoms, the diſcharges, which enſue, were hence alſo denominated *critical* diſcharges, *critical* perturbations, and *critical* ſymptoms.

It is a curious fact in pathology, that the vital powers, after being worn down, and apparently almoſt exhauſted, by the continued violence, or ſucceſſive exacerbations, of fever, often ſuddenly and ſpontaneouſly become recruited, the alarming ſymptoms diſappearing, and leaving the patient with little more complaint than extreme general weakneſs. This ſort of change takes place moſt commonly in continued fevers, more eſpecially in thoſe which are violent from the beginning. For theſe criſes happen moſt frequently within the firſt ten or eleven days of the diſeaſe, and if they occur at a later period than the fourteenth, are leſs deciſively beneficial, and leſs diſtinctly marked. Criſes, indeed, do not happen ſo frequently in this climate, or in modern times, as anciently; in ſo much that it has been diſputed whether the maxims, which have been handed down to us, have any application to the diſeaſes which we now obſerve. It is probable, that the frequent viciſſitudes of our climate, the greater activity of our practice, and the leſs regular mode of life among the moderns, is the cauſe of the comparative rarity of the occurrence of violent criſes: they occur, neverthele ſs, ſufficiently often, to render the ſtudy of them important, eſpecially with a view to the prognoſis of the event.

The doctrine of criſes, although originating, no doubt, in the careful obſervation of facts, for which the phyſicians of the Hippocratic ſchool were remarkably diſtinguiſhed, was nevertheleſs much connected with their ſpeculative opinions reſpecting the humoral pathology; and eſpecially with the doctrine of concoction. (See Concoction.) They obſerved that thoſe ſudden or critical changes were always preceded or accompanied by ſome evacuation; as by copious ſweat, or a great depoſition of ſediment in the urine, or by a diſcharge from the bowels, by hæmorrhages, &c.; in pulmonary fevers, by a free and copious expectoration; and ſo on. Hence they were led to ſuppoſe, that the diſeaſe was the effect of the preſence of ſome morbid matter in the humours, and was itſelf an effort of the conſtitution to expel this matter, after due concoction, from the body. Theſe diſcharges were, therefore, conſidered as proofs at once of the exiſtence of morbid humours, and of the ſucceſsful ſtruggles of the ſyſtem in expelling them; and the violent perturbations which preceded the expulſion, were deemed to be ſigns of the conflict between the powers of the conſtitution, ſtruggling to expel the humours, and the noxious influence of theſe humours upon the conſtitution. The hypotheſis was plauſible, and has been the ground-work of the reaſoning of medical writers, from the time of Hippocrates, down to the age of Hoffmann and Cullen; and it is ſtill the favourite theme with the ill-informed part of the profeſſion, and with the public at large. But the diſtinguiſhed profeſſors, juſt mentioned, taught us to attend to the operations and excitability of the nervous or living power in the ſolids, by the action of which the fluids are principally modified in their qualities. Thus in reſpect to the progreſs of common inflammation, which is the prototype of the humoral theory, the ſwelling, tenſion, pain, &c. were conſidered by thoſe pathologiſts as the effect of obſtruction, occaſioned by the preſence of morbid humours: and when the inflammation was not gradually cured by reſolution, but went on, it was only finally removed by a diſcharge of the morbid humours, when concocted in the ſhape of *pus*. Now the modern doctrine, which is deduced from a more complete generalization of the facts, teaches us that theſe phenomena are not the reſult of morbid humours circulating in the veſſels; but that the morbid humours are the reſult of certain diſordered actions of the veſſels, by which the ſecretions of thoſe veſſels are altered. In the healthy condition of the body, there is no urine, no bile, no ſaliva, in the blood; theſe fluids are *produced* in the kidneys, the liver, and the ſalivary glands, by the peculiar action of the veſſels of thoſe organs, which gives new combinations to the elementary parts of the blood. This action is called *ſecretion*. Similar actions in inflamed parts produce the variety of humours which appear in the progreſs of the inflammation; as particularly obvious in the inflammation of ſurfaces. Take *Coryza* for example. The natural ſecretion of the membranes lining the noſe is a ſimple moiſture. But if an inflammatory action is excited in theſe membranes, the veſſels, at the commencement, either do not ſecrete at all, or they pour out a thin and acrid humour, which the ancients call *crude;* as the inflammation goes on, the action of the veſſels changes, and they produce a thick, whitiſh mucus; and when the inflammatory action is beginning to ſubſide, the ſecretion from the blood is again altered, it has the appearance of *pus*, and is ſaid by the humoraliſts to be concocted. The inflammation from this time declines and ceaſes. In this caſe there is no morbid humour in the blood of the inflamed membrane; but the action of the veſſels being changed, in various progreſſive degrees, by an external cauſe, *viz.* cold, they produce new combinations in the blood, which circulates through them, and at once generate and eject the morbid humour. The morbid humour is not a cauſe, therefore, but an effect, and a ſign of a morbid condition of the living power, and the conſequent morbid action of the part.

And thus it is, alſo, with reſpect to thoſe diſcharges which are deemed *critical* in the more general deranged action of fevers. It will not be difficult to ſhew, as we enumerate them, that they are oftener the effects of a favourable change in the ſyſtem, than the cauſes of it. A profuſe ſweat is a ſymptom which very commonly attends thoſe ſudden changes from fever to health. It accompanies the criſis in intermittent fevers, and frequently that of the ſynocha, or inflammatory fever: indeed, continued fever in general is ſeldom terminated favourably, without ſome degree of moiſture appearing on the ſkin. But phyſicians were long miſled into a moſt pernicious practice, (the employment of the hot regimen, and alexipharmics,) by the concluſion, that the ſolution of the fever was wholly to be attributed to the flow of ſweat, and that could this diſcharge by any means be produced, it would always prove equally beneficial. But a proof of their error, and alſo of the poſition that ſuch ſalutary ſweats were the reſult of a favourable change in the conſtitution, is this, that ſweats, forced by artificial means, never effect the ſolution of the fever, but moſt frequently increaſe its violence, prolong its duration, and, by greatly debilitating the patient, endanger his life. Nor is every ſpontaneous ſweat ſalutary: unleſs it be univerſal and thin, it is ſeldom beneficial.

The ſame obſervation may be made as to the depoſition of the ſediment in the urine, which commonly appears at the criſis, and was deemed a proof of the concoction being completed. Now this depoſited matter is not in the blood, but ſecreted by the kidneys, and it exiſts in ſome proportion almoſt conſtantly in the urine of perſons in health. Its production in larger quantity is much connected with a ſoft and moiſt ſtate of the ſkin, and invariably accompanies much ſweating, from whatever cauſe produced. It occurs with the ſpontaneous ſweats of fever, whether critical or even prejudicial; it is found after all night ſweats, as from thoſe of hectic fever, where no relief is brought by it, and even when there is no fever at all; and, farther, it may be produced in any one at pleaſure in a ſtate of health, by promoting the perſpiration by ſmall doſes of tartar emetic or Dover's powder. (See Wilſon on Febrile Diſeaſes, vol. i. p. 398.) Therefore all that can be inferred from the appearance of the lateritious ſediment in the urine in fevers is, that the relaxation of the ſkin has taken place, and its ſecretion is reſtored; or in other words, where the depoſition is ſpontaneous, that it is the *conſequence* of a favourable change in the conſtitution. The changes in the urine, however, although affording no particular indication of cure, merit our attention, as they ſometimes anticipate the other phenomena which mark a ſolution of the fever.

Among the critical diſcharges, diarrhœa occurs leſs frequently than the two preceding ones: Hoffmann, however, remarks, that in the petechial fever he has more frequently obſerved a diarrhœa critical, than either ſweat or hæmorrhage. This criſis is generally for ſome time preceded by flatulence, gripes, and pains of the loins: it has been ſaid to be preſaged by an intermitting pulſe; (Nihell on the Pulſe,) but the pulſe has often been obſerved to intermit, when no diarrhœa ſucceeded. We believe, however, that diarrhœa, in the fevers of this country, is more frequently detrimental than critical; and where it is attended with much loſs of ſtrength, it is among the worſt and moſt unmanageable ſymptoms of the diſeaſe. It is frequently, we believe, the conſequence of a neglect to clear the bowels in the commencement of the diſeaſe.

The criſis, which is next in degree of importance and frequency, is hæmorrhagy or diſcharge of blood. It is curious to obſerve, that hæmorrhages, even to a conſiderable extent, are ſometimes followed by immediate relief to the ſymptoms; even in typhous fevers, *i. e.* in thoſe fevers which are characterized by great debility. The moſt frequent critical hæmorrhages are thoſe from the noſe, and the quantity is generally ſmall. Theſe have been ſaid, by the ſame whimſical author above quoted, to be preſaged by a rebounding pulſe, whoſe ſtroke ſeems double: (Nihell.) There is generally ſome heat, pain, or tenſion in the part whence the blood is about to flow. It may here be obſerved, that the relief which a trifling hæmorrhage from the noſe ſometimes affords to the patient, cannot be explained upon the notion of any morbific matter being evacuated with it. If there be a morbific humour in the circulating maſs, it is quite abſurd to ſuppoſe that a very trifling and partial abſtraction of the blood can free the ſyſtem of much of that humour, or that it can leave the remaining blood in the circulation leſs impregnated than before.

Other diſcharges have been mentioned as occaſionally critical, ſuch as vomiting, flow of ſaliva, cutaneous eruptions, abſceſſes, &c.; but theſe are comparatively rare.

Although the diſeaſes which we are accuſtomed to ſee in this climate, and in perſons uſing a mode of life altogether different from that of the ancients, are by no means the ſame with thoſe recorded by the phyſicians of Greece and Rome, and differ eſpecially in the rarity of well-marked criſes; yet the obſervation of thoſe imperfect criſes, thoſe perceptible changes for the better or worſe, which are frequently accompanied by ſome evacuation, occurring in modern diſeaſes, is important. In the firſt place it will aid us in forming a correct prognoſis of the termination of diſeaſes; and ſecondly, which is of greater conſequence, it will aſſiſt us in the choice of proper meaſures in their cure. It will enable us, for inſtance, to judge of the propriety of ſuppreſſing, or of allowing to proceed thoſe evacuations which obviouſly tend to augment or to alleviate the original diſorder, and will point out to us when we may aid or imitate the proceſſes of nature in the conſtitution. The ſpeedy relief, or the continuance and even increaſe of the ſymptoms of the diſeaſe, is the beſt criterion of the beneficial or injurious nature of ſuch evacuations. The ancients, however, had two ſorts of teſts by which their prognoſis and practice were guided. The firſt and moſt important point was, according to Galen, the obſervation of the *concoctions* of the urine, excrement, and the ſputa. I have been preſent, he ſays, a thouſand times during the occurrence of criſes, and I never ſaw one perſon die, whoſe criſis was preceded by concocted diſcharges. (De Criſibus, lib. iii.) The ſecond point in importance, according to the ſame writer, was the obſervation of *the day* on which the criſis took place. For it had been remarked from the time of Hippocrates, that theſe ſudden criſes occurred more frequently on certain days, reckoned from the commencement of the diſeaſe, than on others; and thoſe were hence termed *critical* days. See CRITICAL *Days*. The criſis was conſidered as moſt likely to prove curative if it had been *indicated*, *i. e.* if an amendment had taken place on the previous critical day; and eſpecially if it occurred on a critical day of great power. The obſervation of the ſpecies and type of the diſeaſe, alſo aided the ancient prognoſis; as, whether it was quotidian, tertian, ardent fever, pleuriſy, &c.; or whether moderate, mild, malignant, and ſo forth. And farther, they did not omit to note, whether the ſort of diſcharge was correſpondent with the nature of the diſorder. Some of their obſervations on this head are fanciful, and purely hypothetical. Thus Galen affirms, that when the convex part of the liver is diſeaſed, a criſis takes place in three ways; namely, by hæmorrhage from the right noſtril, by free ſweats, and copious diſcharge of urine. When the concave parts of the liver are affected, the criſis is completed by means of bilious ſtools, and ſweat, and ſometimes by vomiting. It is unneceſſary to detail the various obſervations of this ſort which have been tranſmitted to us by the ancient phyſicians. The reader who is curious on the ſubject, will find an ample collection of them in Galen's three books, *De Criſibus*, particularly in the third; and alſo in his books, *De Diebus Decretoriis*. See alſo Van Swieten's Commentaries, Aph. 587.

CRISNA, or KRISHNA, in *Geography*, a river of India; called alſo KISTNAH; which ſee.

CRISNEZ, CAPE, a cape on the coaſt of France, in the Engliſh channel, between Boulogne and Calais. N. lat. 50° 50′. E. long. 1° 35′.

CRISP, TOBIAS, in *Biography*, a divine of the church of England, was born at London in the year 1600. He was educated at Eton, and from thence he removed to Cambridge, and afterwards to Baliol college, Oxford. In the year 1627 he was appointed rector of Brinkworth in Wiltſhire, and ſhortly after he took his degree of doctor in divinity. In early life he was the favourer of the doctrines of Arminianiſm, but as he advanced in life he ſtood forth as the champion of Antinomianiſm. During his life-time he publiſhed nothing in juſtification of his tenets; but after death ſermons in three volumes 8vo. were printed, which were afterwards publiſhed in one volume 4to. He died in 1642-3; and though the tenets which he embraced ſeem to be a plea for licentiouſneſs, yet Dr. Criſp was himſelf remarkable for the chaſteneſs of his piety, the purity and ſanctity of his manners, and the humility and modeſty of his deportment. His income being ample, he devoted a conſiderable part of it to works of hoſpitality and kindneſs.

CRISPELT, in *Geography*, a mountain of Switzerland, in the canton of Uri, 10 miles S.E. of Altorff.

CRISPELLO, a town of Naples, in the province of Abruzzo Citra; 25 miles E. of Civita Borella.

CRISPI, SCIPIONE, in *Biography*, a painter of the 16th century, a native of Tortona, in the ſtate of Piedmont. In the church of that place is a picture of the Madonna, with St. Francis and St. Dominic, bearing his name, and the date 1592, and in Vogherra, the meeting of Mary and Elizabeth, in the church of St. Lorenzo, both evincing him an artiſt of no ſmall abilities. Lanzi.

CRISPIANA, in *Ancient Geography*, a place of Pannonia, in the route from Sirmium to Carnuntum, between Ulmi and Murſa, according to the Itinerary of Antonine.

CRISPUM FOLIUM, in *Botany*, a curled leaf, has its border conſiderably more dilated than the diſk, in conſequence of which the former part becomes elegantly curled and twiſted. Linnæus thought this a morbid luxuriance, and with great probability. It is the characteriſtic mark of *Malva criſpa*, the curled mallow, a plant cultivated chiefly for ornamenting the table in deſerts, and which ſeems moſt likely to be a variety of *Malva verticiliata*; yet it retains its peculiar character when propagated by ſeed, at leaſt in the rich ſoil of a garden. The above term is alſo applicable to the margin of the cup or nectary in ſeveral ſpecies of *Narciſſus*, even in their natural ſtate. With reſpect to leaves, the reverſe of this character is *folium concavum*, a concave leaf, whoſe margin is more tight than the diſk, like *Cyamus Nelumbo*. *Sm. Exot. Bot. t.* 32. S.

CRISPUS, ANTHONY, in *Biography*, born June 11th, 1600, at Trapani, a town in Sicily, received the early part of his medical education under his father, whom he ſucceeded in his practice, in which he became ſo famed, that perſons reſorted to him for his advice, not only from the moſt diſtant parts of the iſland, but from many parts of Italy alſo. Towards the latter end of his life, which was extended to the year 1688, he united the office of prieſt to that of phyſician, and a few years before his death, he retired altogether from buſineſs. The following are the titles to a few of his numerous publications: "In lethargum fabri ſupervenientem acutæ, Commentarii duo." Panorini, 1668, 4to. "De ſputo ſanguinis a partibus corporis infirmis, ſupervenientis cum Tuſſi, &c." 1682, 4to. The practice here recommended has been very little altered ſince his time; alſo a treatiſe on the cure of infectious fever by venæſection and cathartics, the mode now recommended in the yellow fever, and on the moſt celebrated mineral waters of the iſland, with an examination of their conſtituent parts. Haller Bib. Med. Eloy. Dict. Hiſt.

CRISSA, in *Ancient Geography*, a town of the Locrian Ozoli, near the gulf Criſæus, formed by a part of the gulf of Corinth, and now called "Golfo di Salona."

CRISSE, or KREESE, in *Military Language*, a kind of dagger uſed by the Malays, particularly in the iſland of Ceylon; the blade of which is of the beſt tempered ſteel, and often in a ſerpentine form, ſo as to inflict a moſt dreadful wound; the handle is of ivory or wood, carved into the figure of a man's body and arms, with a head repreſenting ſomething between that of a man and a bird: this they call their "ſwaming," or god; and to this figure they make their "ſalam," or obeiſance, before they draw the kreeſe to execute any bloody purpoſe on which they have determined. After they have ratified their vow by this ceremony, they draw their kreeſe, and never again ſheath it till they have drenched it in blood. So reſolute is their ferocious diſpoſition, that if their adverſary is placed beyond the reach of their vengeance, ſooner than not indulge it they will plunge the dagger into the body of a pig, dog, chicken, or any other living animal which happens to come in their way. The ſcabbard is made of wood, frequently ornamented with gold or ſilver wire; and the whole appearance of the weapon, as well as the mode of wearing it, on the right ſide, greatly reſembles that found in the ancient dreſs of the Celtic nations. This terrible inſtrument is rendered ſtill more ſo by its being always poiſoned, commonly by the juices of ſome poiſonous herbs, and among thoſe who can procure it, with poiſon from the Upa tree. Theſe daggers, in the uſe of which the Malays are peculiarly dextrous, are regarded by them with veneration, and they deſcend as ſacred relics from father to ſon, and from generation to generation. No money is accounted ſufficient to purchaſe them, and no violence can compel their owners to give them up. When a Malay is preſſed in battle, he will ſooner be ſlain, or kill himſelf, than ſurrender his kreeſe to the enemy.

CRISTA, a *Creſt*, in *Botany*, applies to ſeveral acceſſory parts, or appendages, chiefly belonging to the *antheræ* of plants, thence ſaid to be *criſtatæ*, as in the genus *Erica* and that of *Pinus*, in both which inſtances the creſt of the *antheræ* is of great uſe in furniſhing ſpecific characters. The ſame term is uſed for an elegant double tuft or fringe, attached to the keel of the flower in many ſpecies of *Polygala*, milkwort, whence ſuch ſpecies are denominated *criſtatæ*, and they form a ſection in the genus by themſelves. The pod of *Hedyſarum Caput galli*, and *H. Criſta-galli*, has a curious creſt, running along its upper edge, which has given occaſion to the names of theſe two ſpecies. In the former of them its ſegments are awl-ſhaped and ſimple; in the latter flat, dilated, and toothed; which marks afford a good ſpecific difference. See HEDYSARUM. S.

CRISTA-*Galli*, in *Anatomy*, a proceſs ſtanding out from the middle of the upper ſurface of the cribriform lamella of the ethmoid bone. See SKELETON.

CRISTA-*Galli*, in *Botany*, Ger. Lob. See RHINANTHUS *Criſta-Galli*.

CRISTA *Galli*, in *Conchyliology*, the name of a peculiar ſpecies of muſcle, called alſo by ſome *auris porci*, or the hog's ear ſhell. See MYTILUS.

CRISTÆ is alſo a term uſed in *Surgery*, for certain preternatural excreſcences ariſing about the fundament, reſembling cock's combs.

Theſe, M. Dionis ſays, are taken off either by ligature, cauterization, or amputation. When they have other figures they have other names, as ficus, &c. See CONDYLOMA.

CRISTA is alſo uſed for a crooked, twiſted, ſpiral eminence, in the middle of the ſpine of the *omoplata*.

CRISTA *pavonis*, in *Botany*, a name by which ſome authors have called the poinciana.

CRISTA *pavonis* is alſo a name given to the tree, the wood of which is uſually denominated logwood.

CRISTARIA, *coccinea*; Sonn. See COMBRETUM *decandrum*.

CRISTIANA, or CRISTENA, in *Geography*, a ſmall iſland of the Grecian Archipelago, in the Cretan Sea; the ancient Letoa. N. lat. 36° 20′. E. long. 25° 16′.

CRISTOFORI, or CRISTOFANI, FABIO, in *Biography*, an artiſt of the 17th century, who carried the art of painting in Moſaic to the greateſt perfection. The St. Petronilla, from the large picture by Guercino, St. Girolamo, from Domenichino, and the baptiſm of Chriſt from Carlo Maratta, in the church of St. Peter at Rome, are ſufficient proofs of his extraordinary abilities. He had a ſon, named Pietro Paolo, who aſſiſted him in the work. The latter died after 1736. Lanzi.

CRISTOFORO, a painter of the 14th century, who is ſaid by ſome to have been a native of Ferrara, by others of Modena. Theſe cities diſpute the honour of having given birth to this early artiſt. The abbé Lanzi does not pretend to decide the queſtion, but he informs us that he painted many works both in freſco and diſtemper at Bologna, in a ſtyle evidently not derived from the ſchool of Florence. Some of Criſtoforo's pictures bear the date 1380. Lanzi.

CRISTONÆI, in *Ancient Geography*, a people placed in the vicinity of Scythia by Stobæus, who ſays that the women burnt themſelves on the bodies of their deceaſed huſbands.

CRITALÆ, or CRITALI, a town of Aſia, in Cappadocia. Herodotus.

CRITERIUM, or CRITERION, formed of κρινω, *I determine*, a rule or ſtandard whereby to compare propoſitions and opinions, in order to diſcover their truth or falſehood.

The doctrine of criteria, and the characters and rules thereof, make the firſt part of the Epicurean philoſophy. Evidence is the grand criterion of truth.

CRITH, or CORATH, in *Ancient Geography*, a torrent of Paleſtine, which commenced in Acrabaterra, near Silo, ran by the north-weſt, paſſed S.E. of Phaſælis, and emptied itſelf into Jordan.

CRITHE, κριθη, in *Surgery*, a ſmall tubercle, hard, red, and immoveable, ſeated upon the eye-lid, above the cilia, or range of hairs. It is always included in a kind of cyſta, and by inflammation degenerates into a thickiſh matter, from whence frequently proceed intenſe pains, and various diſorders of the ſight. It is ſometimes ſeated immediately under the ſkin of the eye-lid: ſometimes it is within, under the muſcle. When this tubercle is moveable, it is generally called *chalazium*, or in Engliſh ſtye, or *ſlithe*.

CRITHMUM, in *Botany*, (κριθμον, Dioſc.) Linn. Gen. 340. Schreb. 473. Willd. 537. Tourn. Cl. 7. § 4. gen. 7. Juſſ. 223. Vent. 3. 27. Claſs and order, *pentandria digynia*. Nat. Ord. *Umbellatæ*, Linn. *Umbelliferæ*, Juſſ.

Gen. Ch. *Cal. Involucre univerſal*, many-leaved β; leaflets lanceolate, obtuſe, reflexed; *partial* lanceolate-linear. Perianth proper, ſcarcely diſcernible. *Cor.* Univerſal and partial umbels uniform; florets all fertile; petals five, egg-ſhaped, inflexed, equal. *Stam.* Filaments five, longer than the corolla; anthers roundiſh. *Piſt.* Germ inferior; ſtyles two, reflexed; ſtigmas obtuſe. *Peric.* none; fruit oval, compreſſed, ſtriated, dividing into two elliptical flattiſh ſeeds.

Eſſ. Ch. Fruit oval, compreſſed, ſtriated. Flowers equal; calyx entire.

Sp. 1. C. *maritimum.* Linn. Sp. Pl. 1. Mart. 1. Lam. Willd. 1. Jac. Hort. tab. 187. Eng. Bot. 819. (Crithmum ſive fœniculum maritimum minus; Bauh. pin. 288. Tourn. 377.) Rock ſampire, from the French St. Pierre, often corruptly pronounced, and ſpelt ſamphire. "Leaflets lanceolate, fleſhy." *Root* perennial, branched. *Stems* about a foot high, hard and ſomewhat woody at the baſe, nearly erect, cylindrical, leafy, moderately branched. *Leaves* twice or thrice ternate; leaflets acute, quite entire, ſmooth, rather glaucous, recurved-aſcending. *Flowers* in denſe umbels, greeniſh white; petals incurved, broad at the baſe, not furniſhed with claws. *Fruit* ſomewhat ſpongy, ſmooth. A native of rocks on the ſea-coaſt of Italy, Spain, France, and the ſouth of England. On the continent the leaves pickled in vinegar are in common uſe at the table; but in England the much more common ſalicornia has generally uſurped its name and place, though a very inferior ſubſtitute, and entirely deſtitute of its aromatic flavour. That it grows on Dover cliff is known to every reader of Shakſpeare. We have met with it in Cardiganſhire, but in no part of the north of England. 2. C. *latifolium.* Mart. 3. Willd. 2. Linn. jun. Supp. 180. Hort. Kew. 1. 342. "Leaflets wedge ſhaped, cleft." A very ſmooth plant, a foot and half high." *Root* biennial. *Stem* erect, cylindrical, furrowed. *Leaves* petioled, pinnated; leaflets in two or three pairs, ſeſſile, decurrent at the outer edge, gradually dilated; lobed, toothed; petioles dilated at the baſe, embracing the ſtem. Univerſal and partial involucres of ſix or ſeven leaves. *Flowers* yellow. *Seeds* ſmooth, furrowed, even and elevated at the edges. A native of Teneriſſe.

Crithmum *maritimum ſpinoſum*; Bauh. Pin. See Echinophora *ſpinoſa.*

Crithmum *pyrenaicum*; Linn. See Athamantis *libanotis.*

Crithmum, in *Gardening*, compriſes a plant of the herbaceous ſucculent, perennial, eſculent kind; the ſea or rock ſampire (C. *maritimum.*)

Method of Culture.—This is a plant which, from its being a native of the ſea-coaſts, is raiſed in the garden with ſome difficulty. In order to its ſucceſsful culture, it ſhould have a rather moiſt, ſandy, or gravelly ſituation, and be duly ſupplied with moiſture.

It may be propagated either by ſowing the ſeeds in the places where the plants are to remain, in the early ſpring months, to the depth of about half an inch, or by parting the roots, and planting them out where they are to remain, in the beginning of autumn.

When the plants have been introduced in either of theſe methods, they will continue for a number of years.

The leaves conſtitute an admirable pickle, and are ſometimes uſed in ſallads, as well as for other culinary purpoſes.

CRITHOMANCY, a kind of divination, performed by conſidering the dough, or matter of the cakes offered in ſacrifice; and the meal ſtrewed over the victims to be killed. Hence, as they ordinarily uſed barley-meal in theſe ceremonies, this kind of divination was called *crithomancy*, from κριθη, *barley*, and μαντεια, *divination.*

CRITICAL Days, in *Medicine*, are thoſe days on which the criſes of diſeaſes occur moſt frequently.

The obſervation of thoſe ſudden changes in febrile diſorders, which have been denominated criſes, originated with Hippocrates; and the ſame acute obſerver remarked, that theſe criſes occurred, in a great number of patients, on particular days of the fever: whence he termed theſe days *critical* or *judicial* days. It is not, indeed, ſtated that criſes never occur, except on theſe particular days; on the contrary, there is no day on which a criſis has not been obſerved to take place: but the criſes which occur on the non-critical days are much more rare, and leſs complete, ſeldom putting a final termination to the fever.

As the doctrine of critical days was denied and derided by ſome of the ancients, who had an opportunity of obſerving diſeaſes under the ſame common circumſtances, we cannot be ſurpriſed that many modern phyſicians ſhould have diſputed its truth; eſpecially thoſe who reſide in northern climates. For in thoſe climates diſeaſes are leſs acute, and leſs diſpoſed to become periodical; criſes, therefore, are leſs frequent, and ſlighter, and critical days conſequently leſs obvious: not to mention the difference occaſioned by the more active modern practice. On the ſhores of the Mediterranean ſea, Dr. Cleghorn obſerves, that "both theſe claſſes of fevers (*viz.* thoſe of ſummer and winter), and indeed almoſt all others which happen in that climate, whether primary or ſymptomatical diſeaſes, may be termed periodical; having remiſſions and intervals more or leſs conſiderable." (On the Diſeaſes of Minorca, chap. vi. p. 259.) This is very far from being the caſe in the diſeaſes of more northern latitudes. There is ſtill, however, a preſumptive evidence, in favour of the diſpoſition to periodical exacerbation and remiſſion in our diſeaſes, ſufficiently ſtrong to have ſatisfied Dr. Cullen, and other diſtinguiſhed moderns, of the truth of the doctrine of critical days.

This evidence, *à priori*, conſiſts in the obvious diſpoſition of the conſtitution, in a ſtate of health, to periodical motions. Thus, the appetite for food, which would ſeem to depend altogether upon the evacuation of the ſtomach, and the ſecretion of the gaſtric juice, returns rather at the habitual period of eating; and, if not then gratified, frequently ceaſes to be urgent, although the emptineſs of the ſtomach and the production of the digeſtive liquor continue. The ſame is in a great degree true with reſpect to the return of drowſineſs, at the uſual period of ſleep, whether the body is exhauſted or not; and the diſcharges from the bowels are much regulated by this habitual recurrence of time. The diſpoſition to periodical actions is alſo obvious in many diſorders. We need not particularize the quotidian, tertian, and quartan periods of intermitting fevers; the regular return of the paroxyſms of intermitting headache, &c. It is frequently evident alſo in the returns of epileptic and maniacal paroxyſms, of the attacks of hæmorrhoids or piles, of gout, of abortion, and ſo forth. In the eruptive fevers, there are certain regular periods of the appearance and ceſſation of the fever and eruption, inclining to the tertian interval. Thus Dr. Cullen deſcribes the ſmall-pox: "*Tertio* die incipit, et *quinto* finitur eruptio," &c. There is obviouſly a diurnal revolution in the body, produced by the irritations of the day, and the ſuſpenſion of them in the night: thus, the pulſe is quicker in the evening than in the morning, in health; and hence, perhaps, the general evening paroxyſm of hectic and other fevers. But having, in addition to theſe facts, the teſtimony of Dr. Cleghorn, Dr. Jackſon, and many other reſpectable phyſicians, of the general tendency of all fevers to intermiſſions, in warm climates, we can have little doubt that the obſervations of Hippocrates are founded in truth.

The doctrine of critical days, however, as delivered by Hippocrates, and his great commentator, Galen, is involved in ſome confuſion, and not a little inconſiſtency. This has been attributed to the circumſtance, that the works, to which the name of Hippocrates is attached, were not all written by one perſon; and alſo to the errors of tranſcribers. From whatever cauſe, the doctrine is obſcured by ſuch inconſiſtency, and has been made open to diſpute from early times.

The ſubſtance of the doctrine is found in the books on Prognoſtics, and in the Aphoriſms of Hippocrates; and the facts, on which it is founded, are related in the treatiſe on Epidemics. Galen believes that the latter was firſt written, and the former deduced, by induction, from the facts which it contains. In one of his aphoriſms Hippocrates ſtates, that "ſweats in febrile patients are ſalutary, if they begin on the third, fifth, ſeventh, ninth, eleventh, fourteenth, ſeventeenth, twenty-firſt, twenty-ſeventh, thirty-firſt, or thirty-fourth days; for theſe ſweats terminate the diſeaſe. But the ſweats which happen not on theſe days, denote that the diſeaſe will be long, difficult of cure, and liable to relapſe." (Aph. 36. ſect. 4.) It will be obſerved, that the twenty-firſt day is here enumerated among the *critical* days. This is conſidered by Van Swieten and Cullen as an error of tranſcription, or an interpolation. But the twenty-firſt day is mentioned in other places in the works of Hippocrates; and Galen admits it to be critical, although leſs frequently than the twentieth day. Archigenes, he obſerves, conſidered the twenty-firſt day as more frequently critical than the twentieth; and Diocles deemed it next after the twentieth in critical power. (Galen de Dieb. Decretoriis, lib. i. cap. 10. and lib. iii. cap. 9.) Dr. Cullen's reaſon for denying the critical quality of the twenty-firſt day is ſomewhat hypothetical. From the univerſal tendency to tertian and quartan periods in intermittent fevers, he preſumes ſuch a tendency to exiſt in the animal economy in all fevers: and hence he believes the critical days to occur at tertian periods to the eleventh day, and afterwards at quartan periods to the twentieth, or perhaps longer. The critical days, according to his notion, are therefore the third, fifth, ſeventh, ninth, eleventh, fourteenth, ſeventeenth, and twentieth. (Firſt lines, par. cxi. *et ſeq.*) After this he marks no critical day; becauſe, though fevers are ſometimes protracted beyond this period, it is more rarely, ſo that there are not a ſufficient number of obſervations to aſcertain the courſe of them; and becauſe it is probable that, in fevers long protracted, the movements become leſs exact and regular, and therefore leſs eaſily obſerved. He believes alſo that this is the ſeries of critical days, from comparing the facts, which are related in the writings of Hippocrates. From theſe facts, as collected by M. de Haen, it appears, that of 163 inſtances of the termination of fevers, which happened on one or other of the firſt twenty days of the diſeaſe, there are 107, or more than two-thirds of the whole number, which happened on one or other of this ſeries of days; that none happened on the ſecond or thirteenth day; and upon the eighth, tenth, twelfth, fifteenth, ſixteenth, eighteenth, and nineteenth, there were but 18 inſtances of termination, or one-ninth of the whole. And, he adds, the many terminations which happened on the ſeventh, fourteenth, and twentieth days, afford a proof both of critical days in general, and that theſe are the chief of them.

But the majority of the obſervations of Hippocrates and Galen applies to a different ſeries of days from thoſe above ſtated, in which ſome days are included as frequently critical, which are altogether omitted in the preceding liſt. Whether altogether from the induction of experience, or whether under the influence of ſome Pythagorean hypotheſis, as to the power of number, Hippocrates conſidered the ſeptenary period as the moſt important, and the quaternary, or diviſion of the former, the ſecond in critical power. Thus the fourth, ſeventh, eleventh, fourteenth, ſeventeenth, and twentieth, are deemed the moſt frequently critical; but not in the order here ſtated. The ſeventh, the fourteenth, and the twentieth, were the moſt powerfully critical; the fourth, eleventh, and ſeventeenth, leſs critical, but connected with the former as indices; ſo that any change taking place on the fourth day of each week, *indicated* a ſimilar and more complete change on the ſeventh. The third, fifth, ſixth, and ninth, which are occaſionally critical, but of feeble power, *i. e.* ſeldom finally and ſalutarily critical, were called by Galen *incidental* or *coincidental* critical days. Thus Galen obſerves, (lib. ii. cap. 8. De Diebus Decretoriis,) "the moſt powerful of all is the ſeventh day: the fourth preſages it, having theſe two qualities, being a minor critical day, and an index to the ſeventh. Then come the fourteenth and eleventh, bearing the ſame proportion, and being of the ſame reciprocal nature to each other as the ſeventh and fourth: then the ſeventeenth as allied to the twentieth, rarely the eighteenth, as connected with the twenty-firſt. The ninth, fifth, and third days are coincidental with theſe; the ninth being moſt frequently critical; the fifth ſecond in critical power; and after it, the third. The ſixth is elſewhere mentioned as a bad critical day. The thirteenth is the weakeſt of all critical days; but the moſt powerful of all non-critical days, inaſmuch as it ſtands in a ſort of medium between the two, &c."

In book i. chap. 2. Galen remarks, "on the twelfth and ſixteenth I never ſaw a criſis occur; but I am unable to number the criſes which I have witneſſed on the ſeventh day. On the ſixth day criſes do take place, but with ſymptoms of difficult concoction, and no ſmall danger, and they are not to be relied on, being imperfect, obſcure, and prejudicial." Of the critical terminations happening on the ſixth day, among the hiſtories related by Hippocrates, there is not one which proves finally ſalutary; the greater number are fatal; and all the reſt are imperfect, and followed by a relapſe. Hence Galen calls the ſixth a *bad* critical day; and he compares the ſeventh and ſixth days to a king and a tyrant: the former, like a good prince, judging in mercy and clemency, and mitigating the puniſhment or favouring the acquittal of his ſubjects; the latter, gratified with their ſufferings, and prolonging the infliction of puniſhment to the uttermoſt.

With reſpect to the fourth, which is omitted to be mentioned in the liſt of critical days, in the aphoriſm, much importance is given to it in other places. Hippocrates obſerves, in his prognoſtics: "But the phyſician muſt attend to all the appearances from the very firſt day of the diſeaſe, and conſider the ſum of his obſervations on every *fourth* day; by which means he will not be unacquainted with the courſe that the diſeaſe is about to take." Again, he ſays, in Aphoriſm 71, ſect. 4, "when a criſis happens on the ſeventh day, there is a ſmall red cloud in the urine on the fourth day, and other things are proportionate to this appearance." The fourth day, therefore, is, in general, only an *indicating* day to the ſeventh, and never proves finally critical, except in ſlight fevers, or in ſome which are extremely acute and rapid. (De Prognoſt.) It is obvious, then, that each critical day, in the quaternary and ſeptenary periods, is conſidered as related to the ſucceeding critical day, in the quality of an *indicator;* the fourth as an index to the ſeventh, the ſeventh to the eleventh, and ſo on. Thus, if on a critical day, the patient finds himſelf better, although on the following day he relapſes into his former ſtate, the phyſician may expect a more remarkable remiſſion on the ſubſequent critical day. On the contrary, if the patient find himſelf worſe on a critical day, a ſtill more unfavourable change is to be looked for on that which follows, although during the intermediate days the ſymptoms become milder.

This doctrine had an extenſive influence over the practice of the ancients, who watched theſe days with particular attention, and almoſt ſuſpended medical aſſiſtance, leſt they interrupt or derange the proceſſes of nature in the conſtitution. Galen is minute in the detail of circumſtances, by which ſuch a prejudicial interruption or derangement may be occaſioned. (De Deib. Decret. lib. i. cap. 2.) The criſes, which occur on the *coincidental* critical days, *viz.* the third, fifth, ſixth, and ninth, and which are imperfect, and not to be depended on, were attributed to ſome pernicious interference of this ſort, or to a freſh paroxyſm of the diſeaſe, and were conſidered as anticipations of the proper critical days, on which the regular unexcited operations of nature would have terminated the diſeaſe. For the proceſs of concoction requires a certain time to be completed, ſays Van Swieten, purſuing the humoral hypotheſis. But as it is improper to open an inflamed part before the matter is completely formed; ſo likewiſe evacuations made in fevers, before nature has ſubdued and ſeparated the morbid from the healthy humours, can hardly be of any ſervice, becauſe they remove only part of the morbific matter, whence a return may be expected from what remains, &c. (Commentaries, Aph. 741.) The coincidental critical days are moſt numerous in the firſt ſeptenary, or week, becauſe, according to the ancients, the violence of fevers which run their courſe in ſo ſhort a time as one week, often diſturbs the criſis which ought to happen only on the 4th or 7th day. In the ſecond ſeptenary, the ninth is eſteemed almoſt the only coincidental critical day: and after the fourteenth day, the coincidental days are of little conſequence, the criſes generally occurring on the true critical days. We ſhall ſay nothing reſpecting the critical days after the twentieth and twenty-firſt, although much is ſaid by the ancients, even beyond the hundredth day; as it is confeſſed that they are few, and not eaſily aſſigned to a particular day.

Although this doctrine of critical days was generally adopted among the ancients, it was rejected by ſome. Herophilus, as Galen informs us, denied its truth; and Aſclepiades deemed it idle and nugatory. Celſus coincides with them, and derides it, on account of its inconſiſtency in itſelf; intimating alſo that it is a doctrine taken up by thoſe phyſicians, who, for the ſake of gain, wiſh to viſit a great number of patients; ſince it is much eaſier to count days, even without ſeeing the patient, than to ſit by him, and watch the ſymptoms as they change. (De Medicina, lib. iii. cap. 4.) The inconſiſtency, obſerved by Celſus, is this. Hippocrates conſiders the *fourth* day in each ſeptenary as critical; hence the fourth, and the eleventh (taking the 8th as the firſt of the ſecond ſeptenary) are critical. But he aſſimilates the ſeventeenth with theſe as a fourth; whereas the 17th is only the *third* of the 3d ſeptenary; for the eleventh is the 5th from the ſeventh; but the ſeventeenth is only the 4th from the fourteenth. This alſo makes the twentieth the laſt of the 3d ſeptenary, inſtead of the twenty-firſt.

Various conjectures were entertained reſpecting the cauſes of theſe periodical movements in fevers. Some attributed them to the harmony of numbers, according to the Pythagorean philoſophy, and Celſus and others have conceived that Hippocrates was ſwayed by this abſurd doctrine. But Van Swieten ſtates the irregularity, juſt related, as a proof that Hippocrates deduced his numbers from a faithful obſervation of diſeaſes. Galen imagined that the criſes of fevers were cauſed by the changes of the moon; and this notion has been alſo entertained by Dr. Jackſon and ſome other modern phyſicians.

Such is the doctrine of critical days delivered by the ancients, as obſerved in Greece and Aſia Minor. The diſeaſes of thoſe climates being very different from thoſe of our own, we cannot expect the doctrine to apply here. Although changes for the better or worſe are often well marked, yet they are rarely preceded by thoſe perturbations of the conſtitution which belong to a complete criſis. The following liſt of well-marked terminations, in a hundred and twenty caſes of the contagious malignant fever of this country, is given by Dr. Willan in his "Reports on the Diſeaſes of London," p. 233.

Days of Fever.	Number of Caſes.
4th.	Six.
5th or 6th.	Three.
7th.	Ten; one caſe fatal.
8th and 9th.	Five; two caſes fatal.
10th and 11th.	Ten; two caſes fatal on the 10th night; three on the 11th day.
12th.	Twelve; one caſe fatal.
13th.	Five; one caſe fatal.
14th.	Thirty; one caſe fatal.
15th.	Two.
16th.	*None.*
17th.	Fourteen.
18th.	One, fatal.
19th.	One, fatal.
20th.	*None.*
21ſt.	Twelve.
22d.	Three.
28th.	Two.
29th.	Three.
30th to 40th.	Two.

Here we find the two ſeptenaries, and the 17th the moſt complete critical days, and the proper third ſeptenary, or 21ſt, alſo critical; but no criſes on the 20th, or third ſeptenary of Hippocrates. On one of the days, in which Galen never ſaw a criſis, *viz.* the 16th, none occurred; but the other, the 12th, was here the third in critical quality. If the regular criſes are as eaſily deranged as the ancients affirm, this liſt will rather tend to confirm the doctrine than otherwiſe; and the 12th and 21ſt may perhaps be the 11th and 20th poſtponed. But it muſt be remembered that, in the fevers of this country, the time of commencement is frequently obſcure, and not to be aſcertained; and that true criſes are rare. A mere liſt of terminations of fever, therefore, ſuch as that publiſhed in the ſecond Report of the Houſe of Recovery at Dublin, are of no value, as illuſtrations or refutations of the ancient doctrine. See Crisis and Concoction.

CRITICISM, the art of judging concerning diſcourſe and writings. See Judgment.

Some define criticiſm, more amply, the art of judging of a hiſtory, or a work of genius, with the various incidents there met with, their ſtyle and authors.

On which footing, M. le Clerc ſeems to have given a defective idea of criticiſm, when he defines it ſimply the art of entering into the meaning of ancient authors, and of making a juſt diſcernment of their genuine works. True criticiſm, ſays Dr. Blair, (Lect. on Rhet. vol. i. p. 36, &c.) is the application of taſte and of good ſenſe to the ſeveral fine arts. The object which it propoſes to diſtinguiſh what is beautiful and what is faulty in every performance; from particular inſtances to aſcend to general principles; and ſo to form rules or concluſions concerning the ſeveral kinds of beauty in works of genius.

The rules of criticiſm are not formed by any induction *à priori*; that is, by a train of abſtract reaſoning, independent of facts and obſervations. Criticiſm is an art founded wholly on experience; on the obſervation of ſuch beauties as have been found to pleaſe mankind moſt generally, *e. g.* Ariſtotle's rules concerning the unity of action in dramatic and epic compoſitions, were not rules firſt diſcovered by logical reaſoning, and then applied to poetry; but they were drawn from the practice of Homer and Sophocles; they were founded upon obſerving the ſuperior pleaſure which we receive from the relation of an action which is one and entire, beyond what we receive from the relation of ſcattered and unconnected facts. Such obſervations, taking their riſe at firſt from feeling and experience, were found on examination to be ſo conſonant to reaſon, and to the principles of human nature, as to paſs into eſtabliſhed rules, and to be conveniently applied for judging of the excellency of any performance. This, as Dr. Blair conceives, is the moſt natural account of the origin of criticiſm. To the ſame purpoſe Mr. Harris obſerves, (Philological Inquiries, ch. i.) that they were authors who made the firſt good critics, and not critics who made the firſt good authors; however writers of later date may have profited by critical precepts. Accordingly, criticiſm in its beginning was "a deep and philoſophical ſearch into the primary laws and elements of good writing, as far as they could be collected from the moſt approved performances." No obſervations or rules of criticiſm can ſupply the defect of genius, or inſpire it where it is wanting; but they may often direct it into its proper channel, correct its extravagancies, and point out to it the moſt juſt and proper imitation of nature. Critical rules are deſigned chiefly to ſhew the faults that ought to be avoided; to nature we owe the production of eminent beauties. In tracing the hiſtory of criticiſm, we muſt begin with Ariſtotle, who may be juſtly regarded, notwithſtanding ſome general principles ſuggeſted by Plato, as the inventor or father of the art, both from the age in which he lived, and from his truly tranſcendant genius. The criticiſm which he taught, has ſo intimate a correſpondence and alliance with philoſophy, that it may be called "philoſophical criticiſm." To Ariſtotle ſucceeded Theophraſtus, who followed his maſter's example in the ſtudy of criticiſm, as may be ſeen in the catalogue of his writings preſerved by Diogenes Laertius, (lib. v. § 46, 47, &c.) But all the critical works of Theophraſtus are now loſt, as well as thoſe of many others. The principal authors of the kind now remaining in Greek, are Demetrius of Phalera, who was the earlieſt, and appears to follow the precepts and even the text of Ariſtotle more cloſely than any of the reſt; Dionyſius of Halicarnaſſus, who has written with judgment upon the force of numerous compoſition, beſides other tracts on rhetoric, both critical and hiſtorical; Longinus, who ſeems to have principally had in view the paſſions and imagination, in the treating of which he has acquired juſt applauſe; and alſo Hermogenes, Aphthonius, and a few others. Among the Romans, the firſt critic of note was Cicero, who, though far inferior to Ariſtotle in depth of philoſophy, may be ſaid, like him, to have exceeded all his countrymen. Next to Cicero came Horace, whoſe art of poetry is a ſtandard of its kind, and too well known to need any encomium. After Horace aroſe Quintilian, Cicero's admirer and follower, who appears, by his works, not only learned and ingenious, but an honeſt and worthy man. The latter Latin rhetoricians need not be mentioned, as they have not contributed much towards the illuſtration of the ſubject of philoſophical criticiſm. Among the cultivators of "hiſtorical criticiſm," we find a tribe of ſcholiaſts, commentators, and explainers. Theſe naturally attached themſelves to particular authors; Ariſtarchus, Didymus, Euſtathius, and many others beſtowed their labours upon Homer; Proclus and Tzetzes upon Heſiod; the ſame Proclus and Olympiodorus upon Plato; Simplicius, Ammonius, and Philoponus upon Ariſtotle; Ulpian upon Demoſthenes; Macrobius and Afranius upon Cicero; Calliergus upon Theocritus; Donatus upon Terence; Servius upon Virgil; Acro and Porphyrio upon Horace; and ſo with reſpect to others, as well philoſophers, as poets and orators. To theſe ſcholiaſts may be added the ſeveral compoſers of Lexicons; ſuch as Heſychius, Philoxenus, Suidas, &c. and alſo the writers upon grammar, ſuch as Apollonius, Priſcian, Soſipater, Chariſius, &c. All theſe have completed, by their aſſiduity and labour, another ſpecies of criticiſm, which, by way of diſtinction from the former, may be denominated "hiſtorical criticiſm." When the Roman empire ſunk through the weſt of Europe, an age ſucceeded of legends and cruſades. At length, after a long and barbarous period, when the ſhades of monkery began to retire, and the light of humanity once again to dawn, about the time of Charlemagne and his ſons, the art alſo of criticiſm inſenſibly revived. The authors of the philoſophical part were not, indeed, many in number. Of this rank, however, among the Italians were Vida, and the elder Scaliger; among the French were Rapin, Bouhours, Boileau, and Boſſu, the moſt methodical and accurate of them all. In our own country, the nobility may be ſaid to have diſtinguiſhed themſelves, among whom we may mention lord Roſcommon, in his "Eſſay upon tranſlated Verſe," the duke of Buckingham in his "Eſſay on Poetry," and lord Shafteſbury in his treatiſe entitled "Advice to an Author;" and to theſe we may add Pope in his "Eſſay upon Criticiſm." Although the number of philoſophical critics among the moderns may be comparatively ſmall, the writers of hiſtorical or explanatory criticiſm have been in a manner innumerable. Such were in Italy, Bernoldus, Ficinus, Victorius, and Robertellus; in the Higher and Lower Germany, Eraſmus, Sylburgius, Le Clerc, and Fabricius; in France, Lambin, Du Vall, Harduin, Capperonerius; in England, Stanly, editor of Æſchylus, Gataker, Davis, Clarke, Bentley, &c. &c. &c. Among the compilers of Lexicons or Dictionaries we may mention Charles and Henry Stephens, Favorinus, Conſtantine, Budæus, Cooper, Faber, Voſſius, &c. &c. To theſe we might add the authors on grammar, in which ſubject the learned Greeks, when they quitted the Eaſt, led the way: Moſchopulus, Cryſoloras, Laſcaris, Theodore, Gaza; then in Italy, Laurentius Valla; in England, Grocin, and Linacer; in Spain, Sanctius, profeſſor of rhetoric and of the Greek tongue in the univerſity of Salamanca, towards the end of the 16th century; in the Low Countries, Voſſius; in France, Cæſar Scaliger, by his reſidence, though a native of Italy, and the Meſſrs. de Port Royal. Among modern critics of the explanatory kind, are lexicographers, grammarians, and tranſlators; among whom Mr. Harris (*ubi ſupra*) has mentioned Mr. T. Warton, Mr. Tyrwhit, Mr. Upton, Mr. Addiſon, Dr. Warton, and Mrs Montague. The dictionaries, ſays the ſame writer, of Minſhew, Skinner, Spelman, Sumner, Junius, and Johnſon, are well known and juſtly eſteemed.

teemed. Dr. Lowth, and his admirable tract on grammar, are noticed with diſtinguiſhed commendation. Among tranſlators, our author enumerates Meric Caſaubon, Mrs. Carter, and Mr. Sydenham. To theſe, he ſays, may be added the reſpectable names of Melmoth and of Hampton, of Franklyn and of Potter; others might have been added if the author had not recollected the trite, though elegant admonition,

> "——— Fugit irreparabile tempus,
> Singula dum capti circumvectamur amore."
> Virgil.

The critics of our own times have been innumerable; but it might appear invidious to ſelect names of recent, and more eſpecially of living authors, out of the numerous claſs that muſt preſent itſelf to every one's own recollection.

Upon the whole, it muſt appear that criticiſm does, indeed, ſuppoſe an uncommon ſtock of knowledge of the ſubject whereon it is employed; but that criticiſm itſelf is nothing elſe but good ſenſe perfected by grammar and logic.

We may diſtinguiſh divers ſorts, or branches, of this art: as,

Criticism, *philoſophical*, or the art of judging of opinions and hypotheſes in philoſophy.

Criticism, *theological*, the art of judging of explications, of doctrines, of faith, &c.

Criticism, *political*, the art of judging of the means of governing, acquiring, and preſerving ſtates.

But the ordinary uſe of the word is reſtrained to

Criticism, *literary*, which, however, is of great extent, as it takes in the art of judging of facts; a branch of criticiſm, which regards not only hiſtory, but alſo the diſcernment of the real works of an author, the real author of a work, the genuine reading of a text, and the art of diſcovering ſuppoſititious monuments, charters, interpolated paſſages, &c.

The other parts of *literary criticiſm* comprehend the art of judging of works of genius, their excellencies and defects.

Mr. Harris (*ubi ſupra*) divides this kind of criticiſm into three ſpecies, the *philoſophical*, treating of the principles, and primary cauſes of good writing in general; the *hiſtorical*, being converſant in particular facts, cuſtoms, phraſes, &c.; and the *corrective*, ſubdivided into the *authoritative*, which depends on the collation of MSS. and the beſt editions, and *conjectural*, depending on the ſagacity and erudition of editors. We have alſo

Criticism, *grammatical*, or the art of interpreting and diſcovering the words and meanings of an author.

Criticism *of Antiques*, conſiſts in diſtinguiſhing genuine medals, and the different taſte and ſpirit found among them, according to the different people, the different country, and the different times wherein they were ſtruck; the diſtinguiſhing between what is caſt, and what ſtruck; what has been retouched, and repaired or added, from what is really antique; the genuine from the ſpurious, &c; and to decypher and explain them, &c.

Criticism, *Sacred*, in general, is that employed in eccleſiaſtical matters, the hiſtory of the church, the works of the fathers, councils, lives of the ſaints, &c. but more particularly what concerns the books of the Holy Scriptures, and the canon thereof.

To this head we may refer *Conjectural Criticiſm*, for which ſee the article Conjecture. In connection with this part of the ſubject, we may mention that ſpecies of criticiſm which the ingenious Mr. Harris (*ubi ſupra*) called the *corrective.* All ancient books, having been preſerved by tranſcription, have been liable, through ignorance, negligence, or fraud, to be corrupted in three different ways, *viz.* by retrenchments, by additions, and by alterations. As a remedy to theſe evils, *corrective* criticiſm was introduced. The buſineſs of this, *at firſt*, was carefully to *collate* all the various copies of authority, and then, from the variety of readings thus *collected*, to eſtabliſh by good reaſon the *true*, or the *moſt probable*. In this ſenſe ſuch criticiſm may be denominated not only *corrective*, but *authoritative*. In ancient times various readings have been noted, in the text of Homer, and in that of Ariſtotle; which latter has been examined by his commentators, Ammonius and Philoponus; and Aulus Gellius has noticed the ſame as to Roman authors: but ſince the revival of literature, correction has been a more extenſive buſineſs, and has employed, for 2½ centuries, the pains of the moſt laborious, and the wits of the moſt acute critics. Many of the learned men already enumerated were not only famous as hiſtorical critics, but alſo as corrective. Such were the two Scaligers, the two Caſaubons, Salmaſius, the Heinſii, Grævius, the Gronovii, Burman, Kuſter, Waſſe, Bentley, Pearce, and Markland; to whom we may add Toupe, Taylor, and Upton. This latter kind of criticiſm has been too often abuſed, and extended by conjecture to an undue extreme (ſee Conjecture); and authors have been treated, like anatomical ſubjects, with a view to the diſplay of the ſkill and abilities of the artiſt; ſo that the deſign of various editions ſeems to have been merely the exhibition of the wonderful ſagacity and erudition of an editor. The joy of the taſk has been the honour of mending, while corruptions were ſought with a more than common attention, as each of them afforded a teſtimony to the editor and his art. "Critics," ſays Mr. Harris, (if I may be allowed the metaphor,) "are a ſort of *maſters of the ceremony* in the court of letters, through whoſe aſſiſtance we are introduced into ſome of the firſt and beſt company. Shall we even, therefore, by idle prejudices againſt pedantry, verbal accuracies, and we know not what, come to ſlight their art, and reject them from our favour? 'tis well we do not ſlight alſo thoſe claſſics, with whom criticiſm converſes, becoming content to read them in tranſlations, or (what is ſtill worſe) in tranſlations of tranſlations, or (what is worſe even than that) not to read them at all. And I will be bold to aſſert, if that ſhould ever happen, we ſhall ſpeedily return into thoſe days of darkneſs, out of which we happily emerged upon the revival of ancient literature."

Criticism, *Muſical.* As muſic may be defined the art of pleaſing by the ſucceſſion and combination of agreeable ſounds, every hearer has a right to give way to his feeling, and be pleaſed or diſſatisfied without knowledge, experience, or the fiat of critics; but then he has certainly no right to inſiſt on others being pleaſed or diſſatisfied in the ſame degree. We can very readily forgive the man who admires a different muſic from that with which we are pleaſed, provided he does not extend his hatred or contempt of our favourite muſic to ourſelves, and imagine that on the excluſive admiration of any one ſtyle of muſic, and a cloſe adherence to it, all wiſdom, taſte, and virtue depend.

Criticiſm in this art would be better taught by ſpecimens of good compoſition and performance than by reaſoning and ſpeculation. But there is a certain portion of enthuſiaſm connected with a love of the fine arts, which bids defiance to every curb of criticiſm; and the poetry, painting, or muſic, that leaves us on the ground, and does not tranſport us into the regions of imagination beyond the reach of cold criticiſm, may be correct, but is devoid of genius and paſſion. There is, however, a tranquil pleaſure, ſhort of rapture, to be acquired from muſic, in which intellect and ſenſation are equally concerned ; the analyſis of this pleaſure is, therefore, the ſubject of the preſent ſhort eſſay ; which, it is hoped, will explain and apologize for the critical remarks which have been made in the courſe of this hiſtory, on the works of great maſters, and prevent their being conſtrued into pedantry and arrogance.

Indeed, muſical criticiſm has been ſo little cultivated in our country, that its firſt elements are hardly known. In juſtice to the late Mr. Aviſon, it muſt be owned, that he was the firſt, and almoſt the only writer, who attempted it. But his judgment was warped by many prejudices. He exalted Rameau and Geminiani at the expence of Handel, and was a declared foe to modern German ſymphonies. There have been many treatiſes publiſhed on the art of muſical compoſition and performance, but none to inſtruct ignorant lovers of muſic how to liſten, or to judge for themſelves. So various are muſical ſtyles, that it requires not only extenſive knowledge, and long experience, but a liberal, enlarged, and candid mind, to diſcriminate and allow to each its due praiſe :

“ Nullius addictus jurare in verba magiſtri.”

A critic ſhould have none of the contractions and narrow partialities of ſuch as can ſee but a ſmall angle of the art ; of whom there are ſome ſo bewildered in fugues and complicated contrivances, that they can receive pleaſure from nothing but canonical anſwers, imitations, inverſions, and counter-ſubjects ; while others are equally partial to light, ſimple, frivolous melody, regarding every ſpecies of artificial compoſition as mere pedantry and jargon. A chorus of Handel and a graceful opera ſong ſhould not preclude each other : each has its peculiar merit ; and no one muſical production can compriſe the beauties of every ſpecies of compoſition. It is not unuſual for diſputants, in all the arts, to reaſon without principles ; but this, we believe, happens more frequently in muſical debates than any other. By principles, we mean the having a clear and preciſe idea of the conſtituent parts of a good compoſition, and of the principal excellencies of perfect execution. And it ſeems, as if the merit of muſical productions, both as to compoſition and performance, might be eſtimated according to De Piles' ſteel-yard, or teſt of merit among painters.* If a complete muſical compoſition of different movements were analyſed, it would perhaps be found to conſiſt of ſome of the following ingredients : melody, harmony, modulation, invention, grandeur, fire, pathos, taſte, grace, and expreſſion ; while the executive part would require neatneſs, accent, energy, ſpirit, and feeling ; and, in a vocal performer, or inſtrumental, where the tone depends on the player, power, clearneſs, ſweetneſs ; brilliancy of execution in quick movements, and touching expreſſion in ſlow.

But as all theſe qualities are ſeldom united in one compoſer or player, the piece or performer that compriſes the greateſt number of theſe excellencies, and in the moſt perfect degree, is entitled to pre-eminence : though the production or performer that can boaſt of *any* of theſe conſtituent qualities cannot be pronounced totally devoid of merit. In this manner, a compoſition, by a kind of chemical proceſs, may be decompounded as well as any other production of art or nature.

Prudent critics, without ſcience, ſeldom venture to pronounce their opinion of a compoſition, deciſively, till they have heard the name of the maſter, or diſcovered the ſentiments of a profeſſor ; but here the poor author is often at the mercy of prejudice, or envy. For the opinion of profeſſors of the greateſt integrity is not equally infallible concerning every ſpecies of muſical merit. To judge minutely of *ſinging*, for inſtance, requires ſtudy and experience in that particular art. Indeed, we have long ſuſpected ſome very great inſtrumental performers of not ſufficiently feeling or reſpecting real good ſinging. Rapid paſſages neatly executed ſeem to pleaſe them infinitely more than the fineſt *meſſa di voce*, or tender expreſſion of ſlow notes, which the ſweeteſt voice, the greateſt art, and moſt exquiſite ſenſibility, can produce. They frequently refer all excellence ſo much to their own performance and perfections, that the adventitious qualities of ſingers who imitate a hautbois, a flute, or violin, are rated higher than the colouring and refinements that are peculiar to vocal expreſſion ; which inſtrumental performers ought to feel, reſpect, and try to imitate, however impoſſible it may be to equal them : approximation would be ſomething, when more cannot be obtained. Of *compoſition*, and the genius of particular inſtruments, whoſe opinion, but that of compoſers and performers, who are likewiſe poſſeſſed of probity and candour, can be truſted ? There are, alas ! but too many profeſſors who approve of nothing which they themſelves have not produced or performed. Old muſicians complain of the extravagance of the young ; and theſe again of the dryneſs and inelegance of the old.

And yet, among the various ſtyles of compoſition and performance, the partial and capricious taſtes of lovers of muſic, and the different ſects into which they are divided, it ſeems as if the following *criteria* would admit of little diſpute.

In *church muſic*, whether jubilation, humility, ſorrow, or contrition are to be expreſſed, the words will enable the critic to judge ; but of the degree of dignity, gravity, force, and originality of the compoſition, few but profeſſors can judge in detail, though all of the general effect.

In hearing *dramatic muſic*, little attention is pointed by the audience to any thing but the airs and powers of the principal ſingers ; and yet, if the character, paſſion, and importance of each perſonage in the piece are not diſtinctly marked and ſupported ; if the airs are not contraſted with each other, and the part of every ſinger in the ſame ſcene ſpecifically different in meaſure, compaſs, time, and ſtyle, the compoſer is not a complete maſter of his profeſſion.

Good ſinging requires a clear, ſweet, even, and flexible voice, equally free from naſal and guttural defects. It is but by the tone of voice and articulation of words that a vocal performer is ſuperior to an inſtrumental. If in ſwelling a note the voice trembles or varies its pitch, or the intonations are falſe, ignorance and ſcience are equally offended ; and if a perfect ſhake, good taſte in embelliſhment, and a touching expreſſion be wanting, the ſinger's reputation will make no great progreſs among true judges. If in rapid diviſions the paſſages are not executed with neatneſs and articulation ; or in adagios, if light and ſhade, pathos, and variety of colouring and expreſſion are wanting, the ſinger may have merit of certain kinds, but is ſtill diſtant from perfection.

Of perfect *performance* on an *inſtrument*, who can judge accurately but thoſe who know its genius and powers, defects and difficulties ? What is natural and eaſy on one inſtrument, is often not only difficult but impracticable on another. *Arpeggios*, for inſtance, which are ſo eaſy on the violin and harpſichord, are almoſt impoſſible on the hautbois and flute. And the rapid iteration of notes which give the violin player ſuch little trouble, are impracticable on the harpſichord with the ſame finger. Thoſe inſtruments of which the tone and intonation depend on the player, as the violin, flute, hautbois, &c. are more difficult than harps and keyed-inſtruments, where the player is neither anſwerable for the goodneſs of the tone nor truth of intonation. However, there are difficulties on the harpſichord of another kind, to balance the account, ſuch as the two hands playing two different parts in diſſimilar motion at once, and often three or four parts with each hand. Of a good ſhake, a ſweet tone, and neat execution, almoſt every hearer can judge; but whether the muſic is good or bad, the paſſages hard or eaſy, too much or too little embelliſhed by the player, ſcience and experience can only determine.

In *chamber muſic*, ſuch as cantatas, ſingle ſongs, ſolos, trios, quartets, concertos, and ſymphonies of few parts, the compoſer has leſs exerciſe for reflection and intellect, and the power of pleaſing in detached pieces by melody, harmony, natural modulation, and ingenuity of contrivance, with fewer reſtraints, and fewer occaſions for grand and ſtriking effects, and expreſſion of the paſſions, than in a connected compoſition for the church or the ſtage. Many an agreeable leſſon, ſolo, ſonata, and concerto, has been produced by muſicians who would be unable to compoſe a Te Deum for voices and inſtruments, or to intereſt and ſatiſfy an audience during a ſingle act of an opera. We never have heard of Corelli, Geminiani, or Tartini attempting vocal melody, and the muſic merely inſtrumental of the greateſt vocal compoſers is often meagre, common, and inſipid. There are limits ſet to the powers of every artiſt, and however univerſal his genius, life is too ſhort for univerſal application.

It was formerly more eaſy to compoſe than play an adagio, which generally conſiſted of a few notes that were left to the taſte and abilities of the performer; but as the compoſer ſeldom found his ideas fulfilled by the player, adagios are now made more chantant and intereſting in themſelves, and the performer is leſs put to the torture for embelliſhments.

In 1752 Quantz claſſed quartettos at the head of inſtrumental muſic, calling them the touch-ſtone of an able compoſer; adding, that they had not yet been much in faſhion. The divine Haydn, however, has ſince that time removed all kind of complaint on that account, having produced ſuch quartets for number and excellence, as have never been equalled in any ſpecies of compoſition at any other period of time.

In compoſing and playing a ſolo, the leaſt complicated of all muſic in parts, much knowledge, ſelection, invention, and refinement are neceſſary. Beſides conſulting the genius of the inſtrument and power of the performer, new, intereſting, and ſhining paſſages muſt be invented, which will at once pleaſe and ſurpriſe the hearer, and do honour to the compoſer and performer. And who can judge of the originality of the compoſition, its fitneſs for the inſtrument, or degree of praiſe due to the performer, but thoſe who have either ſtudied compoſition, practiſed the ſame inſtrument, or heard an infinite variety of muſic and great performers of the ſame kind?

The famous queſtion, therefore, of Fontenelle: "ſonate, que veux tu?" to which all ſuch recur as have not ears capable of vibrating to the ſweetneſs of well-modulated ſounds, would never have been aſked by a real lover or judge of muſic. But men of wit of all countries being accuſtomed to admiration and reverence in ſpeaking upon ſubjects within their competence, forget, or hope the world forgets, that a good poet, painter, phyſician, or philoſopher, is no more likely to be a good muſician without ſtudy, practice, and good ears, than another man. But if a lover and judge of muſic had aſked the ſame queſtion as Fontenelle; the Sonata ſhould anſwer: "I would have you liſten with attention and delight to the ingenuity of the compoſition, the neatneſs of the execution, ſweetneſs of the melody, and the richneſs of the harmony, as well as to the charms of refined tones, lengthened and poliſhed into paſſion."

There is a degree of refinement, delicacy, and invention which lovers of ſimple and common muſic can no more comprehend than the Aſiatics harmony. It is only underſtood and felt by ſuch as can quit the plains of ſimplicity, penetrate the mazes of art and contrivance, climb mountains, dive into dells, or croſs the ſeas in ſearch of extraneous and exotic beauties with which the monotonous melody of popular muſic has not yet been embelliſhed. What judgment and good taſte admire at firſt hearing, makes no impreſſion on the public in general, but by dint of repetition and habitude. A ſyllogiſm that is very plain to a logician, is incomprehenſible to a mind unexerciſed in aſſociating and combining abſtract ideas. The extraneous, and ſeemingly forced and affected modulation of the German compoſers of the preſent age, is only too much for us, becauſe we have heard too little. Novelty has been acquired, and attention excited, more by learned modulation in Germany, than by new and difficult melody in Italy. We diſlike both, perhaps, only becauſe we are not *gradually* arrived at them; and difficult and eaſy, new and old, depend on the reading, hearing, and knowledge of the critic. The moſt eaſy, ſimple, and natural is new to youth and inexperience, and we grow nice and faſtidious by frequently hearing compoſitions of the firſt claſs, exquiſitely performed.

CRITONIA, in *Botany*, Gært. See Kuhnia.

CRIVELLARI, Bartolommeo, in *Biography*, an engraver, born at Venice about the year 1725. He was much employed in that city by Wagner, for whom he engraved ſeveral plates. Some of the prints for the work entitled, "Iſtituto di Bologna," are likewiſe by him, particularly thoſe four beautiful converſation-pieces from Niccolo del Abbati. Huber. Manuel des Arts.

CRIVELLI, Angelo Maria, a Milaneſe painter, celebrated for his ſkill in painting cattle. He was called Il Crivellone to diſtinguiſh him from his ſon Jacopo, who was a painter of birds and fiſhes. Angelo Maria died in 1730, Jacopo about the year 1760. Orlandi. Lanzi.

Crivelli, Carlo, a Venetian painter of the 15th century, who was the diſciple of Jacobello del Fiore. He travelled many years, working wherever he came, and at length fixed his reſidence at Aſcoli. His compoſitions are numerous, but the beſt of them are his ſmall hiſtorical pictures, in which he introduces landſcapes touched with great delicacy; nor are his figures void of grace or expreſſion, though he was leſs correct as a deſigner than excellent as a colouriſt. Some of his pieces bear his name at length, and their reſpective dates from 1450 to 1474.

In the church of St. Sebaſtiano at Venice, is a figure of pope St. Fabiano in his pontifical habit, and the marriage of St. Catharine by the hand of this artiſt. Lanzi. Storia Pitt.

CRIVITZ, or Kriewitz, in *Geography*, a ſmall town of Mecklenburgh Schwerin, in the ancient county of Schwerin, which in 1573 and 1660 ſuffered very much by conflagrations, the houſes being moſtly built with wooden frames, the interſtices of which are filled with brick work.

CRIUMETOPON, in *Ancient Geography*, *Aſia*, a promontory of the Tauric Cherſoneſus, and the moſt ſouthern point of that peninſula.—Alſo, a promontory of the iſle of Crete.

CRIUS, a river of the Peloponneſus, in Achaia, which had its ſource in the mountains above Pallene, and diſcharged itſelf into the ſea, before the town of Egyres, according to Pauſanias.

CRIXIA, a town of Italy, in Liguria, ſituated between

Aquæ and Canalicum, according to the Itinerary of Antonine.

CRIZZELLING, in the *Glaſs Trade*, a kind of roughneſs ariſing on the ſurface of ſome kinds of glaſs. This was the fault of a peculiar ſort of glaſs made in Oxfordſhire, and ſome other places, of black flints, a cryſtallized ſand, and a large quantity of nitre, tartar, and borax. The glaſs thus made is very beautiful, but, from the too great quantities of the ſalts in the mixture, is ſubject to *crizzel;* that is, the ſalts in the mixture, from their too great proportion, are ſubject, either from the adventitious nitre of the air from without, or from warm liquors put in them, to be either increaſed in quantity, or diſſolved, and thereby induce a ſcabrities, or roughneſs, irrecoverably clouding the tranſparence of the glaſs. This is what was called *crizzelling;* but by uſing an Italian white pebble, and abating the proportions of the ſalts, the manufacture is now carried on with advantage, and the glaſs made with theſe ſalts is whiter than the fineſt Venetian, and is ſubject to no faults. Plott's Oxfordſhire, p. 258.

CROAGAN-KINSHELLY, in *Geography*, a mountain in the barony of Arklow, Ireland, elevated 1850 feet above the level of the ſea.

CROAGH-PATRICK, or Crow-Patrick, a mountain of the county of Mayo, Ireland, ſituated on the ſouth of Clew-bay. This is by many eſteemed the higheſt mountain in Ireland, riſing in a conical form 2666 feet above the level of the ſea. This mountain is celebrated by the natives as that from which St. Patrick drove all venomous beaſts into the ſea. On the ſummit there is an altar much frequented by Catholic pilgrims. Latocnaye's Rambles, &c.

CROAGHMORE, a mountain of Antrim county, Ireland, elevated 600 feet above the level of the ſea..

CROARA, a town of Italy, in the duchy of Modena, 18 miles S.W. of Modena.

CROATIA, a country of Europe, ſituated between the 15th and 17th degree of E. longitude, and the 45th and 47th of N. latitude, belonging to the empire of Auſtria. It is a part of the ancient Illyricum. In the middle ages, Croatia, together with Dalmatia, formed a kingdom ſubject to the emperors of the Eaſt. This kingdom, in the eleventh century, devolved to Hungary. The Hungarians call it Horwath Orſozag. Zagrab or Angram on the river Save is the capital. An Auſtrian viceroy governs Croatia jointly with Sclavonia and Hungarian Dalmatia.

Croatia extends from the river Drave to the Adriatic, about 80 miles in length, and 70 in breadth. It is bounded to the north by Sclavonia, to the eaſt by Boſnia, to the ſouth by Dalmatia and the Adriatic, and to the weſt by the Auſtrian provinces of Stiria and Carniola. Its principal rivers are the Save and the Unna.

The whole country is divided into two parts: Croatia on this ſide of the Save, *Croatia Ciſſavana*, which is alſo called Upper Sclavonia, and ſubdivided into five counties, and Croatia beyond the Save, *Croatia Tranſavana*, or Croatia Proper, which is ſubdivided into Hungarian or Military Croatia, and the Banat, *Banalis Croatia*, and Turkiſh Croatia, on the other ſide of the river Unna.

Military Croatia is one of the five principal diviſions of the military frontiers of Auſtria in Hungary. This diſtrict commences at the moſt weſtern corner of Dalmatia on the Adriatic, and runs through Croatia, Sclavonia, the Banat of Temeſwar, and Tranſylvania, into the Buccovina. This long tract of land, which ſurrounds Hungary on the ſouth and on the eaſt, has about 420,000 inhabitants, the fifth part of which is military. Kereſyturi in his "Introductio," &c. Vienna, 1788, divides it into ſix diſtricts, *viz.* Carlſtadt, which has four regiments; Banat, which has two; Waraſdin, which has two; Sclavonia, which has three; Banat of Temeſwar, which has two; and Tranſylvania, which has three; in all ſixteen regiments of infantry, of 3825 men, with 480 huſſars attached to each regiment. The whole military frontier was formerly without any civil magiſtrates; but its military conſtitution has been aboliſhed by the emperor Joſeph II., and the Croatians are now drafted into the regular regiments, like the reſt of the ſubjects of Auſtria.

Croatia, according to Mr. de Lucca's Statiſtical Tables of 1793, contains 267,000 inhabitants, or 500 individuals *per* ſquare mile.

CROATS, or Croatians, the inhabitants of Croatia, derive their origin from the Sclavonians and Slavi, and ſettled in Croatia under the reign of the emperor Heraclius. Their ancient name was Hruatæ, or Hrouatæ, of which the Greeks made Chrobatæ. Of all the Illyrian nations they have the greateſt affinity in their language with the Poles. Their manners, religion, and cuſtoms, are ſimilar to thoſe of the Sclavonians and Tranſylvanians their neighbours. They are the ſucceſſors of thoſe *Daci*, or Dacians, who were at firſt the terror, and afterwards the ſtrength, of the Roman armies; and have maintained their reputation for bravery in modern warfare, particularly in the ſeven years' war between Auſtria and Pruſſia, which terminated in 1763. The beſt general officers of the Auſtrian army, as Laudon, de Wied, and Kleefeldt, were formed in the Croatian regiments. Although the Croats have loſt their ancient military conſtitution, they are ſtill excellent ſoldiers, generally employed in the van and rear guards. They are alſo known by the name of Pandours; which ſee.

CROBIALUS, or Crobialum, in *Ancient Geography*, a ſmall town of Aſia, ſituated near the Euxine ſea, towards Paphlagonia.

CROBYZI, a people who occupied the diſtrict beyond the river Axius, according to Pliny, and the banks of the Iſter, according to Steph. Byz. They were a people of Thrace, between mount Hæmus and the Euxine ſea, according to Athenæus, and Ptolemy refers them to Lower Mœſia.

CROCALA, an iſland of ſand, which Pliny and Arrian places near the mouth of the river Indus.

CROCALLIS, in *Natural Hiſtory*, the name given by the ancients to a ſtone famous for its virtues againſt poiſons, and venomous bites. All the deſcription Pliny gives of it is, that it was of the ſize and ſhape of a cherry.

CROCARDS, an old name given by the Iriſh to a certain kind of money brought over into that kingdom from France, and other parts beyond the ſeas, and uttered there for pennies, though not really worth ſo much as a halfpenny. They were a ſmall ſort of coin, made of a mixture of copper, ſulphur, and a ſmall quantity of ſilver, and were called by ſeveral other names, as *mitres*, *lionines*, *roſaries*, and the like, from the figures they were impreſſed with. They were current in Ireland, and in ſome parts of England, a great many years; but were afterwards denied, and prohibited importation, both in England and Ireland, under the penalty of the forfeiture of life and effects. At this time, mints were ſet up in Dublin, for the coining of good money, and, in a few years, the whole quantity of the *crocards* was deſtroyed. See Pollards.

CROCE, Baldassare, in *Biography*, a Bologneſe painter, born in the year 1553. He is generally ſaid to have been the ſcholar of Annibale Caracci; but this is diſputed by Baglione, who informs us, that ſo early as the pontificate of Gregory XIII., he was employed in ſeveral public works at Rome. The cupola of the church of Geſu was painted by this artiſt; and in the church of S. Suſanna are ſeveral large ſtories in freſco by him, which are of a ſtyle natural and facile. Although he can ſcarcely be called the ſcholar of Caracci, it is probable that he benefitted by his example during the long ſojourn of that great maſter at Rome. Croce died in 1628. Baglione.

Croce, S. Girolamo di, a painter of ſome eminence, of the Venetian ſchool, who flouriſhed at the commencement of the 16th century. He was one of the beſt imitators of the manner of Giorgione and of Titian. Many of his works are at Venice, amongſt which, "The Laſt Supper," in the church of S. Martino, and "The Martyrdom of S. Lorenzo," a compoſition of many ſmall figures, in the church of S. Franceſco della Vigna, are worthy of notice. His works bear date from 1520 to 1549. Lanzi, Storia Pitt.

Croce, S. Pietro Paolo da, a painter who flouriſhed at Padua, about the year 1591. Several of his pictures, evincing no ſmall abilities, are to be ſeen in the churches of that city. Lanzi. Storia Pitt.

CROCEFISSAJO, Del. See Macchietti.

CROCHE, in *Geography*, a lake of N. America, in New South Wales, which is croſſed in proceeding from Portage la Loche in a weſterly direction of 6 miles, though its whole length may be twice that diſtance; after which it contracts to a river that runs weſterly for 10 miles; when it forms a bend, which is left to the ſouth, and entering a portion of its waters called the "Graſs-river," whoſe meandring courſe is about 6 miles, but in a direct line not more than half that length, where it receives its waters from the Great river, which then runs weſterly 11 miles before it forms the "Knee-lake," whoſe direction is to the north of weſt. It is full of iſlands for 18 miles, and its greateſt apparent breadth is not more than 5 miles. The Portage of the ſame name is ſeveral hundred yards long, and over large ſtones. Its latitude is 55° 50′ N. and longitude 106° 30′ W. Two miles farther north is the commencement of the Croche Rapid, which is a ſucceſſion of caſcades for about 3 miles, making a bend due ſouth to the lake *du Primeau;* which ſee.

CROCHE, Fr. the character in *Muſic* which we call a *quaver;* which ſee.

CROCHES, among *Hunters*, the little buds about the top of a deer's horns.

CROCI, among *Botaniſts*, the apices, or ſmall knobs, on the tops of flowers.

CROCIA, a biſhop's or abbot's croſier, or paſtoral ſtaff. See Crosier.

CROCIAS Lapis, in *Natural Hiſtory* a name given by ſome of the old authors to a ſpecies of agate, of a yellow colour, but deeper than the cerachates, or wax-coloured agate, and approaching to what is called a ſaffron colour.

CROCIATONUM Portus, in *Ancient Geography*, the capital of a people called *Unelli*, ſituated in the maritime part of Lyonneſe Gaul, according to the table of Peutinger. Ptolemy mentions it; and it is generally ſuppoſed to be the preſent Carentan.

CROCINUM, a name given by the ancient phyſicians to a ſort of oil of ſaffron, which is thus deſcribed by Dioſcorides.

Eight drams of ſaffron are to be put into three pints of inſpiſſated oil, and they are to be ſtirred together ſeveral times in a day, for five days together; then the oil is to be ſeparated from the ſaffron, and a like quantity is to be added to the ſame ſaffron, and ſtirred about at times for three days; then this oil is to be cleanſed off, and to it are to be added fifty ounces of powdered myrrh. Theſe having been well ſtirred together, are then to be ſet by for uſe.

Some uſed an oil, impregnated with aromatics, in the compoſition of the *crocinum;* but that was uſually eſteemed beſt, which ſmelt the moſt ſtrongly of ſaffron, or elſe of myrrh.

The *crocinum* was eſteemed heating and narcotic; whence it was frequently preſcribed by way of embrocation, or elſe held in the noſe in frenſies. It was alſo eſteemed uſeful as a ſuppurative, and to cleanſe old ulcers: it was much eſteemed alſo in hardneſſes, obſtructions, and other diſorders of the uterus, being uſed with wax, marrow, and double the quantity of oil; for a *glaucoma* it was alſo uſed with ſucceſs, when mixt with water, and the eyes anointed frequently with it.

CROCKET, (from *croc*, French, a *hook* or *fork*,) one of the ſmall ornaments which are uſually placed all along the angles of pinnacles, and on the outſide of pediments, canopies, tabernacles, and cupolas, in the pointed ſtyle of architecture. The firſt idea of theſe ornaments ſeems to have been taken from the buds ſeen upon the boughs of trees and plants in the ſpring ſeaſon, which, in many early inſtances, they reſemble. In their ſubſequent and more perfect form, they evidently repreſent the opening leaves of the oak or vine, or of ſome other tree or plant. Beautiful ſpecimens of them may be ſeen in the works of Carter, Halfpenny, &c. See Gothic and Pointed *Architecture.*

CROCOCOLANA, in *Ancient Geography*, a town of the iſle of Albion, on the route, according to Antonine's Itinerary, from Londinium to Lindum, or London to Lincoln, between Ad Pontem, near Southwell, and Lindum or Lincoln; 7 miles from the former, and 12 from the latter. The veſtiges of this ſtation, which are very faint, are deſcribed by Dr. Stukeley in his Itinerary. It is ſuppoſed to have been Brugh near Colingham.

CROCODILE, in *Zoology*, a ſpecies of lizard, being the largeſt of that kind; for a deſcription and account of which, ſee Lacerta *Crocodilus*. *Crocodili* forms, in the arrangement of Gmelin, one of the general diviſions of lacerta, characteriſed by a two-edged tail divided into ſegments, and a very ſhort tongue.

Crocodile, *foſſile*. One of the greateſt curioſities in the foſſile world, which the late ages have produced, is the ſkeleton of a large *crocodile*, almoſt entire, found at a great depth under ground, bedded in ſtone. This was in the poſſeſſion of Linkius, who wrote many pieces in natural hiſtory, and particularly an accurate deſcription of this curious foſſile. It was found in the ſide of a large mountain, in the midland part of Germany, and in a ſtratum of a black foſſile ſtone, ſomewhat like our common ſlate, but of a coarſer texture, the ſame with that in which the foſſile fiſh of many parts of the world are found. This ſkeleton had the back and ribs very plain, and was of a much deeper black than the reſt of the ſtone, as is alſo the caſe in the foſſile fiſhes, which are preſerved in this manner. The part of the ſtone where the head lay was not found, this being broken off juſt at the ſhoulders, but that irregularly, ſo that, in one place, a part of the back of the head was viſible in its natural form. The two ſhoulder-bones were very fair, and three of the feet were well preſerved; the legs were of their natural ſhape and ſize, and the feet preſerved, even to the extremities of the five toes of each.

Crocodile, Crocodilus, in *Rhetoric*, a captious and ſophiſtical kind of argumentation, contrived to ſeduce the unwary, and draw them ſpeciouſly into a ſnare.

It has its name, *crocodile*, from the following occaſion, invented by the poets. A poor woman, begging a *crocodile* that had caught her ſon walking by the river ſide, to ſpare and reſtore him, was anſwered that he would reſtore him, provided ſhe ſhould give a true anſwer to a queſtion he ſhould propoſe: the queſtion was, *Will I reſtore thy ſon or not?* To this the poor woman ſuſpecting a deceit, ſorrowfully anſwered, *Thou wilt not:* and demanded to have him reſtored, becauſe ſhe had anſwered truly. Thou lyeſt, ſays the *crocodile*: for if I reſtore him, thou haſt not anſwered truly: I cannot therefore reſtore him, without making thy anſwer falſe. Under this head may be reduced the propoſitions called *mentientes*, or *inſolubiles;* which deſtroy themſelves. Such is that of the Cretan poet: *Omnes ad unum Cretenſes ſemper mentiuntur: All the Cretans to a man, always lye.* Either then the poet lyes, when he aſſerts that the Cretans all lye, or the Cretans do not all lye.

Crocodile *Town*, or *Meegheoun-yay*, in *Geography*, a town of Aſia in the Birman empire, repreſented by lieutenant-colonel Symes, who viſited it, as a place of conſiderable trade and importance. Its harbour contained no leſs than 100 large boats, and ſeveral ſmaller ones, lying at different ſtairs which took in rice, onions, garlic, and oil, for the conſumption of the capital. It ſtands on a very high bank, and has fewer religious buildings than any town which the colonel had ſeen of equal magnitude. In its vicinity are ſome neat farms, each containing 4 or 5 cottages, better built than houſes in towns generally are, and fenced round with wide incloſures to receive the cattle, of which there was great abundance. The fields are divided by thorn-hedges; the low grounds prepared for rice; and the higher planted with leguminous ſhrubs, or left for paſture.

CROCODILIOIDES, in *Botany*, Vaill. See Atractylis *gummifera*.

CROCODILIUM, Juſſ. Vaill. See Centaurea.

CROCODILOPOLIS, in *Ancient Geography*, a town of Egypt, S.E. of the lake Moeris; the Greeks called it *Arſinoe*; and it is ſucceeded by the modern Faioum, built at the diſtance of about a league N.E. of its dilapidated walls. It derived its firſt name from the crocodiles which were fed and worſhipped there. The præfecture of Arſinoe, ſays Strabo, reveres the crocodile, and looks upon it as ſacred. The prieſts preſerve one of them in a particular lake, and they nouriſh it with bread, fleſh, and wine. Whilſt the crocodile is repoſing himſelf on the banks of the lakes, the prieſts approach him; and whilſt one opens his mouth, another puts cakes, fleſh, and wine into it. After this repaſt the monſter deſcends quietly into the water, and ſwims away. The Egyptians are ſaid to have honoured the crocodile, becauſe it was conſecrated to Typhon, an evil genius whoſe fury they dreaded. They thought to calm his indignation, and avert the calamities with which he afflicted them, by honouring an animal which was his ſymbolical image. According to Diodorus (lib. i.) the crocodile was reverenced by the Egyptians upon account of their king, Menas, ſometimes called Menes, and Manes. This prince, it is ſaid, had been in great danger of being drowned; but was wafted through the waters to land by a crocodile. In memorial of this he built a city, which from this event was denominated the "city of the crocodile." This writer ſuppoſes that Menes really reigned over the Egyptians, becauſe he ſtood at the head of their genealogical liſt: and he further imagines that the ſtory was local, and that the event happened in the lake Moeris. The learned Bryant, (Anal. Mythol. vol. ii. p. 396.) ſuppoſes that Menes, the king of Egypt, was the Deus Lunus, and called alſo Mean, Μην, and Man; and the legend about a crocodile was taken from ſome ſymbolical repreſentation in the city of the ſame name; and hence it was ſuppoſed to have happened in Egypt. The crocodile had many names, one of which was Campſa, which ſignified an ark or receptacle; whence the purport of the hieroglyphic is ſufficiently manifeſt. The crocodile, according to Plutarch (Iſis et Oſiris) was equally a ſymbol of Typhon, and the deluge. See Lacerta *Crocodilus*.

Crocodilopolis, another town of Egypt, in the Aphroditapolite nome, upon the left of the Nile, in the Thebaid.—Alſo, a town of Aſia, in Phœnicia, ſituated near, and to the ſouth of, the town of Dora, according to Strabo and Pliny.

CROCODILORUM Lacus, a lake of Paleſtine, or rather on the coaſt of Phœnicia, S. of Cæſarea, near which probably exiſted the town of the ſame name. This lake received the river Cana, which ran from mount Garizim.

CROCODILUS, a mountain of Aſia, in Cilicia.

CROCODYLIUM, in *Botany*, Dalech. See Echinops *Ritro*.

CROCOMAGMA, in *Pharmacy*, a name given by ſome to troches compoſed of ſaffron, myrrh, red roſes, ſtarch, and gum Arabic; thus called from κροκος, *ſaffron*, and μαγμα, *a maſs of any thing*.

CROCOTTA, in *Natural Hiſtory*, a name given by the ancients to a very fierce and terrible animal, produced by copulation between the large hyæna and the lioneſs. See Leocrocotta.

CROCQ, in *Geography*, a ſmall town of France, in the department of the Creuſe, chief place of a canton, in the diſtrict of Aubuſſon. It contains but 521, and the canton itſelf 9020 inhabitants, diſperſed in fifteen communes, upon a territorial extent of 260 kiliometres.

CROCUS, in *Botany*, (from כרכום, or rather, as Kircher conjectures, it was originally read כרכוס, which occurs only in Solomon's Song, iv. 14. and is retained in the Septuagint with no variation, except in the form of the letters, κροκος, rendered in our Engliſh verſion ſaffron. As Solomon enumerates with it ſpikenard, calamus, and cinnamon, trees of frankincenſe, myrrh, and aloes, he probably intended by it one of the precious aromatics then imported into Judea from Arabia, and the remoteſt regions of the Eaſt, to furniſh the toilets of the ladies in his ſplendid court. But Theophraſtus and all the ſubſequent Greek and Latin writers clearly deſcribe the crocus of Linnæus, and of modern gardeners.) Linn. Gen. 55. Schreb. 75. Willd. 92. Tourn. Cl. 9. § 2. gen. 1. Juſſ. 59. Vent. 2. 194. Claſs and order, *triandria monogynia*. Nat. Ord. *Enſatæ*, Linn. *Irides*, Juſſ.

Gen. Ch. *Cal.* Spathe tranſparently membranous, one or two-leaved. *Cor.* Monopetalous, ſuperior, funnel-ſhaped; tube very long, partly beneath the ſurface of the ground; border with ſix ovate oblong, nearly equal diviſions. *Stam.* Filaments three, awl-ſhaped, ſhorter than the corolla, inſerted into the tube. *Piſt.* Germ inferior, roundiſh; ſtyle filiform; ſtigmas three, convolute, ſerrate-creſted. *Peric.* Capſule egg-ſhaped, trigonous, three-celled, three-valved. *Seeds* ſeveral, roundiſh.

Eſſ. Ch. Corolla tubular, ſix-parted, ſuperior; ſtigmas three, convoluted.

Sp. 1. C. *ſativus*. Linn. Sp. Pl. α officinalis. Poir. 3. Smith Fl. Brit. 39. Eng. Bot. 343. Wood. Med. Bot. tab. 176. Lam. Ill. tab. 30. fig. 1. Poir. 3. Willd. 1. Bauh. Pin. 65. Tourn. 350. (C. officinalis; Mart. Saffron.) "Stamens ſhorter than the piſtil; ſtyle deeply trifid." Lam. "Stigma inſerted, three-parted; ſegments linear." Smith. "Stigma three-parted, the length of the corolla, reflexed; leaves linear, revolute at the edges." Willd. *Root* bulbous, depreſſed. *Flower* very nearly or entirely ſeſſile on the root; tube very long, white; ſegments of the border rich purple, elliptical, concave, regular. *Leaves* radical, inveſted with membranous ſheaths, emerging after the flowers open, linear, ſlightly revolute, dark green above, with a white longitudinal furrow,

furrow; pale underneath, with a very prominent flattened mid-rib; ſtyle hanging out on one ſide between two of the ſegments of the corolla; ſtigmas deep orange, long, rolled in at the edges, notched at the ſummit. A native of Greece and Aſia Minor. Its odorous aromatic ſtigmas are the ſaffron of the ſhops, for the ſake of which it has been cultivated in its native countries from the earlieſt antiquity, and has long ſince been introduced into the weſtern parts of Europe. In England it has given a diſtinguiſhing name to Saffron-Walden. See SAFFRON. 2. C. *ſerotinus*. Saliſb. Par. Lond. tab. 30. (C. autumnalis; Poir. 4. C. alpinus autumnalis; Bauh. Pin. 65. Tourn. 350. C. montanum primum; Cluſ. Hiſt. 209. with a figure.) "Bractes two under the pericarp; (or in the language of Linnæus, ſpathe two-leaved;) border of the corolla ſlightly bearded; cloſed and pitcher-ſhaped at the baſe; ſtigmas deeply multifid." Saliſ. *Root* bulbous, ſmall, much depreſſed. *Leaves* radical, narrow, linear-awl-ſhaped, ſcarcely rolled in at the edges, appearing at the ſame time with the flower. *Flower* purple, or deep blue; tube rather ſhort, a little enlarged towards the ſummit; diviſions of the border lanceolate, deep; ſtamens little more than half the length of the border; anthers yellow, narrow, long, lanceolate, not arrow-ſhaped; ſtigmas very long, riſing above the ſtamens, gradually enlarging upwards, crenulate or toothed at the ſummit. It is the lateſt of the autumnal crocuſes, and in a mild ſeaſon, and ſheltered ſunny ſituation, continues in flower till the beginning of December. A native of Spain, Portugal, Switzerland, and the ſouth of France. 3. C. *nudiflorus*. Smith Flor. Brit. 41. Eng. Bot. 491. (C. multifidus; Poir. 5. C. ſpecioſus; Von Bieberſtein in Ann. Bot. 2. 404. C. pyrenæum autumnale; Cluſ. Cur. Poſt. 23. and Appen. alter. C. autumnalis flore minore; Bauh. Pin. 65.) "Stigma included in the flower, trifid; lobes multifid-laciniated, pencil-ſhaped; flower without leaves." Smith. *Root* bulbous, very ſmall. *Flowers* purple-violet, opening early in October, and fading before the end of the month; ſtamens ſhorter than the diviſions of the corolla; ſtyle longer than the ſtamens; ſtigmas orange-coloured, ſcentleſs. *Leaves* not appearing before December, more erect than thoſe of the other ſpecies, paler, ſcarcely revolute at the edges. A native of the Pyrenées, and of Georgia, between the Terck and the Kur. In England it occurs ſparingly in ſome old paſtures and meadows, near Halifax, and in great profuſion between Nottingham caſtle and the Trent, in a meadow annually overflowed by the river. In conſequence of a negligent obſervation, it was at firſt miſtaken by the writer of the article for C. ſativus, and thence that plant was erroneouſly ſuppoſed to be a native of England. 4. C. *vernus*. Mart. 2. Poir. 1. Lam. Ill. Pl. 30. fig. 2. Willd. 2. Smith Fl. Brit. 40. Eng. Bot. Pl. 344. Jacq. Auſt. App. tab. 36. β. Neapolitanus; Bot. Mag. 860. (C. ſativus β; Linn. Sp. Pl.) "Stigma included in the flower, trifid; lobes wedge-ſhaped, notched." Smith. *Root* bulbous, globular. *Scape* an inch or two high, almoſt triangular. *Flowers* generally purple, ſometimes yellow or white; tube ſlender, very long, gradually enlarged towards the top; cloſed at the mouth by a ring of glandular entangled hairs; border campanulate; ſegments elliptic-lanceolate, much ſhorter than the tube; three inner ones ſmaller; anthers yellow, arrow-ſhaped. According to La Marck the ſtamens are longer than the piſtils; but they are not ſo in his own figure to which he directly refers. A native of the Alps, Pyrenées, Italy, Spain, and Mount Atlas. In England it has been found only in the meadows between Nottingham caſtle and the Trent, growing with the preceding ſpecies, but always flowering in the ſpring. 5. C. *luteus*. Lam. Ill. 2. Poir. 2. (C. vernus; Bot. Mag. 45. C. vernus, latifolius, flavo flore; Cluſ. hiſt. 205, with a figure. C. vernus, latifolius, flavus, flore majore; Bauh. Pin. 66. Tourn. 352.) "Stamens longer than the piſtil; border large, almoſt the length of the tube." *Roots* bulbous, roundiſh, a little depreſſed; encloſed in ſmooth, ſcarious, ſhell-like membranes, cloſely ribbed with fine parallel fibres, but not netted. *Leaves* radical, flat, narrow, linear, awl-ſhaped at the ſummit, longer than the corolla, with a white, rather large longitudinal rib. *Flowers* always yellow; tube ſlender, enlarged towards the ſummit; ſegments of the border oval-lanceolate, obtuſe, erect; ſtamens ſhorter than the corolla; ſtigmas ſhort, unequal, ſtriated, thickened at the top, plaited and curled. A native of Switzerland, flowering in March, a little earlier than the preceding ſpecies. 6. C. *aureus*. Smith Prod. 85. Fl. Græc. tab. 35. (C. vernus mæſiacus primus; Cluſ. Pann. 228.) "Stigma included in the flower, trifid; lobes nearly linear, finely toothed; tunic of the root membranous." A native of Thrace, found by Dr. Sibthorp near Seſtus. 7. C. *ſuſianus*. Bot. Mag. Pl. 652. (C. vernus latifolius flavo-vario flore; Cluſ. hiſt. 206. Bauh. Pin. 66.) "Few-flowered; bulb coarſely netted, with large irregular meſhes; outer ſegments of the corolla conſtantly revolute near the tip; ſtigmas riſing far above the anthers." A ſmaller plant than C. luteus, flowering earlier, and opening its flowers in all ſtates of the weather. Received by Cluſius from Conſtantinople, about the year 1587. 8. C. *biflorus*. improperly called the Scotch crocus by the Engliſh gardeners. Bot. Mag. Pl. 845. Bot. rep. Pl. 362. "Tunics of the bulb even-ſurfaced, hard, circinate-imbricated; mouth of the tube naked." *Flowers* whitiſh; outer ſegments of the border marked on the outſide with longitudinal purple ſtreaks. Suppoſed to be a native of the Eaſt. 9. C. *ſulphureus*. Bot. Mag. Pl. 938. (C. vernus flavus ſtriatus; Park. par. 163. fig. 10. C. vernus latifolius, flavo-vario flore; Rai. hiſt. 1174. *n.* 8.) "Tunics of the bulb membranous, brown, thin, finely fibrous-ſtriated; ſegments of the corolla ſpreading equally; anthers ſmall, arrow-ſhaped, pale; ſtigmas unequal, riſing far above the anthers." *Flowers* pale yellow; three outer ſegments of the corolla narrower, marked with three broadiſh duſky ſtreaks which throw out lateral veins of the ſame colour; three inner ones broader, dark purple on the outſide near the bottom; but marked with ſimilar ſtreaks. *Leaves* narrow, long, appearing before the flower. It never produces ſeeds in our climate, but propagates itſelf moſt profuſedly by off-ſets. There is a permanent variety, in which the whole of the flower is of an uniform colour.

Obſ. The crocus has been ſo long and ſo extenſively cultivated, that it is not eaſy to diſtinguiſh the original ſpecies from the accidental varieties. The old botaniſts ſtrove to make as many ſorts as poſſible. C. Bauhin reckons twenty-nine; Tournefort, forty-ſix. Linnæus, on the other hand, reduces them all to one, and ſuppoſes the vernal and the autumnal, or officinal crocus, to be only varieties, notwithſtanding the manifeſt difference in the form of their ſtigmas, leaves, and bulbs, as well as in the time of their flowering; very differently, as profeſſor Martyn juſtly obſerves, from what he has done with reſpect to Hemerocallis, which he has divided into two ſpecies, though they differ only in their ſize, the colour of their flowers, and a little in the time of their flowering. Moſt modern botaniſts have thought the vernal and autumnal kinds ſpecifically different, and ſeveral other ſpecies, apparently diſtinct, have gradually been added. Mr. Saliſbury of Mill-hill, whoſe accuracy of obſervation, and acuteneſs of diſcernment, are well known, thinks he has aſcertained twelve well aſcertained ſpecies, but has not yet communicated his ideas concerning them to the public. See Annals of Botany, vol. i. p. 120.

Crocus *flore fructui impoſito, tubo brevi;* Roy. See Ixia *bulbocodium.*

Crocus *foliis & radice ſcorzoneræ;* Plum. See Hypoxis *decumbens.*

Crocus *ſpatha diphylla;* Linn. Sp. Ed. 1. See Ixia *bulbocodium.*

Crocus *ſylveſtris zeylanicus;* Herm. Burm. See Memecylon *capitellatum.*

Crocus *vernus anguſtifolius quartus;* Cluſ. See Ixia *bulbocodium.*

Crocus, in *Gardening*, comprehends plants of the low flowering ornamental bulbous-rooted perennial kinds; of which, the ſorts moſtly cultivated, are the autumnal or common officinal crocus, and the ſpring crocus.

The firſt ſort has a roundiſh bulbous root, as large as a ſmall nutmeg, being a little compreſſed at the bottom, and covered with a coarſe, brown, netted ſkin; having many long fibres ſent out from the bottom of the bulb, which ſtrike pretty deep into the ground; the flowers come out from the upper part of the root, which, with the young leaves, whoſe tops juſt appear, are cloſely wrapped about by a thin ſpathe or ſheath, that parts within the ground, and opens on one ſide: the tube of the flower is very long, ariſing directly from the bulb without any foot-ſtalk, being divided at top into ſix ſegments which are equal, and of a purple blue colour. A roundiſh germ is ſituated in the bottom of the tube, which ſupports a ſlender ſtyle not more than half the length of the petal, being crowned with three oblong golden ſtigmas, ſpreading aſunder each way, which conſtitutes the ſaffron. It flowers in October, and the leaves continue to grow all winter; but it never affords ſeeds in this climate.

Of this ſort the varieties are chiefly the ſweet-ſmelling, with a ſmaller and more compreſſed root, having a deep blue colour, but varying to a ſky-blue;—the mountain, which has a flower of a pale blue colour;—the many-flowering blueiſh, with numerous ſky-blue flowers; and the ſmall-flowering, having a ſmall deep blue flower.

The ſecond kind has a pretty large compreſſed bulb, covered by a light brown netted ſkin, from which proceed four or five leaves of a purple colour on their lower parts, from among which iſſue one or two flowers, ſitting cloſe between the young leaves, and never riſing above two inches in height, but having an agreeable odour. From the centre of the tube a ſlender ſtyle proceeds, which is crowned by a broad flat ſtigma of a golden colour. When the flower is paſt, the germ puſhes out of the ground. The flower in the wild ſtate is moſtly white, with a purple baſe.

And of this kind, the varieties are; the broad-leaved purple variegated, which has a flower of a deep blue colour and ſtriped;—the broad-leaved plain purple;—the broad-leaved violet-coloured, or large deep blue;—the white with a purple bottom;—the broad-leaved white variegated;—the broad-leaved, with many violet purple flowers, ſtriped with white;—the broad-leaved aſh-coloured;—the broad-leaved large yellow;—the broad-leaved ſmall pale yellow;—the broad-leaved ſmall yellow ſtriped with black; the narrow-leaved ſmall brimſtone;—and the narrow-leaved ſmall white. But in modern catalogues, there are many other varieties of different colours introduced, as blue and purple, yellow and white, or ſtriped. New ones are alſo continually imported from Holland. The uſual varieties at preſent in gardens are:—the beautifully ſtriped Scotch;—the blue;—the blue ſtriped;—the white;—the yellow of ſeveral ſhades, larger and ſmaller;—the yellow ſtriped with black;—the cloth of gold, &c.

Method of Culture.—The culture in both theſe ſorts, and all the varieties, is eaſily effected, by planting the bulbs or off-ſets taken from the roots; the firſt ſort in July, or the beginning of the following month; and the latter any time when the weather is open, from September to the beginning of April in the following year; but the more early it is performed, the ſtronger they flower; it may be performed by means of a dibble or trowel, to the depth of about two inches, the ground being previouſly well dug over, and left ſome time to ſettle. They may be ſet either in beds by themſelves in rows, at the diſtance of eight or nine inches, and ſix or eight inches apart, or in patches of five or ſix roots in each, on the fronts of the clumps, borders, or other parts of gardens and pleaſure-grounds, putting them in, in a varied manner, both in reſpect to the ſorts, and the order in which they are planted.

Where the ſoils are tolerably dry, they may remain two or three years without being diſturbed; but ſhould then be taken up at the time the leaves decay, in order to ſeparate the new bulbs or off-ſets for further increaſe, as well as new dig the ground. The larger bulbs ſhould be ſeparated from the ſmall ones, and put up, each by themſelves, in order to be planted out at the proper ſeaſon; the former in the above manner, and the latter in beds, in rows ſix inches diſtant, to remain till they are of a proper ſize. See Bulbous *Roots.*

As the bulbs increaſe faſt, a large ſtock may, with care, ſoon be provided in this way. But when this is not practiſed, bulbs of the different ſpecies and varieties may eaſily be procured from the nurſery and ſeeds-men.

It may be obſerved, that in the culture of theſe plants, great injury is frequently done by trimming off the green leaves at the time the flowers decline, in order to prevent litter; as by ſuch means the future blow is rendered more weak and leſs beautiful.

Where new varieties are wanted recourſe muſt be had to the ſeed, which muſt be ſown in the ſpring ſeaſon, either where the plants are to remain, in a bed of light mellow earth, or in pots filled with the ſame ſort of earth.

The firſt ſpecies is the plant, which is cultivated in fields, and from the ſtigma of which the preparation known, under the title of Engliſh ſaffron, is made.

Crocus, or *Saffron,* in the *Materia Medica.* The ſubſtance called ſaffron, is ſold in the ſhops in the form of thin tough cakes, formed of the piſtils of the flower, which are carefully picked by hand, preſſed together, and gently dried in kilns. No other preparation whatever is employed. Saffron uſed to be cultivated pretty largely in England, and the neighbourhood of Saffron-Walden, in Eſſex, was celebrated for this ſubſtance, which was employed very largely in cookery and confectionary as well as in medicine; but, at preſent, it is ſcarcely uſed for the table, and but little as an article of the Materia Medica. In various parts of the continent it is ſtill largely employed.

Saffron has a high orange red colour, readily ſtaining the fingers when a little moiſt. The cakes ſhould not be above a year old, cloſe and tough in texture, neither ſo dry as to be pulverizable, nor ſo moiſt as to feel ſenſibly damp. The ſmell is very ſtrong, fragrant, and penetrating, and the taſte aromatic and bitter, but both are much injured by long or careleſs keeping. The fine yellow colour is readily imparted to almoſt any menſtruum, to water, vinegar, alcohol, &c. and the intenſity of tinging power is very great. The colour,

lour, however, is completely fugitive on expoſure to air for ſome time, and is not permanently detained on cloth of any kind by any of the uſual mordants, ſo that as a dye it is nearly uſeleſs, except to give a falſe and ſuperficial finiſhing gloſs to yellow or orange ſtuffs. Both the watery and acetous infuſions loſe moſt of their colour by keeping, but the ſpirituous tincture preſerves its rich hue for a great length of time.

Saffron was formerly reckoned one of the moſt valuable and potent cordials which the Materia Medica poſſeſſed, raiſing the ſtrength, ſpirits, and animal powers in a very high degree, when given in doſes of no more than a few grains. Theſe virtues, however, have been exceſſively exaggerated, nor does this medicine appear to have higher powers than many other of the aromatic bitters. This circumſtance, added to the great and neceſſary coſtlineſs of a ſubſtance which requires ſo much manual employment in its preparation, has cauſed ſaffron to fall nearly into diſuſe, though it is ſtill retained in a few of the compounds of the pharmacopœia. A ſyrup and tincture of ſaffron are often employed as grateful and elegant medicines.

Saffron yields, by diſtillation, a very pungent eſſential oil, and the reſidue is a bitter ungrateful extract.

Crocus *of Antimony*, is a perfect oxyd of this metal, formed by deflagration with nitre, and is called a crocus from its yellow colour. See Antimony.

Crocus *Martis*. Several oxyds of iron have had this name given to them. Stahl's *aperient crocus of Mars* is formed by deflagrating with nitre the ſcoriæ of the martial regulus of antimony, which conſiſts of ſulphuret of iron retaining a ſmall portion of antimony; and hence the crocus, or waſhed orange-powder, left after deflagration, conſiſts of oxyd of iron mixed with a minute portion of oxyd of antimony. It is now diſuſed.

The common *crocus martis*, or *colcothar*, is the deep orange red oxyd of iron left by calcination of the ſulphat of iron, in a heat ſtrong enough to expel all its acid.

CROCUTA, in *Zoology*, the quumberigo of Barbot, (Guin. p. 486.), and ſpotted hyæna of Pennant, is a ſpecies of Canis, with a ſtraight tail, four toes on the feet, and the body ſpotted with black. It inhabits Guinea, Ethiopia, Abyſſinia, the Cape of Good Hope, and all the intermediate countries of Africa; living in holes of the ground and clefts of rocks. It preys by night on cattle, ſheep, and horſes, attacks men, and digs up graves to feed on dead bodies. It has a dreadful howling voice. The upper parts of the head and face are black; the mane ſhort and black; the body and limbs covered with ſhort ſoft hair, of a reddiſh brown colour, marked with round black ſpots; the tail ſhort and curly. This ſpecies is of ſuch ſize, ſtrength, and ferocity, that it can carry off, with great ſpeed, a full-grown man. The head is large and flat, having fine long hairs above each eye, and very large whiſkers on each ſide of the noſe.

CROCYLEA, in *Ancient Geography*, a town and diſtrict which belonged, as ſome have ſuppoſed, to the iſland of Ithaca, but which really pertained to Etolia.

CROEKER, John, in *Biography*, an artiſt, who was employed in England under queen Anne, and its two ſucceeding monarchs, to execute many medals upon public occaſions. Amongſt his works we may enumerate the following: A medal in commemoration of the Union of England and Scotland in 1707. Another medal, repreſenting George II. and his family. A print of his own portrait exiſts, engraved by his own hand. Heinecken.

CROESUS, the fifth and laſt king of Lydia. He ſucceeded his father at about the age of thirty-five, which is dated B. C. 537. Almoſt immediately after he aſcended the throne, he gave himſelf up to plans of war and ambition, and by his great ſucceſſes over the Grecian ſtates and the kingdoms of Aſia Minor, which he not only ſubdued but plundered, he became the richeſt and moſt powerful prince of his time. Wealth and power are, however, no ſecurity for happineſs; in the midſt of his glory, and when he had attained nearly the ſummit of his expectations, he loſt his ſon Atys, who was killed in hunting. To wear off, if poſſible, the uneaſineſs which this misfortune excited in his mind, he determined to make war upon Cyrus; but before he engaged in ſo important an enterpriſe, in compliance with the cuſtoms of the age, he modeſtly conſulted the moſt celebrated oracles. From that of Delphos, he obtained an anſwer, like others of the ſame kind, which admitted of two interpretations: "If Croeſus croſſes the Halys, he will put an end to a great empire." Croeſus, depending on his own good fortune, expected from this to deſtroy the Perſian monarchy, but Cyrus, its king, was deſtined for more important purpoſes. (See Cyrus.) He obtained a complete victory over the Lydian monarch, and Croeſus was made priſoner, and would, probably, have loſt his life, but from the extraordinary circumſtance of his own ſon, who till then had been perfectly dumb, but who, on ſeeing a ſoldier about to kill his father, exclaimed, as if it were by divine inſpiration, "Soldier, ſpare the King." We are told that the young man from this time had the uſe of his tongue. The fortune of Croeſus, after this event, was various, and he had full leiſure to reflect on the folly of truſting to wealth. In his proſperity, "the wealth of Croeſus" was proverbial, and the king once invited Solon the wiſe to witneſs a diſplay of his riches. hoping that the philoſopher would deem him, as he concluded himſelf to be, the moſt fortunate man living; but Solon, to various interrogatories, replied, that "he deemed no man happy before his death." The prince was diſconcerted, and diſmiſſed the philoſopher from his preſence. When fortune had turned the ſcale, and he was about to be put to death at the command of Cyrus the conqueror, he recollected the ſaying of Solon, and thrice loudly called upon his name. Cyrus inquired into the cauſe, and when he had heard the relation, he pardoned the fallen monarch, took him into his favour, and made him his companion and counſellor in his ſeveral expeditions. Croeſus ſurvived his friend, who, in his laſt moments, recommended him to the particular care of his ſon Cambyſes, as one in whom he might place the moſt unlimited confidence. Cambyſes, however, treated him ill, and condemned him to death; from this cruel ſentence he eſcaped, and hiſtory furniſhes us with no clue whence his ſubſequent fortunes can be traced. Univer. Hiſt. Plutarch's Life of Solon.

CROEVER Reich, or Croefer *Reiet*, in *Geography*, a ſmall diſtrict of Germany, in the circle of the Upper Rhine, on the N. ſide of the Moſelle, ſold by the counts of Sponheim, in 1274, to the archbiſhop of Treves.

CROFT, in *Agriculture*, is a name often applied in the more northern diſtricts to a ſmall field or incloſure, moſtly that in which the cottage, or houſe and garden are ſituated. It is, however, ſometimes employed to ſignify a common field in particular diſtricts. "Poſſunt etiam dicti monachi de eiſdem mariſcis verſus occidentem jacentibus pro ſe, & hominibus ſuis, includere *croftos*, ſive pratum juxta pontem, ſpecialiter, quantum illius placuerit." Ingulf. In ſome ancient deeds, cruſta occurs as the Latin word for a croft; but *cum toftis & croftis* is more frequent. Croft is tranſlated in Abbo Floriacenſis, by *prædium*, a farm.

Croft, Herbert, in *Biography*, a prelate of the church of England, who flouriſhed in the 17th century, was third ſon of ſir Herbert Croft, and born in 1603, at Great Milton, Oxfordſhire. In 1616, he was entered, it is believed, at Chriſt college, Oxford, from whence, on account of his father's converſion to the tenets of popery, he was ſent to the Engliſh college of Jeſuits at St. Omers, and entered into the order. Upon the death of his father, he had occaſion to viſit his native country, and was, by means of Dr. Morton, biſhop of Durham, brought back to the religion in which he was originally educated. He went a ſecond time to Oxford, and the time which he had ſpent at Douay was allowed to him, as if he had continued wholly at the Engliſh univerſity. This was in 1635, when he went through the appointed exerciſes with applauſe, and in the following year was admitted to the degree of bachelor of divinity. He now roſe rapidly in the church, and in 1641, was promoted to a canonry of Windſor. Three years after this he was appointed dean of Hereford, in which city he chiefly reſided, until his zeal for royalty, and his attachment to the intereſts of the church, rendered him obnoxious to the exiſting government. His exertions in theſe ſervices, which were attended with hazard, occaſioned him to expend much of his own ſmall fortune, as well the little which he derived from his preferments. His circumſtances became embarraſſed, but in 1659 he ſucceeded to the family eſtate, and was delivered from the preſſure of want; he thought it prudent, however, to live in the moſt retired manner at a friend's houſe in Worceſterſhire, till the reſtoration, when he was re-inſtated in his ſeveral preferments, and in the year 1661 was promoted to the ſee of Hereford. From this time, he refuſed offers of more valuable biſhoprics; and being diſguſted with the profligate manners and intolerant practices of the court, he confined himſelf to the conſcientious diſcharge of his duties as a biſhop, which he performed with honour to his own character, and for the benefit of the church of which he was a member. Though zealouſly attached to his own opinions, he was the determined enemy of all perſecution, wrote in defence of toleration, to be extended to diſſenters, and pleaded the cauſe of humanity and Chriſtian forbearance, with a zeal and manlineſs that reflect high honour on his principles, and the excellence of his temper. This work, which was intitled "Naked Truth; or the true State of the Church," excited much controverſy. The biſhop, ſhortly after, had formed a determination to quit his office and reſign the biſhopric, but was prevailed on to abandon the reſolution, and to continue his epiſcopal labours till his death, which happened in 1691. He was author of ſeveral other pieces, among which were "Animadverſions on a Book intitled the Theory of the Earth;" "The Legacy, &c. or a ſhort Determination of all Controverſies which we have with Papiſts, by God's Holy Word;" and "A Diſcourſe concerning the reading his Majeſty's Declaration in Churches." The learned prelate deſerves higher applauſe as a man and a Chriſtian than as a writer, though his pieces were reſpectable, conſidering the times in which he lived: but in his clerical character he was an admirable pattern, both with regard to the ſanctity and amiableneſs of his manners, and the diligence with which he inſtructed his people, and viſited the aged and the ſick. His memory, however, claims particular reſpect on account of the moderation and candour which he exhibited towards thoſe whoſe conſciences would not permit them to conform to the eſtabliſhed church, and his avowed abhorrence of every meaſure of the legiſlature which wore the leaſt appearance of perſecution. Biog. Brit.

CROFTING SYSTEM, in *Agriculture*, is that practice of grazing-farming in which the buſineſs is conducted in ſmall incloſures at no great diſtance from the farmer's houſe. It has been lately recommended by Mr. Brown as an advantageous method to be adopted in ſome of the highland diſtricts of Scotland; and might, probably, be purſued with benefit and ſucceſs in particular ſituations in Wales.

CROFTON, ZACHARY, in *Biography*, a non-conformiſt preacher in the 17th century, was born at Dublin, where he received the principal part of his education. During the civil wars he came to England, but ſo deſtitute, that he is ſaid to have arrived at Cheſter with only four-pence in his pocket. He ſoon after obtained the living of Wrenſbury in Cheſhire; here, on account of his attachment to the cauſe of royalty, for refuſing to ſubſcribe "The Engagement," an inſtrument of the exiſting government, and exciting others to do the ſame, he was perſecuted. He thought it right to ſeek a new courſe of life in the metropolis. Shortly after this he was preſented with the living of St. Botolph, Aldgate, in which he continued till he was ejected under the act of uniformity. Soon after the reſtoration, he engaged in a controverſy reſpecting the obligation of the "ſolemn league and covenant," for which he pleaded with ſo much zeal and freedom, that he provoked the indignation of the court, and was committed priſoner to the Tower, where he was detained, to the detriment of his fortune, which was very ſcanty, and to the injury of his family, which was numerous. He, at length, was liberated, and retired into Cheſhire, where he was again impriſoned; but on his releaſe, he firſt endeavoured to maintain his family by going into trade, and afterwards by becoming a farmer in the county of Bedford. In 1667, he came again to London, and opened a ſchool at Aldgate, where he died, in 1672. He was author of many tracts on controverſial ſubjects, and of ſermons. Calamy's Ejected Miniſters.

CROJA, in *Geography*, a town of European Turkey, in the province of Albania; anciently the capital and reſidence of the Albanian kings. The famous Scanderberg uſed this place as a fortreſs, from whence he continually harraſſed the Turks; but when the Turks became maſters of Albania, they deſtroyed the fortifications. It is the ſee of a biſhop, ſuffragan of the archbiſhop of Durazzo; 20 miles N.E. of Durazzo.

CROIDIT, and CERVETTO *the Younger;* for a parallel between theſe two admirable performers, ſee VIOLONCELLO.

CROISADE, CRUSADE, or CRUSADO, a *holy war*, or an expedition againſt infidels and heretics; particularly againſt the Turks, for the recovery of Paleſtine. This expedition was diſtinguiſhed, in the French language, by the name of a *croiſade*, and all who embarked in it were called *croiſes*, becauſe the end of this holy war was to arreſt the croſs of Chriſt out of the hands of the infidels, and alſo on account of the conſecrated croſſes of various colours, which the ſoldiers wore upon the right ſhoulder. They were ordered, as it is ſaid, by the council of Clermont. The Engliſh wore them white; the French, red; the Flemiſh, green; the Germans, black; and the Italians, yellow.

People anciently flocked on theſe croiſades out of devotion; the pope's bulls, and the preaching of the prieſts of thoſe days, making it appear a point of conſcience. Hence ſeveral orders of knighthood took their riſe.

Many circumſtances contributed to give riſe to theſe expeditions. The deſire of viſiting a country which had been the ſcene of very important tranſactions, and in which the Son of God had accompliſhed the redemption of mankind, together with the idea of peculiar merit, acquired by a particular pilgrimage of this kind, and of its ſerving as a general expiation for almoſt every crime, had no ſmall influence on this occaſion. Beſides, an opinion prevailed,

vailed, about the cloſe of the 10th and beginning of the 11th century, that the thouſand years mentioned by St. John, (Rev. xx, 2, 3, 4.) were accompliſhed, and that the end of the world approached; many thus hurried into the Holy Land, where they imagined that Chriſt would quickly appear to judge the world. Chriſtians alſo thought it reproachful to ſuffer a country, which had been ſo ſignally diſtinguiſhed, and whence they derived the moſt valuable benefits, to be abandoned to the enemies of the Chriſtian name; and they thought it meritorious to avenge the calamities and injuries which its profeſſors had ſuffered under the Mahometan yoke. Moreover, pilgrims were encouraged in their reſort to Jeruſalem, whilſt Paleſtine continued ſubject to the caliphs; but when the Turks conquered Syria, about the middle of the eleventh century, they were expoſed to every kind of outrage from theſe barbarians, and returned with exaggerated accounts of the dangers they had encountered in viſiting the Holy City, and the cruelties and vexations they had endured. Accordingly, the firſt ſignal was given by Silveſter II. towards the cloſe of the tenth century, in an epiſtle wrote in the name of the church of Jeruſalem to the church univerſal throughout the world, in which all the European powers are intreated and exhorted to ſuccour and reſcue the Chriſtians in Paleſtine. This effort of zeal, however, produced no immediate effect. Gregory VII., in the beginning of the 11th century, revived an attention to this undertaking, propoſed in perſon to invade the Holy Land, and upwards of 50,000 men were already muſtered to follow him in this bold expedition. Although he was prevented by his quarrel with the emperor Henry IV. from executing this deſign, the ſpirit of the people was inflamed; and Peter the Hermit, returning from a voyage which he had made through Paleſtine, A. D. 1093, complained of the extreme ſufferings of the Chriſtians, applied to Urban II. for ſuccour, and ran from province to province with a crucifix in his hand, exciting princes and people to this holy war, and pretending a divine commiſſion for this purpoſe. At length, Urban II. finding a general ardour for the cauſe, aſſembled a grand and numerous council at Placentia, A. D. 1095, and warmly recommended this expedition. Soon after, in the ſame year, the propoſal was renewed with ſucceſs at the council of Clermont; at which were preſent, beſides the papal court and council of Roman cardinals, 13 archbiſhops, 225 biſhops, 400 mitred prelates, a great number, ſome ſay 4000, of eccleſiaſtics, and three hundred thouſand laymen. In the market place of Clermont, the pope (Urban II.) aſcended a lofty ſcaffold and addreſſed his eloquence to a well-prepared and impatient audience. Such was the ſucceſs with which he addreſſed a numerous multitude, that he was interrupted by the clamorous ſhouts of thouſands who with one voice exclaimed, "*Deus vult; Deus vult!*" "God wills it; God wills it!" "It is indeed the will of God," replied the pope; "and let this memorable word, the inſpiration ſurely of the Holy Spirit, be for ever adopted as your cry of battle, to animate the devotion and courage of the champions of Chriſt. His croſs is the ſymbol of your ſalvation; wear it; a red, a bloody croſs, as an external mark on your breaſts or ſhoulders, as a pledge of your ſacred and irrevocable engagement." The propoſal was joyfully accepted; and if we may believe the concurring teſtimony of contemporary authors, ſix millions of perſons aſſumed the croſs, as the diſtinguiſhing badge of thoſe who devoted themſelves to this holy warfare. The fumes of this enthuſiaſtic zeal did not evaporate at once; the frenzy was as laſting as it was extravagant. During two centuries Europe ſeems to have had no object but to recover or keep poſſeſſion of the Holy Land, and through that period vaſt armies combined to march thither.

The number need not aſtoniſh us, if we conſider that it was a motley aſſemblage of monks, proſtitutes, artiſts, labourers, lazy tradeſmen, merchants, boys, girls, ſlaves, malefactors, and profligate debauchees; and that it was principally compoſed of the lower dregs of the multitude, who were animated ſolely by the proſpect of ſpoil and plunder, and hoped to make their fortunes by this holy campaign.

Beſides, we ſhall have no reaſon to wonder at the multitude who flocked to the ſtandard of the croſs, if we advert to the natural operation of frantic zeal and the numberleſs privileges which the Cruſaders acquired. Many or perhaps the greateſt number of the chiefs and ſoldiers we may naturally ſuppoſe were prompted by the ſpirit of enthuſiaſm; the belief of merit, the hope of reward, and the aſſurance of divine aid. But it is equally certain that with many this was not the ſole, and that with ſome it was not the leading principle of action. In the council of Clermont, pope Urban had proclaimed a plenary indulgence to thoſe who ſhould enliſt under the banner of the croſs; the abſolution of all their ſins, and a full receipt for all that might be due of canonical penance. Moreover, the extenſive privileges and immunities, granted to thoſe who aſſumed the croſs, will ſerve to account for the firſt ardour and long continuance of the Cruſading ſpirit in Europe. The Cruſaders were exempted from proſecutions on account of debt, during the time of their being engaged in this holy ſervice.—They were exempted from paying intereſt for the money which they had borrowed.—They were exempted either entirely, or at leaſt during a certain time from the payment of taxes.—They might alienate their lands without the conſent of the ſuperior lord of whom they held.—Their perſons and effects were taken under the protection of St. Peter, and the anathemas of the church were denounced againſt all who ſhould moleſt them, or carry on any quarrel or hoſtility againſt them, during their abſence, on account of the holy war.—They enjoyed all the privileges of eccleſiaſtics, and were not bound to plead in any civil court, but were declared ſubject to the ſpiritual juriſdiction alone.—And as we have already obſerved, they were promiſed a plenary remiſſion of all their ſins, and the gates of heaven were ſet open to them, without requiring any proof of their penitence by their engaging in this expedition, and thus gratifying their favourite paſſion, the love of war. (Du-Cange.) Beſides, the civil and eccleſiaſtical powers vied with one another, and ſtrained their invention to deviſe expedients for encouraging and ſtrengthening the ſpirit of ſuperſtition, and in ſetting a mark of cowardice and infamy on thoſe who declined engaging in the holy war. In a letter addreſſed from Stephen, the earl of Chartres and Blois, to Adela his wife, in which he gives an account of the progreſs of the cruſaders, he deſcribes them as the choſen army of Chriſt; as the ſervants and ſoldiers of God; as men who marched under the immediate protection of the Almighty, being conducted by his hand to victory and glory. He ſpeaks of the Turks, on the other hand, as accurſed, ſacrilegious, and devoted by heaven to deſtruction; and when he mentions the ſoldiers in the Chriſtian army who had died or were killed, he is confident that their ſouls were admitted directly into the joys of paradiſe. Actuated and animated by ſuch views, the cruſaders embarked in this frantic expedition with ſingular ardour, and ſubmitted without reluctance to the inconvenience and enormous expence that attended it. That the expence of conducting numerous bodies of men from Europe to Aſia muſt have been exceſſive, and that the difficulty of raiſing the neceſſary ſums for this purpoſe muſt have been proportionably great, we may infer from the expedients to which the leaders of this expedition were obliged to recur, during ages when the public revenues in every nation of Europe were extremely ſmall. Hubert II. dauphin of Vienne, was obliged to furniſh himſelf with money towards defraying the expence of the cruſade, A. D. 1346, by very extraordinary ſacrifices and conceſſions. He expoſed to ſale part of his domains; and the French king, in this ſacred ſervice, gave his conſent and ratified the alienation. Moreover, he iſſued a proclamation, in which he promiſed to grant new privileges to the nobles, as well as new immunities to the cities and towns, in his territories, for certain ſums which they were inſtantly to pay on that account; and, in this manner, many charters of community were obtained. He exacted alſo a contribution towards defraying the charges of the expedition from all his ſubjects, both eccleſiaſtics and laymen, who did not perſonally accompany him to the Eaſt. He appropriates a conſiderable part of his uſual revenues for the ſupport of the troops to be employed in this ſervice: and he exacted conſiderable ſums, not only of the Jews ſettled in his dominions, but alſo of the Lombards and other bankers who had fixed their reſidence there. Notwithſtanding all theſe reſources, he was involved in difficulties, which, on his return, required freſh exactions and demands. When the count de Foix engaged in the firſt cruſade, he raiſed the money neceſſary for that expedition, by alienating part of his territories. In like manner, Baldwin, count of Hainaut, mortgaged or ſold part of his dominions, to the biſhop of Liege, A. D. 1096. And, at a later period, A. D. 1239, Baldwin, count of Namur, ſold part of his eſtate to a monaſtery, when he intended to aſſume the croſs.

Early in the ſpring of the year 1096 above 60,000 of the populace of both ſexes from the confines of France and Lorraine aſſembled and put themſelves under the conduct of Peter the Hermit, and followed him along the banks of the Rhine and Danube. The example and footſteps of Peter were cloſely purſued by another fanatic, the monk Godeſcal, whoſe ſermons had ſwept away 15 or 20 thouſand peaſants from the villages of Germany. Their rear was again preſſed by an herd of 200,000, the moſt ſtupid and ſavage refuſe of the people, who mingled with their devotion a brutal licence of rapine, proſtitution, and drunkenneſs. Some counts and gentlemen joined the motley multitude with a view of ſharing in the ſpoil. The firſt attacks of theſe enthuſiaſts were directed againſt the Jews, who were numerous and rich in the trading cities of the Moſelle and Rhine, and who enjoyed, under the protection of the emperor and the biſhops, the free exerciſe of their religion. At Verdun, Treves, Mentz, Spires, and Worms, many thouſands of theſe unhappy people were pillaged and maſſacred. As theſe cruſaders advanced to the wild and deſolate countries of Hungary and Bulgaria, and traverſed an interval of 600 miles, they endured incredible hardſhips. About a third of the naked fugitives, and among them the hermit Peter, eſcaped from the attacks of the Hungarians to the Thracian mountains; and the emperor, who reſpected the pilgrimage and ſuccour of the Latins, conducted them by ſecure and eaſy journies to Conſtantinople, adviſing them to await the arrival of their brethren. Here, however, regardleſs of the kindneſs of their benefactor, neither gardens, nor palaces, nor churches, were ſafe from their depredations. Alexius, therefore, for his own ſecurity, allured them to paſs over to the Aſiatic ſide of the Boſphorus; but their blind impetuoſity urged them to ruſh precipitately againſt the Turks, who occupied the road of Jeruſalem. Soliman, by ſpreading a rumour that ſome of their companions were rioting on the ſpoils of his capital, tempted the main body to deſcend into the plain of Nice, where they were overwhelmed by the Turkiſh arrows; and where a pyramid of bones informed their companions of the place of their defeat. Of the firſt cruſaders 300,000 had already periſhed, before a ſingle city was reſcued from the infidels, and before their graver and more noble brethren had completed the preparations of their enterpriſe. None of the great ſovereigns of Europe embarked their perſons in the firſt cruſade; but the religious ardour more ſtrongly operated on the princes of the ſecond order, who held an important place in the feudal ſyſtem. The firſt rank both in war and council is juſtly due to Godfrey of Bouillon, a deſcendant of Charlemagne in the female line. He was accompanied by his two brothers, Euſtace, the elder, and Baldwin, the younger; the duke of Lorraine, and the barons of France, Germany, and Lorraine, who aſſembled their vaſſals. The confederate force that marched under the banner of Godfrey was compoſed of 80,000 foot, and about 10,000 horſe. Among the heads of the early cruſaders we may alſo mention Hugh of Vermandois, Robert duke of Normandy, the eldeſt ſon of William the Conqueror, Robert count of Flanders, ſurnamed the Sword and Lance of the Chriſtians, and Stephen, count of Chartres, Blois and Troyes, one of the richeſt princes of the age, the number of whoſe caſtles is ſaid to have amounted to the 365 days of the year. Theſe four were the principal leaders of the French, the Normans, and the pilgrims of the Britiſh iſles: but the liſt of the barons, who were poſſeſſed of 3 or 4 towns, would exceed, ſays a contemporary, the catalogue of the Trojan war. Raymond of Tholouſe, and Adhemar, biſhop of Puy, and legate of the pope, aſſumed the command in the ſouth of France; and the united force conſiſted of 100,000 horſe and foot. Bohemond, the ſon of Robert Guiſcard, at the head of 10,000 horſe, and 20,000 foot, was accompanied by ſeveral princes of the Roman race, and alſo by his couſin Tancred.

The difficulty of procuring ſubſiſtence for ſuch an incalculable multitude of men and horſes, induced theſe ſeveral leaders to ſeparate their forces; and they agreed to meet at laſt in the neighbourhood of Conſtantinople, and thence to begin their military operations againſt the Turks. Godfrey of Bouillon, departing from the banks of the Meuſe and Moſelle, purſued the direct way of Germany, Hungary, and Bulgaria. From Auſtria to Belgrade, they traverſed the plains of Hungary without enduring or offering any injury; with the ſame conduct and diſcipline, he pervaded the woods of Bulgaria and the frontiers of Thrace; and he almoſt reached the firſt term of his pilgrimage, without drawing his ſword againſt a Chriſtian adverſary. After an eaſy and pleaſant journey through Lombardy, from Turin to Aquileia, Raymond and his provincials marched 40 days through the ſavage country of Dalmatia and Sclavonia; and his march between Durazzo and Conſtantinople was ſomewhat haraſſed, without being ſtopped, by the peaſants and ſoldiers of the Greek emperor. From the Alps to Apulia the march of Hugh the Great, of the two Roberts, and of Stephen of Chartres, through a wealthy country, and amidſt the applauding catholics, was a devout and triumphant progreſs; they kiſſed the feet of the Roman pontiff; and the golden ſtandard of St. Peter was delivered to the brother of the French monarch. All ſeparately accompliſhed their paſſage, regardleſs of ſafety or dignity, and within 9 months from the feaſt of the Aſſumption, Auguſt the 15th, 1096, the day appointed by Urban, all the Latin princes had reached Conſtantinople.

The principal force of the cruſaders conſiſted in their cavalry; and when that force was muſtered in the plains of Bithynia, the knights and their martial attendants on horſeback amounted to 100,000 fighting men, completely armed with the helmet and coat of mail. The whole number, that formed the infantry and promiſcuous crowd, was compoſed of 600,000 pilgrims, able to bear arms, and prieſts, monks, women, and children. It is farther ſaid, that if all who took the croſs had accompliſhed their vow, above *ſix millions* would have emigrated from Europe to Aſia. Of theſe religious volunteers great numbers never beheld Conſtantinople and Nice. Some declined the enterpriſe in conſequence of the tranſitory duration of their enthuſiaſm; others through cowardice, and others again on account of their poverty or weakneſs. Many fell in the ſavage countries of Hungary and Bulgaria; their vanguard was cut in pieces by the Turkiſh ſultan; and we have ſtated the loſs of the firſt adventure by the ſword, or climate, or fatigue, at 300,000 men.

The firſt efforts of theſe adventurers were irreſiſtible, and they gained conſiderable advantages. From their firſt ſtation in Nicomedia, they advanced, from May 14th, to June 20, A. D. 1097, in ſucceſſive diviſions; paſſed the contracted limit of the Greek empire; opened a road through the hills; and commenced their pious warfare againſt Soliman, the Turkiſh ſultan, by the ſiege and capture of Nice, his capital. Soliman, provoked rather than diſmayed by the loſs of hiſc apital, collected his Turkman hordes, conſtituting a force which is ſtated by the Chriſtians at 200, or even 360, thouſand horſe. A ſevere engagement took place at Dorylæum, in Phrygia, July 4th, A. D. 1097, which terminated in victory on the part of the cruſaders and the haſty retreat of the ſultan, who evacuated the kingdom of Roum. In a march of 500 miles, from July to September, the cruſaders traverſed the Leſſer Aſia, through a deſolate land, and deſerted towns, without finding either a friend or an enemy, encountering in every ſtep of their progreſs a great variety of difficulties and hardſhips. A detachment from the main army over-ran in a rapid career the hills and ſea-coaſt of Cilicia, from Cogni to the Syrian gates; the Norman ſtandard was firſt planted on the walls of Tarſus and Malmiſtra; and after a private conflict between Baldwin and Tancred, the former took poſſeſſion of Edeſſa, and founded the firſt principality of the Franks or Latins, which ſubſiſted 54 years beyond the Euphrates. During the enſuing winter the ſiege of Antioch, the capital of Syria, was commenced, and after an attack and defence equally obſtinate, the city was ſurpriſed in the night; the army ruſhed in through the gates; and the Moſlems ſoon found that reſiſtance would be impotent and unavailing. The citadel ſtill refuſed to ſurrender; and the victors were encompaſſed and beſieged by the innumerable forces of Kerboga, prince of Moſul. In this extremity they collected the relics of their ſtrength, ſallied from the town, and in a ſingle memorable day (June 28th, A. D. 1098), annihilated or diſperſed the hoſt of Turks and Arabians, conſiſting of 600,000 men. The attack of Jeruſalem was ſuſpended above ten months after the defeat of Kerboga; for the cruſaders, after the victory they had obtained, haſtily diſperſed to enjoy the luxury of Syria. By the ſiege of Antioch, and ſubſequent battle, as well as by famine and ſickneſs, their numbers had been greatly diminiſhed, and their ſtrength enfeebled; however, in the month of May, A. D. 1099, the relics of their mighty hoſt proceeded from Antioch to Laodicea; about 40,000 Latins, of whom no more than 1500 horſe, and 20,000 foot, were capable of immediate ſervice. Their eaſy march was continued between mount Libanus and the ſea-ſhore; their wants were liberally ſupplied by the coaſting traders of Genoa and Piſa; and they drew large contributions from the cities of Tripoli, Tyre, Sidon, Acre, and Cæſarea, which granted a free paſſage, and promiſed to follow the example of Jeruſalem. From Cæſarea they advanced into the midland country, recogniſing in their progreſs Lydda, Ramla, Emmaus, and Bethlehem; and as ſoon as they deſcried the Holy City, the cruſaders forgot their toils, and claimed their reward. The garriſon is ſaid to have conſiſted of 40,000 Turks and Arabians, under the command of Aladin or Iftikhar, the lieutenant of the caliph, with whom the defence of the city was entruſted. The ſiege commenced on the 7th of June, A. D. 1099, and was directed againſt the northern and weſtern ſides of the city. Godfrey of Bouillon erected his ſtandard on the firſt ſwell of mount Calvary; to the left, as far as St. Stephen's gate, the line of attack was continued by Tancred, and the two Roberts; and count Raymond eſtabliſhed his quarters from the citadel to the foot of mount Sion, which was no longer included within the precincts of the city. On the 5th day, the cruſaders made a general aſſault, with the fanatic hope of battering down the walls without engines, and of ſcaling them without ladders. By dint of brutal force, they burſt the firſt barrier; but they were driven back with ſhame and ſlaughter to the camp. The ſiege was prolonged for 40 days; and they were 40 days of calamity and anguiſh, during which they endured diſtreſſing privations of food and water. Having conſtructed two turrets, they were rolled to the moſt acceſſible, and moſt neglected, parts of the fortification. One of them was unfortunately reduced to aſhes by the fire of the beſieged; but by means of the other, the enemies were driven by archers from the rampart; the drawbridge was let down; and on Friday at three in the afternoon, the day and hour, as it is ſaid, of the paſſion, Godfrey of Bouillon ſtood victorious on the walls of Jeruſalem. His example was followed on every ſide by the emulation of valour; and about 460 years after the conqueſt of Omar, the Holy City was reſcued from the Mahometan yoke. The victors, to their everlaſting diſgrace, indulged themſelves three days in a promiſcuous maſſacre; ſo that the infection of the dead bodies occaſioned an epidemical diſeaſe. After 70,000 Moſlems had been put to the ſword, and the harmleſs Jews had been burned in their ſynagogue, they reſerved a multitude of captives; and Raymond granted a capitulation and ſafe-conduct to the garriſon of the citadel.

"The holy ſepulchre was now free; and the bloody victors prepared to accompliſh their vow. Bare-headed and bare-foot, with contrite hearts, and in an humble poſture, they aſcended the hill of Calvary, amidſt the loud anthems of the clergy; kiſſed the ſtone which had covered the Saviour of the world; and bedewed, with tears of joy and penitence, the monument of their redemption."

Eight days after this memorable event (July 23, A. D. 1099), the Latin chiefs proceeded to the election of a king, to guard and govern their conqueſts in Paleſtine; when the free, juſt, and unanimous voice of the army proclaimed Godfrey of Bouillon the firſt and moſt worthy of the champions of Chriſtendom. His magnanimity accepted a truſt as full of danger as of glory; but in a city where his Saviour had been crowned with thorns, the devout pilgrim rejected the name and enſigns of royalty; and the founder of the kingdom of Jeruſalem contented himſelf with the modeſt title of "Defender and Baron of the Holy Sepulchre." Within a fortnight after his acceptance of this honour, he was called to the field of battle by the approach of the viſir or ſultan of Egypt, who was totally vanquiſhed in the battle of

Aſcalon, Aug. 12, A. D. 1099. This victory ſealed the eſtabliſhment of the Latins in Syria, and ſignalized the valour of the French princes, who in this action bade a long farewell to the holy wars. Godfrey could retain, after this battle, only with the gallant Tancred 300 knights, and 2000 foot ſoldiers, for the defence of Paleſtine. Soon after this, a new enemy attacked his ſovereignty, who ſprung out of the boſom of the church. The ſeditious clamours of the eccleſiaſtics were urgent for the choice of a biſhop, which, in their opinion, ſhould have preceded that of a king. At this time Daimbert, archbiſhop of Piſa, ſeaſonably arrived, with a fleet of his countrymen, for the ſervice of the Holy Land; and he was immediately inſtalled, without a competitor, the ſpiritual and temporal head of the church. The new patriarch inſtantly graſped the ſceptre which had been acquired by the toil and blood of the victorious pilgrims; and both Godfrey, and Bohemond, who had claimed the ſovereignty of Antioch as the recompence of his ſervices during its ſiege, and in obtaining its ſurrender, ſubmitted to receive of the hands of Daimbert the inveſtiture of their feudal poſſeſſions. Daimbert further claimed the immediate property of Jeruſalem and Jaffa; and a quarter of either city was ceded to the church; and the modeſt biſhop was ſatisfied with an eventual reverſion of the reſt, on the death of Godfrey without children, or on the future acquiſition of a new ſeat at Cairo or Damaſcus. This infant kingdom conſiſted only of Jeruſalem and Jaffa, with about 20 villages and towns of the adjacent country. By the arms of Godfrey himſelf, and of the two Baldwins, his brother and couſin, who ſucceeded to the throne, the boundaries of this kingdom were enlarged. After the reduction of the maritime cities of Laodicea, Tripoli, Tyre, and Aſcalon, the range of ſea-coaſt from Scanderoon to the borders of Egypt, was poſſeſſed by the Chriſtian pilgrims. The counts of Edeſſa and Tripoli owned themſelves the vaſſals of the king of Jeruſalem. The Latins reigned beyond the Euphrates; and the four cities of Hems, Hamah, Damaſcus, and Aleppo, were the only relics of the Mahometan conqueſts in Syria. The new government was framed, and the laws and language, the manners and titles, of the French nation, and Latin church, were introduced into theſe tranſmarine colonies. However, the firmeſt bulwark of Jeruſalem was founded on the knights of the hoſpital of St. John, and of the temple of Solomon. Theſe knights maintained their fearleſs and fanatic character; and the ſpirit of chivalry, which was both the parent and offſpring of the cruſades, was tranſplanted by this inſtitution from the holy ſepulchre to the iſle of Malta. As ſoon as Godfrey of Bouillon was ſeated in the office of ſupreme magiſtrate, he ſolicited the advice of the Latin pilgrims, who were beſt ſkilled in the ſtatutes and cuſtoms of Europe, and from the materials which they furniſhed, with the counſel and approbation of the patriarch and barons, of the clergy and laity, Godfrey compoſed the "Aſſiſe of Jeruſalem," which is a precious monument of feudal juriſprudence. The final reviſion of this code was accompliſhed in the year 1369, for the uſe of the Latin kingdom of Cyprus. The juſtice and freedom of the conſtitution were maintained by two tribunals of unequal dignity, inſtituted by Godfrey of Bouillon, after the conqueſt of Jeruſalem. The king preſided in perſon in the upper court, the court of the barons; the nobles, who held their lands immediately of the crown, were entitled and bound to attend the king's court; and each baron exerciſed a ſimilar juriſdiction in the ſubordinate aſſemblies of his own feudatories. The connection of lord and vaſſal was voluntary and honourable. The cognizance of marriage and teſtaments was blended with religion, and uſurped by the clergy; but the civil and criminal cauſes of the nobles, the inheritance and tenure of their fiefs, formed the proper occupation of the ſupreme court. Each member was the judge and guardian of both public and private rights. The Aſſiſe of Jeruſalem admits, in many caſes, the barbarous inſtitution of judicial combat. The trial by battle was eſtabliſhed in all criminal caſes, which affected the life, or limb, or honour, of any perſon; and in all civil tranſactions, of or above the value of one mark of ſilver. Champions were only allowed to women, and to men maimed, or paſt the age of 60. In the Aſſiſe of Jeruſalem it is expreſsly declared, that after inſtituting, for his knights and barons, the court of peers, in which he preſided himſelf, Godfrey eſtabliſhed a ſecond tribunal, in which his perſon was repreſented by his viſcount. This court extended its juriſdiction over the burgeſſes of the kingdom; and it was compoſed of a ſelect number of the moſt diſcreet and worthy citizens, who were ſworn to judge, according to the laws, of the actions and fortunes of their equals. In the conqueſt and ſettlement of new cities, the example of Jeruſalem was imitated by the kings and their great vaſſals; and above 30 ſimilar corporations were founded before the loſs of the Holy Land. Theſe cities and corporations, if thoſe of Paleſtine were coeval with the firſt cruſade, may be ranked with the moſt ancient of the Latin world. (See CITY and CHARTERS *of Community*.) A third court was eſtabliſhed for the uſe of thoſe Syrians and oriental Chriſtians who were oppreſſed by the zeal of the clergy, and who wiſhed to be judged by their own national laws. Its juriſdiction was limited and domeſtic; its ſworn members were Syrians, in blood, language, and religion; but the office of the preſident was ſometimes exerciſed by the viſcount of the city. At an unmeaſurable diſtance below the nobles, the burgeſſes, and the ſtrangers, the Aſſiſe of Jeruſalem condeſcends to mention the villeins and ſlaves, the peaſants of the land, and the captives of war. The relief or protection of theſe unhappy men was not eſteemed worthy of the care of the legiſlator; but he diligently provides for the recovery, though not indeed for the puniſhment, of the fugitives.

In the 12th century, there were conſiderable bodies of emigrants who marched by land from the Weſt to the relief of Paleſtine. The ſoldiers and pilgrims of Lombardy, France, and Germany, were excited by the example and ſucceſs of the *firſt* cruſade. Forty-eight years after the deliverance of the holy ſepulchre, the emperor Conrad III. and the French king, Louis VII., undertook the *ſecond* croiſade to ſupport the falling fortunes of the Latins. This expedition was undertaken at the inſtigation of Bernard, abbot of Clairval, and under the pontificate of Eugenius III.; A.D. 1147. Conrad and Louis met at Nice, and proceeded to Jeruſalem, A.D. 1148, from whence they led back into Europe the miſerable remains of thoſe troops which had ſurvived the diſaſter that had occurred in this expedition. Its unhappy iſſue has been aſcribed principally to the jealouſies and diviſions that prevailed among the Chriſtian chiefs in Paleſtine. Nor was it more ineffectual in Paleſtine than detrimental to Europe, by draining the wealth of its faireſt provinces, and deſtroying ſuch a prodigious number of its inhabitants. The *third* cruſade was undertaken, A. D. 1189, by Frederic I., ſurnamed Barbaroſſa, emperor of Germany, whoſe example was followed, A.D. 1190, by Philip Auguſtus, king of France, and Richard Cœur-de-lion, king of England. Theſe two monarchs arrived in Paleſtine in the year 1191, and ſucceeded in their firſt encounters with the infidels. After the reduction of Acre or Ptolemais, the French monarch returned to Europe; and the king of England, who remained, puſhed the war with great

great vigour, and not only defeated Saladin in ſeveral engagements, but made himſelf maſter of Jaffa and Cæſarea. Deſerted, however, by the French and Italians, and influenced by other weighty conſiderations, he concluded, A.D. 1192, with Saladin a truce of 3 years, 3 months, and 3 days, and ſoon evacuated Paleſtine with his whole army. A *fourth* cruſade, if it may be ſo called, was undertaken by the Teutonic knights, in conſequence of the miſeries which the beſiegers ſuffered at the ſiege of Acre, and at the inſtigation, or at leaſt with the marked approbation of pope Celeſtin III., who confirmed the above-mentioned order by a bull iſſued out the 23d of February, A.D. 1192. The ſupport of Chriſtianity, the defence of the Holy Land, and the relief of the poor and needy, were the important duties and ſervices to which the Teutonic knights devoted themſelves by a ſolemn vow. The *fifth* cruſade, A.D. 1198, was excited by an illiterate prieſt of the neighbourhood of Paris, Fulk of Neuilly, who deſerted his parochial duty, in order to aſſume the more flattering character of a popular and itinerant miſſionary. No ſooner did Innocent III. aſcend the chair of St. Peter, than he proclaimed in Italy, Germany, and France, the obligation of this new cruſade. The eloquent pontiff deſcribed the ruin of Jeruſalem, the triumph of the Pagans, and the ſhame of Chriſtendom: his liberality propoſed the remiſſion of ſins, a plenary indulgence to all who ſhould ſerve in Paleſtine, either a year in perſon, or two years by a ſubſtitute; and among his legates and orators who blew the ſacred trumpet, Fulk of Neuilly was the loudeſt and the moſt ſucceſsful. Although the principal monarchs of that period, the emperor Frederick, Philip Auguſtus of France, and Richard of England, were on account of their peculiar circumſtances not much inclined to engage in this expedition; nevertheleſs the preacher was heard and obeyed by the great vaſſals, the princes of the ſecond order; and the foremoſt in the holy race was Theobald, or Thibaut the young count of Champagne. His companion in arms was Louis, count of Blois and Chartres; and they were joined by a crowd of prelates and barons, who imitated their zeal, and whoſe names it is needleſs to mention. The operations of the war were debated in full and frequent aſſemblies; and it was reſolved to ſeek the deliverance of Paleſtine in Egypt, a country, which, ſince Saladin's death, was almoſt ruined by famine and civil war. But as the French barons who took the lead in this buſineſs were deſtitute of ſhips and ignorant of navigation, they diſpatched 6 deputies to Venice, to ſolicit, on motives of piety or intereſt, the aid of that powerful republic. The deputies were hoſpitably received; and after much deliberation and debate, they were authoritatively informed that they would aſſiſt them on certain conditions, which they propoſed. They offered a conſiderable number of flat-bottomed boats and ſhips for the uſe of their horſes and foot-ſoldiers, to ſupply them with proviſions for nine months, and to join the armament with a ſquadron of 50 gallies. But they required, that the pilgrims ſhould pay, before their departure, a ſum of 85,000 marks of ſilver; and that all conqueſts by ſea and land, ſhould be equally divided between the confederates. The treaty was ratified and preparations were made for the departure of the cruſade. About the feſtival of Pentecoſt, A.D. 1203, Boniface, marquis of Montferrat, to whom the conduct of the enterpriſe was committed, diſplayed his banner and marched towards Venice at the head of the Italians; he was attended and followed by the counts of Flanders and Blois, and the moſt reſpectable barons of France; and their numbers were ſwelled by the pilgrims of Germany, who were actuated by views and motives ſimilar to their own. The Venetians fulfilled their engagements. After obviating ſome difficulties that occurred in their negotiation, the fleet and army directed their firſt hoſtilities againſt Zara, a ſtrong city in Sclavonia, which had renounced its allegiance to Venice, and implored the protection of the king of Hungary. This city was ſoon compelled to ſurrender; but this commencement of their military career occaſioned great diſguſt and complaint. The pope excommunicated the falſe cruſaders, who had pillaged and maſſacred their brethren, the Hungarians, actually enliſted under the banner of the croſs: and none but the marquis Boniface and Simon of Montfort, who were abſent, eſcaped theſe ſpiritual thunders. The cruſaders formed an alliance with young Alexius, the Greek prince; who promiſed in his own and his father's name, that as ſoon as they ſhould be ſeated on the throne of Conſtantinople, they would terminate the long ſchiſm of the Greeks, ſubmit to the lawful ſupremacy of the Roman church, pay the cruſaders, for their ſervices, 200,000 marks of ſilver, and accompany through Egypt, or maintain during a year 10,000 men, and during his life, 500 knights, for the ſervice of the Holy Land. The alliance was ratified by mutual oaths and ſeals. They then proceeded towards Conſtantinople with all poſſible ſpeed, which they beſieged and captured. Thus was this cruſade diverted from Syria to Conſtantinople, and the conqueſt of the Greek or Roman empire by the Latins.

The *ſixth* cruſade was undertaken A.D. 1217, under the pontificate of Honorius III. by the confederate army of Italy and Germany. The allied army was commanded by Andrew, king of Hungary, who was joined by Leopold, duke of Auſtria, Lewis of Bavaria, and ſeveral other princes. In this cruſade 200,000 Franks were landed at the eaſtern mouth of the Nile, and it was expected that Paleſtine might be ſubdued in Egypt, the ſeat and ſtorehouſe of the ſultan. After a few months abſence Andrew returned into Europe. The remaining chiefs carried on the war with vigour, and in the year 1220 made themſelves maſters of Damietta, the ſtrongeſt city in Egypt; but their proſperity was of ſhort duration; for in the following year their fleet was totally ruined by that of the Saracens, their proviſions cut off, and their army reduced by ſickneſs and other cauſes to the greateſt diſtreſs. This irreparable loſs was followed by that of Damietta, and their expectations were completely fruſtrated. By the evacuation of Damietta they obtained a ſafe retreat, ſome conceſſions for the pilgrims, and the tardy reſtitution of the doubtful relic of the true croſs. The failure has been aſcribed, in ſome meaſure, to the abuſe and multiplication of the cruſades, which were preached at the ſame time againſt the Pagans of Livonia, the Moors of Spain, the Albigeois of France, and the kings of Sicily of the imperial family.

A *ſeventh* cruſade was undertaken by the emperor Frederick II., who ſet out A.D. 1228, after having been excommunicated for his delay by the incenſed pontiff Gregory IX. As ſoon as he landed in Paleſtine, he turned all his thoughts towards peace, and without conſulting the other princes and chiefs of the cruſade, concluded, A.D. 1229, a treaty of peace, or rather a truce of 10 years, with Melic-Camel, ſultan of Egypt. He ſtipulated, among other things, that he ſhould be put in poſſeſſion of the city and kingdom of Jeruſalem; which condition was immediately executed, and the emperor, entering into the city with great pomp, placed the crown upon his head with his own hands; and he then returned without delay into Italy, to appeaſe the diſcords and commotions which the vindictive and ambitious pontiff had excited in his abſence. The expeditions that followed were leſs important and leſs ſucceſſful. In 1239 Theobald VI., count of Champagne and king of Navarre, ſet out from Marſeilles for the Holy Land, accompanied by ſeveral French and German princes; and in the following year another expedition was undertaken by Richard, earl of Cornwall, brother to Henry III., king of England. The former of theſe expeditions failed through the influence of the emperor's ambaſſadors in Paleſtine, who renewed the truce with the Mahometans; while, on the other hand, a conſiderable body of Chriſtians was defeated at Gaza, and ſuch as eſcaped the carnage returned to Europe. This fatal event was chiefly owing to the diſcords that ſubſiſted between the Templars and the knights of St. John of Jeruſalem. Hence it happened, that the arrival of Richard, induſtriouſly retarded by Gregory IX., and which had ſomewhat revived the hopes of the vanquiſhed, was ineffectual to repair their loſs. The utmoſt which he could accompliſh was to conclude a truce with the ſultan of Egypt, in the year 1241, after which he immediately ſet ſail for Europe.

The *eighth* cruſade was undertaken by Louis IX. king of France, in conſequence of a vow which he had made in the year 1248, on occaſion of a very dangerous illneſs: his firſt attempts, after he had arrived in Egypt with a formidable army and a numerous fleet, were crowned with ſucceſs; for Damietta yielded to his arms; but the progreſs of the war preſented one uniform ſcene of calamity and deſolation. Famine and peſtilence overwhelmed the royal army in 1250; Robert, earl of Artois, the king's brother, was ſlain in an engagement with the Saracen army; and, a few days after, the king himſelf, with two other brothers, and the greateſt part of his army, were taken priſoners in a bloody action after a bold and obſtinate reſiſtance. The ranſom of this prince, together with the reſtoration of Damietta, coſt a ſum, which in our days would amount to about 190,000 pounds ſterling. After having remained four years in Paleſtine, he returned to France in 1254, with the ſmall remnant of his formidable army.

The *ninth*, and laſt, cruſade was renewed by the ſame valiant, but unfortunate monarch; who, with a formidable fleet and a ſplendid train of princes and nobles, arrived upon the African coaſt, and made himſelf maſter of the fort of Carthage. But a peſtilential diſeaſe broke out in the fleet, in the harbour of Tunis, carried off the greateſt part of his army, and ſeized at laſt the ſovereign himſelf, who fell a victim to its rage on the 25th of Auguſt, A.D. 1270. Louis was the laſt of the European princes that embarked in the holy war; the dangers and difficulties, the calamities and diſaſters, and the enormous expences that accompanied each cruſade, diſpirited the moſt zealous, and diſcouraged the moſt intrepid promoters of theſe fanatical expeditions.

Towards the beginning of the 14th century, ſeveral attempts were made by the monarchs and princes of the weſt, inſtigated by the Roman pontiffs, to renew the war in Paleſtine againſt the Turks and Saracens. But their ſucceſs was not anſwerable to their zeal. Clement V. urged this buſineſs with the greateſt ardour in the years 1307, 1308, and appropriated an immenſe ſum of money for carrying it on with alacrity and vigour. John XXII. ordered a fleet of 10 ſhips to be fitted out in the year 1319 to tranſport an army of adventurers into Paleſtine, and had recourſe to the influence of indulgences for raiſing the funds neceſſary to the ſupport of this great enterpriſe. But it was a ground of complaints againſt their pontiff, that he made uſe of the holy war as a pretext to diſguiſe his avarice and ambition. Under the pontificate of Benedict XII., a formidable army was raiſed in the year 1330, by Philip de Valois, king of France, with a view of attempting the deliverance of Chriſtians in Paleſtine; but when he was ready to embark his troops, the apprehenſion of an invaſion from England obliged him to lay aſide the enterpriſe. In the year 1335, Clement V., at the requeſt of the Venetians, engaged, by the perſuaſive power of indulgences, a prodigious number of adventurers to embark for Smyrna; but the want of proviſions obliged them ſoon to return. Another formidable army was raiſed, A. D. 1363, in conſequence of the zealous exhortations of Urban V., and it was to be employed, under John, king of France, in an expedition againſt the infidels; but the unexpected death of that prince diſapppointed the expectations formed from this grand project, and occaſioned the diſperſion of the numerous body which had repaired to his ſtandard.

Although the cruſades, which waſted the population of Europe, and ſquandered away immenſe ſums of money, will ever remain in the records of hiſtory, as a ſingular monument of human folly; yet from theſe expeditions, extravagant as they were, beneficial conſequences followed, which had neither been foreſeen nor expected. In their progreſs towards the Holy Land, the cruſaders marched through countries better cultivated and more civilized than their own. Conſtantinople, in particular, was the greateſt, as well as the moſt beautiful, city in Europe, and the only one in which there remained any image of the ancient elegance in manners and arts. The naval power of the eaſtern empire was conſiderable. Manufactures of the moſt curious fabrick were carried on in its dominions. Conſtantinople was the only mart in Europe for the commodities of the Eaſt Indies. Great wealth flowed into the capital from theſe various ſources; which not only cheriſhed ſuch a taſte for magnificence, but kept alive ſuch a reliſh for the ſciences as appear conſiderable when compared with what was known in other parts of Europe. Even in Aſia, the European cruſaders found the remains of the knowledge and arts, which the example and encouragement of the caliphs had diffuſed throughout their empire. It was not poſſible for the cruſaders to travel through ſo many countries, and to behold their various cuſtoms and inſtitutions, without acquiring information and improvement. Their views gradually enlarged; their prejudices ſubſided; new ideas crowded into their minds; and they muſt be ſenſible, on many occaſions, of the ruſticity of their own manners compared with thoſe of a more poliſhed people. Theſe impreſſions would remain when they returned to their own countries. A cloſe intercourſe ſubſiſted between the eaſt and weſt for two centuries; new armies were continually marching from Europe to Aſia, while former adventurers returned home and imported many cuſtoms to which they had been familiarized by a long reſidence abroad. Accordingly we diſcover, ſoon after the commencement of the cruſades, greater ſplendour in the courts of princes, greater pomp in public ceremonies, a more refined taſte in pleaſure and amuſements, together with a more romantic ſpirit of enterpriſe ſpreading gradually over Europe; and to theſe wild expeditions, the effect of ſuperſtition and folly, we owe the firſt gleams of light which tended to diſpel barbarity and ignorance. Theſe effects, however, would be ſlowly produced; but the influence of the cruſades upon the ſtate of property, and conſequently of power, in the different kingdoms of Europe, was more immediate and more diſcernible. The nobles, who aſſumed the croſs, found it neceſſary to raiſe large ſums for theſe expeditions; but the genius of the feudal ſyſtem did not admit of the impoſition of extraordinary taxes; and therefore large ſums could be raiſed only by the ſale of their poſſeſſions. The ardour of their zeal diſpoſed them to alienate their ancient inheritances at a low price; and thus the monarchs

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narchs of different kingdoms, nine of whom engaged in the firſt cruſade, ſeized this opportunity of annexing conſiderable territories to their crowns at a ſmall expence. The fiefs likewiſe of thoſe great barons who periſhed in the holy war and left no heirs, reverted to their reſpective ſovereigns; and by this acceſſion of property and power, the regal authority increaſed in proportion as the ariſtocracy declined. The prerogative of ſovereigns was alſo extended in conſequence of the departure of thoſe powerful vaſſals, who were accuſtomed to limit and controul it; and thus they acquired a degree of weight in the conſtitution which they had not formerly poſſeſſed. Thoſe who followed the croſs were taken under the ſpecial protection of the church, and it denounced its anathemas againſt ſuch as ſhould diſguſt and wrong them; hence hoſtilities would be for a time ſuſpended, and extinguiſhed; and a more general and ſteady adminiſtration of juſtice would be introduced, and ſome advances would be made towards the eſtabliſhment of a more regular government in the ſeveral kingdoms of Europe. The commercial effects of the cruſades were not leſs conſiderable than thoſe that have been already recited. Venice, Genoa, and Piſa furniſhed the tranſports in which the cruſaders embarked; and theſe cities received immenſe ſums for freight on account of numerous armies. The cruſaders alſo contracted with them for proviſions and military ſtores; and whilſt the fleets kept on their coaſts as the armies advanced by land, theſe ſtates engroſſed all the profits of that lucrative branch of commerce. Beſides, they obtained grants of the moſt extenſive immunities in the ſeveral ſettlements which the Chriſtians made in Aſia. When the cruſaders ſeized Conſtantinople, and placed one of their leaders on the imperial throne, the Italian ſtates were conſiderable gainers by that event. Many valuable branches of the commerce, which formerly centered in that city, were transferred to Venice, Genoa, or Piſa. The wealth which thus flowed into theſe cities ſerved to eſtabliſh and to maintain their liberty and independence. By the increaſe of wealth, which was owing to the commerce reſulting from the cruſades, a ſpirit of activity and a paſſion for liberty and independence were excited; ſo that before the concluſion of the laſt cruſade all the conſiderable cities of Italy had either purchaſed or had extorted large immunities from the emperors. See CITY and CHARTERS *of Community*.

In tracing the conſequences and effects of the cruſades, Mr. Gibbon ſtates, that the intercourſe between Conſtantinople and Italy diffuſed the knowledge of the Latin tongue; and ſeveral of the fathers and claſſics were at length honoured with a Greek verſion. If we compare, he ſays, at the era of the cruſades, the Latins of Europe with the Greeks and Arabians, their reſpective degrees of knowledge, induſtry, and art, our rude anceſtors muſt be content with the third rank in the ſcale of nations. Their ſucceſſive improvement and preſent ſuperiority may be aſcribed to a peculiar energy of character, to an active and imitative ſpirit, unknown to their more poliſhed rivals, who, at that time, were in a ſtationary or retrograde ſtate. With ſuch a diſpoſition, the Latins might have derived eſſential benefits from events which opened to them a long and frequent intercourſe with the more cultivated regions of the Eaſt. Their firſt and moſt obvious progreſs was in trade and manufactures, in the arts, which are ſtrongly prompted by the thirſt of wealth, the calls of neceſſity, and the gratification of the ſenſe or of vanity. But the intellectual wants of the Latins were more ſlowly felt and ſupplied; and in the age of the cruſades, they viewed with careleſs indifference the literature of the Greeks and Arabians; nor did they derive any ſubſtantial advantage from it. The principle of the cruſades was a ſavage fanaticiſm; and the moſt important effects were analogous to the cauſe. Each pilgrim was ambitious to return with his ſacred ſpoils, the relics of Greece and Paleſtine; and each relic was preceded and followed by a train of miracles and viſions. The active ſpirit of the Latins preyed on the vitals of their reaſon and religion; and if the 9th and 10th centuries were the times of darkneſs, the 13th and 14th were the ages of abſurdity and folly. The embers of the arts of antiquity, as Mr. Gibbon conceives, were rekindled by the northern conquerors of the Roman empire; and after a long interval, from the reign of Charlemagne forward, the tide of civilization began to flow, about the 11th century, with a ſteady and accelerated courſe. During the two centuries of the cruſades, its increaſe was great, and its progreſs rapid; and ſome philoſophers, as we have already ſtated, have applauded the propitious influence of theſe holy wars: but Mr. Gibbon thinks, that they checked rather than forwarded the maturity of Europe. The lives and labours of millions, which were buried in the Eaſt, would have been more profitably employed in the improvement of their native country; the accumulated ſtock of induſtry and wealth would have overflowed in navigation and trade; and the Latins would have been enriched and enlightened by a free and friendly correſpondence with the climates of the Eaſt. In one reſpect Mr. Gibbon perceives the accidental operation of the cruſades, not ſo much in producing a benefit as in removing an evil. "The larger portion of the inhabitants of Europe was chained to the ſoil, without freedom, or property, or knowledge; and the two orders of eccleſiaſtics and nobles, whoſe numbers were comparatively ſmall, alone deſerved the name of citizens and men. This oppreſſive ſyſtem was ſupported by the acts of the clergy and the ſwords of the barons. The authority of the prieſts operated, in the darker ages, as a ſalutary antidote:—they prevented the total extinction of letters, mitigated the fierceneſs of the times, ſheltered the poor and defenceleſs, and preſerved or revived the peace and order of civil ſociety. But the independence, rapine, and diſcord, of the feudal lords were unmixed with any ſemblance of good; and every hope of induſtry and improvement was cruſhed by the iron weight of the martial ariſtocracy. Among the cauſes that undermined that Gothic edifice, a conſpicuous place muſt be allowed to the cruſades. The eſtates of the barons were diſſipated, and their race was often extinguiſhed, in theſe coſtly and perilous expeditions. Their poverty extorted from their pride thoſe charters of freedom which unlocked the fetters of the ſlave, ſecured the farm of the peaſant, and the ſhop of the artificer, and gradually reſtored a ſubſtance and a ſoul to the moſt numerous and uſeful part of the community. The conflagration which deſtroyed the tall and barren trees of the foreſt gave air and ſcope to the vegetation of the ſmaller and nutritive plants of the ſoil." Gibbon's Hiſt. Rom. Emp. vol. ii. Robertſon's Hiſt. ch. v. vol. i. Hiſt. Diſquiſ. concerning India, p. 131, &c. Smith's Wealth of Nations, vol. i. ch. 3. Moſheim's Eccle. Hiſt. vol. ii. and iii. Hume's Hiſt. vol. i. and ii.

Towards the middle of the 12th century, A. D. 1148, there was alſo a croiſade of the Saxons, againſt the pagans of the north, whom they determined either to convert or to extirpate. The attempt produced the uſual effects, ravages and murders, and then was dropped. In this croiſade the archbiſhop of Magdeburg, the biſhops of Halberſtadt, Munſter, Merſburgh, Brandenburgh, &c. with ſeveral lay-lords, embarked. And towards the beginning of the ſame century, under the pontificate of Innocent, there was alſo a croiſade undertaken againſt the Albigenſes; who were become powerful in Languedoc, &c. and who had no other

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crime but that of rejecting the tyranny, idolatry, and ſuperſtitions of the church of Rome. See ALBIGENSES.

When the opinions of Wickliffe were diſſeminated in Bohemia, as well as in England, the court of Rome was much alarmed; and pope Martin V. publiſhed a bull, A. D. 1428, which he ſent into England, as well as into other countries, commanding ſolemn proceſſions to be made, on the firſt Sunday of every month, in all churches and church-yards, in order to draw down the vengeance of heaven on the heretical Bohemians; and promiſing 60 days' indulgence to all who attended theſe proceſſions, or who ſaid 25 pater-noſters, with the ſame pious intention. His holineſs, not truſting entirely to ſupernatural interpoſition for the deſtruction of the enemies of the church, proclaimed a croiſade againſt the Bohemians, granting the pardon of all their ſins, and the happineſs of heaven, to all who contributed to its ſucceſs, in proportion to the value of the contribution. Many of the Engliſh engaged in this croiſade, which was conducted by the cardinal of Wincheſter.

The capture of Conſtantinople, May 29, A. D. 1452, by Mahomet II., emperor of the Turks, alarmed all the Chriſtian princes and ſtates of Europe. But theſe princes and ſtates were ſo much engaged in war, that they could not unite againſt the common enemy, but left it to the clergy to wield their ſpiritual weapons againſt thoſe adverſaries of the Chriſtian faith. Archbiſhop Kemp publiſhed in England March 2, A. D. 1453, an order for proceſſions to be made for a whole year, and he was followed in this courſe by his ſucceſſor; proceſſions being then regarded as the moſt effectual means of obtaining the divine favour and aſſiſtance. At length pope Pius II. (Æneas Silvius), publiſhed a long, eloquent, and pathetic bull, A. D. 1463, engaging to march in perſon, at the head of a Chriſtian army, againſt the Turks, and moſt earneſtly exhorting all Chriſtians to take the croſs, or to contribute by their money to the ſucceſs of the expedition; promiſing the pardon of ſin, and the happineſs of heaven to all who complied with his deſire: at the ſame time the pope ſent bulls into every Chriſtian country, impoſing a tax of one-tenth on the benefices of all the clergy. Edward IV., then king of England, not willing to acknowledge the pope's right to tax his clergy, and yet deſirous that they ſhould, on this occaſion, contribute liberally, wrote to the primate to raiſe a handſome ſum by voluntary aſſeſſment, which would ſatisfy the pope, and prevent the publication of his bull. This plan was adopted; but it was with great difficulty that the primate could prevail on the clergy to grant ſix-pence in the pound.

CROISE, LAKE *of*, *Iſle a la Croiſe*. See CROSSE.

CROISES, or CROIZES, in our *Ancient Cuſtoms*, pilgrims bound for the Holy Land, or who had already been there; ſo called from a badge which they wore on their garments, repreſenting a croſs. See CROISADE.

The word croiſes is alſo extended to the knights of St. John of Jeruſalem, created for the defence and protection of pilgrims; and all thoſe of the nobility, gentry, &c. who, in the reigns of king Henry II., Richard I., Henry III., and Edw. I., were *cruce ſignati*, *i. e.* dedicated themſelves to the wars for the recovery of the Holy Land.

CROISIE, LE, in *Geography*, a ſmall town of France, in the department of the Lower Loire; 9 miles N. of the mouth of the Loire, with a good harbour, and 306 miles S.W. of Paris. E. long. 15° 8′ 18″, and N. lat. 47° 17′ 40″, according to the French computation. It is the chief place of a canton, in the diſtrict of Savenay, and one of the 84 maritime quarters into which all the principal ſea-port towns of France are divided, with a judge of admiralty, to whom the maritime ſyndics of St. Nazaire, Montoir, Meſquer, and Redon are ſubordinate, and who, in his turn, is ſubordinate to the admiralty court of L'Orient. Le Croiſie contains 2310, and the canton itſelf 5564 inhabitants in two communes, and on a territorial extent of 52½ kiliometres.

CROISIERS, CRUCIGERI, or *Croſs-Bearers*, a religious order, or congregation of regular canons, ſo called.

There are three orders which have, or do ſtill bear this name; one in Italy; another in the Low Countries, and a third in Bohemia.

The firſt pretend to be derived from St. Clet; and add, that St. Quiriacus the Jew, who ſhewed S. Helena the place of the true croſs, and was afterwards converted, reformed them. All we know for certain is, that they ſubſiſted in Italy before Alexander III. mounted the throne; for that pontiff, flying from Frederic Barbaroſſa, found an aſylum in the monaſteries of the croiſiers, which he afterwards, in 1169, took under his protection, giving them the rule of St. Auguſtine, &c.

They were confirmed by Pius V.; but the diſcipline being much relaxed, they were ſuppreſſed, in 1656, by Alexander VII.

Matt. Paris ſays, that the croiſiers, bearing ſtaffs with croſſes at the end, came into England in 1244, and preſented themſelves before a ſynod held by the biſhop of Rocheſter, demanding to be admitted. They were here called *crouched* friars.

Dodſworth and Dugdale mention two monaſteries of this order in England, the one at London, the other at Ryegate; the firſt founded in 1245, the latter in 1298; ſome add a third at Oxford, where they were received in 1349. M. Allemand ſays, there were fourteen monaſteries of croſs-bearers in England; adding, that they came from Italy; thoſe of the Low Countries diſowning them.

The croiſiers of the Low Countries and France were founded in 1211, by Theodore de Celles, ſon of Boſon, who, having ſerved in a croiſade in Paleſtine, in 1188, and there found ſome of the croiſiers inſtituted by St. Clet, conceived a deſign of inſtituting another congregation in his own country. This is certain, that Theodore, in his return from Paleſtine, engaged himſelf in the eccleſiaſtical ſtate; and went in quality of miſſionary to the croiſade againſt the Albigenſes: and that at his return, in 1211, the biſhop of Liege gave him the church of St. Thibault near Huy; where, with four companions, he laid the foundation of his order; which was confirmed by Innocent III. and Honorius III. Theodore ſent his religious to Tholouſe, to join thoſe of St. Dominic, and combat the Albigenſes; and the congregation multiplied in France. The popes have endeavoured to bring the croiſiers of Italy under thoſe of Flanders. The croiſiers, or port croix with a ſtar, in Bohemia, derive their origin from St. Quiriacus, and ſay they came from Paleſtine into Europe, where they embraced the rule of St. Auguſtine, and built monaſteries. They add, that St. Agnes of Bohemia, to diſtinguiſh them from other croiſiers, obtained of Innocent IV. to add a ſtar to their habit. But the ſtory of St. Quiriacus has no foundation; and it was Agnes herſelf, daughter of Primiſlaus, king of Bohemia, who inſtituted the order at Prague, in 1234. They are very numerous, and have now two generals.

CROISILLES, in *Geography*, a ſmall town of France, in the department of Pas-de-Calais, chief place of a canton, in the diſtrict of Arras, with a population of 972 individuals. The canton has 28 communes, and 14,487 inhabitants, upon a territorial extent of 185 kiliometres.

CROISSANT CONTOURNE', in *Heraldry*, denotes the half moon, looking to the left ſide of the ſhield.

CROISSANTE', Croix, is a croſs creſcented; that is, having a creſcent, or half-moon, fixed on each end thereof.

CROISSILLE, in *Geography*, a town of Savoy, in the duchy of Geneva; 11 miles N.N.W. of Annecy.

CROISSY, a ſmall town of France, in the department of Seine and Marne; 15 miles E. of Paris, and 3 miles from the left ſhore of the Marne. Before the French revolution of 1789, it conferred the title of marquis on the lords of the manor.

CROITES Romos, in *Ancient Geography*, the name given to the territory of the town of *Cros*, ſituated in Egypt. Steph. Byz.

CROIUS, John, in *Biography*, a French Proteſtant miniſter, who flouriſhed in the 17th century, was born at Uſeze, where he officiated as a miniſter. He was a conſiderable writer on controverſial ſubjects; but his principal work was in Latin, intitled, "Obſervationes ſacræ et hiſtoricæ in Novum Teſtamentum," 1644. In early life he was reckoned a high Calviniſt, but afterwards embraced the ſentiments of the Univerſaliſts. He died in the year 1659.

CROIX-DU-MAINE, Francis Grudé de La, a writer frequently referred to by the French literati, was born in the province of Maine in 1552. He was educated at Paris, and diſcovered, at an early age, a great paſſion for collecting books. In 1584, he publiſhed a general catalogue of all French writers, intitled, "Bibliothèque Françoiſe." He was author alſo of a plan of a complete library, addreſſed to Henry III. He was aſſaſſinated at Tours in 1592. A new edition of his Bibliothèque was publiſhed with that of Verdier, in 5 vols. 4to. 1772, 1773.

Croix, de La, G. a French landſcape-painter of ſome eminence, the ſcholar of Vernet, whoſe ſtyle he adopted. Several prints have been engraved from the pictures of this maſter. We ſhall only mention the following: "Le Tybre, payſage & les orientaux au bord du Tybre," 2 large pieces, lengthways, engraved by Aliamet. "La Caſcade de Tivoli," by de Flumet. "Vue de Mont Veſuve," as it appeared in 1757, lengthways, 1762, by Le Mire. Heinecken.

Croix, de La, P. F. a portrait painter, a native of Holland, from whoſe pictures we have the following plates: "William V. Prince of Orange, and the Princeſs Caroline of Orange," two ſtanding figures, a pair, engraved by Tanjé, 1755. "Portraits of the ſame," a pair, by Houbraken. "Wolf Dietrich, Count of Beuchling," by Bodenehr. "J. Van Span," by J. Houbraken. "Eg. Buys," by the ſame. "Sebaſt. le Clerc, the Engraver," by Dupin. Heinecken.

Croix, *La, en Brie*, in *Geography*, a ſmall town of France, in the department of Seine and Marne; 6 miles W. of Provins, formerly a commandery of the order of Malta.—Alſo, a ſmall town of France, in the department of Eure; 6 miles N.E. of Evreux, properly called *La Croix Saint Leufroy*.

Croix, *La*, a mountain of Piedmont, in the diſtrict of the Four Vallies; 13 miles W. of Pignerol.

Croix, *Cape*, a cape on the W. coaſt of Africa, in the Mediterranean. N. lat. 30° 38′. W. long. 9° 55′.

Croix, *Sainte, Santa Crux*, one of the three Caribbee iſlands of the Virgin Group which the Danes poſſeſſed in the Weſt Indies, until the latter end of December, 1807, when the three Daniſh iſlands ſurrendered by capitulation to the Engliſh. Denmark had purchaſed St. Croix from France in 1733. It is ſituated about five leagues eaſt of St. Thomas, in the 64th degree of weſtern longitude, and the 18th of north latitude, ten or twelve leagues long, three or four broad, and interſected by ſeveral ſmall rivers. The air is rather unhealthy at certain times of the year, the whole iſland being almoſt level. The ſoil is uncommonly fertile.

St. Croix has many valuable ſugar and cotton plantations. It uſed to export annually from 20 to 24,000 hogſheads of ſugar, from 7 to 8000 puncheons of rum, and 150 cwt. of cotton. Chriſtianſtadt was the reſidence of the Daniſh governor. The population of this town exceeds 5000 individuals, and it has a good harbour.

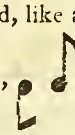
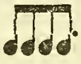
In 1796 this iſland had a population of 2223 white, 1164 free negroes, and 25,425 negro ſlaves; but the importation of ſlaves into the Daniſh iſlands has ceaſed ſince 1803. There were in St. Croix 160 ſugar plantations, each of which gave 150 hogſheads of 10cwt.

The other two Daniſh Weſt India iſlands, which are likewiſe in poſſeſſion of the Engliſh at preſent (1808), are St. Thomas and St. John. The three iſlands had been taken by the Engliſh in 1801, during the ſhort war between Great Britain and Denmark, on account of the revived convention of armed neutrality; but they had been reſtored after the memorable battle of Copenhagen of the 27th of April, 1801. (Oxholm's Daniſh Account of the Daniſh Weſt India Iſlands.)—Alſo, a ſmall town of France, in the department of the Upper Rhine, 12 miles north of Enſiſheim, in the diſtrict of Colmar.

Croix, *St.*, or *Santa Cruz*, a town of Luconia, one of the Philippine iſlands, which is ſeparated from Manilla by a river that flows under the walls of this city, and ſerves as a harbour for merchant ſhips. St. Croix is in part equally well built with the capital; peopled with Indians and Spaniards in conſiderable numbers, and ſurrounded by three villages of the natives, which may be regarded as ſuburbs.

Croix, *St.* a ſmall navigable river in Nova Scotia, which runs into the Avon or Pigiguit.—Alſo, a river which forms part of the boundary-line between the United States of America, and the Britiſh province of New Brunſwick, and diſcharges itſelf into Paſſamaquoddy bay.—Alſo, a river in the north-weſt territory, which runs into the Miſſiſſippi from the N.N.E. about 50 miles below the falls of St. Anthony.

CROLIES, a ſmall town of France, in the department of the Iſere, 12 miles N.E. of Grenoble.

CROMA, Ital. in *Muſic*, the character which in Engliſh is called a quaver. It is the eighth part of a ſemibreve; has a black head, like a crotchet, and a hook at the tail: thus, when ſingle, ; but when united with other *quavers*, it has a ſingle tie; thus, . See Crotchet, and Time-table.

CROMACH Craig, in *Geography*, a mountain of Scotland, in the county of Perth; 5 miles N. of Crieff.

Cromack *Head*, a cape of Scotland, on the N. coaſt of the county of Bamff; 3 miles N.W. of Cullen.

CROMARTY Harbour, in Cromartyſhire, in Scotland, is a ſpacious and ſafe retreat for ſhips, at the entrance of Murray Firth, about 18 miles to the eaſtward of the commencement of the Invernefs and Fort William, or Caledonian canal; ſee Canal. This harbour was ſurveyed in 1801 by Mr. Thomas Telford, with a view to ſome improvements therein for the better accommodation of ſhips, intending to paſs or having paſſed the Caledonian canal, connecting the eaſt and weſt Britiſh ſeas.

CROMARY, a town of France, in the department of the Saône, and diſtrict of Vezoul; 2½ leagues N. of Beſançon.

CROMATIC *French Horns*, in *Muſic*, were inſtruments manufactured by Charles Clagget, of Greek-ſtreet, Soho, which, we are told, were capable of producing the full cromatic ſcale of the organ, without the aid of crooks, or the inſtrument undergoing any ſort of change. On the 15th of April 1791, a trial of two of theſe inſtruments was made in a concert in the New Rooms at Bath, in the preſence of a full company, when the performers are ſaid to have performed their parts in ſeveral airs of Haydn's, Giardini's, &c. and to have modulated as far as ſeven flats, in perfect harmony with the violins, violincellos, &c. every intonation being pointed, clear, quick, and in the natural tone of the inſtrument.

CROMAU, Crumau, or Krumlow, in Latin *Cromena*, in *Geography*, a ſmall but well built town of Bohemia, in the circle of Bechin, or Bechynſko, on the river Mulda. It has a good citadel, and a college of Jeſuits, and confers the title of dukes on the princes of Schwartzenberg, to whom it belongs. There are ſome ſilver mines in its neighbourhood.

CROMBACH, a town of Germany, 7 miles N.E. of Siegen.

CROME, or Croom, in *Agriculture*, a name provincially applied to an implement of the fork kind, with crooked or hooked prongs. Thus we have muck crooms, turnip crooms, &c.

CROMER, Giulio, called Il Croma, in *Biography*, a painter of ſome reputation in his time, who was born in Ferrara, about the year 1572. He was the ſcholar of Domenico Mona, but his ſtyle more reſembles that of Jacopo Bambini, another Ferrareſe painter of that period. The pictures of this artiſt evince much ſtudy, and conſiderable correctneſs of deſign; but they are characteriſed by the reddiſh tint which pervades his carnations, and a too oſtentatious introduction of architectural decoration. In the church of S. Andrea in Ferrara are ſeveral large compoſitions by this maſter, repreſenting the actions of that ſaint, beſides ſome ſmall altar-pictures. Cromer died in 1632.

Cromer, in *Geography*, a town of England, ſituated on the N.E. coaſt of the county of Norfolk, having a harbour for fiſhing veſſels, and chiefly inhabited by fiſhermen. Attempts have been made for erecting a pier, but hitherto without ſucceſs, the ſea waſhing it away. This town appears to have been formerly much larger than it is now: as it had two churches, one of which has been demoliſhed by the inundation of the ſea. It is now a place of reſort for ſea-bathing; and has a weekly market on Saturday; 23 miles N. of Norwich, and 127 N.N.E. of London. N. lat. 52° 55'. E. long. 0° 30'.

This place has no harbour for ſhips, but veſſels of 60 to 100 tons burthen are laid upon the ſandy beach, where carts can be drawn to them when the tide retires, and thus, coals, tiles, oil-cakes, and other commodities are imported for the uſe of the inhabitants, and ſome corn is exported. A lighthouſe ſtands about three-quarters of a mile eaſtward of the town, lighted by 15 argand lamps, each with a large plated copper reflector behind it, arranged round an upright axis, which, by means of a large clock-movement, is made to revolve once in a minute, conſtantly preſenting to the mariner off the coaſt, a ſeries of moving lights, ſo different from any other, as to be immediately diſtinguiſhed in the night.

CROMFORD Canal. This is the parliamentary name of a navigable canal in the counties of Nottingham and Derby, of about 18 miles in length, cut about 15 years ago, for carrying coals, corn, &c. up into the mining diſtrict of Derbyſhire, and bringing down lead, mill-ſtones, grind-ſtone, lime-ſtone, marble, &c. for exportation, by means of the Erewaſh and Nottingham canals with which it connects; ſee our article Canal, wherein we omitted to mention a ſhort collateral cut to Lea bridge ſtone-ſawing mill and wharf; it is near half a mile in length from the Derwent aqueduct bridge, and is level with the line, except in time of floods, when a lock is uſed for turning the ſame over the weir at its top, into Lea brook. Meſſrs. Dadford, Shaveſby, Benjamin Outram, and Edward Fletcher, were employed as engineers with Mr. Jeſſop, on different parts of the works of this canal.

Cromford, a town in the pariſh of Wirkſworth, Derbyſhire; within 35 years paſt this place has increaſed in population, ſo as to have become a conſiderable town: the *Cromford Canal* terminates at this town (which ſee). Cromford ſough, a ſubterraneous drain or paſſage of near two miles in length cut in the ſolid lime-ſtone rock, for freeing the lead mines near Winſter of water, at an expence exceeding 30,000 *l.*, gave riſe to the ſubſequent proſperity of this place, by furniſhing an opportunity to Mr., afterwards ſir, Richard Arkwright, to erect his firſt cotton ſpinning mill, to which another ſimilar eſtabliſhment has ſince been added. The late ſir Richard Arkwright erected a ſpacious and convenient chapel of eaſe for this town, of the ſalmon-coloured grit ſtone, which is dug on the S.E. ſide of the town, above the lime-ſtone Shale ſtratum. The ſame patriotic individual contributed much to the ornament of the environs of this town, by his plantations and other improvements. Stocking-weaving and lace-weaving are carried on to ſome extent in this town, whoſe inhabitants, the girls in particular, are much ſubject to a diſeaſe called the thick neck, from a tumour which forms in that part, which is ſaid by ſome to be hereditary.

CROMIS, in *Ichthyology*, the *coracinus braſilienſis* of Ray, the *guatucupa* of Marcgrave, and the Labrus *cromis* of Gmelin; which ſee.

CROM-LECHE, in *Britiſh Antiquity*, derived, according to the conjecture of Mr. Rowlands, from the Hebrew *carem-luach*, a devoted ſtone or altar, are huge, broad, flat ſtones, raiſed upon other ſtones ſet up on end for that purpoſe. They are common in Angleſey; and Mr. Rowlands (Mona Antiqua Reſtaurata), ſuppoſes, that they are the remains of altars erected there by the firſt coloniſts.

Mr. Gough, in his "Sepulchral Monuments of Great Britain," ſuppoſes, that theſe cromleche were Daniſh monuments. Mr. King, in his "Monumenta Antiqua," vol. i. inclines to think, that they were altars for idolatrous ſacrifices. Mr. Toland alſo, in his "Hiſtory of the Druids," mentions, that the cromleche were altars of a larger ſize than thoſe denominated "carns," or "cairns," and conſiſting of a greater number of ſtones; ſome of them ſerving to ſupport the others, on account of their enormous bulk. They were placed in the centre of the circular temples of the Druids, and near them has been found, occaſionally, a prodigious ſtone, which ſerved as a pedeſtal to ſome deity. He ſays, that they were places of worſhip, and ſo called from *bowing*, the word being derived from *crom* or *crum*, which, in Armoric, Iriſh, or Welſh, ſignifies "bent," and *lech*, or *leac*, "a broad ſtone," and ſignifying the "bowing-ſtone." Mr. Toland mentions a cromlech in Nevern pariſh in Pembrokeſhire, South Wales, having the middle ſtone 18 feet high, and 9 broad towards the baſe, but narrowing upwards: and by it there lay a broken piece 10 feet in length, which ſeemed to be of a weight heavier than 20 oxen could draw. But at Poitiers in France, there is one ſupported by 5 leſſer ſtones, much exceeding all in the Britiſh iſlands, as it is 50 feet in circumference. This he conceives to have been a "Rocking-ſtone." At Bodouyr, in Angleſea, there is a noble cromlech; many of them are 30 ton in weight; but they differ in ſize, as all pillars do; and the altars are always larger than the "Kiſtieu-vaen." In ſome parts of Wales theſe ſtones are called "Meineuguyr," importing the ſame with "cromleche." In Caithneſs, and other remote parts of Scotland, theſe cromleche are very numerous, ſome of them pretty entire, and others, not ſo much conſumed by time and overturned by ſtorms, as diſordered and demoliſhed by the hands of men. But no ſuch altars were ever found by Olaus Wormius, the great northern antiquary, nor by any others, in the temples of the Gothic nations, or of thoſe who ſpeak the ſeveral dialects of Gothic original, from Ireland to Swiſſerland, and from the Bril in Holland, to Preſburg in Hungary, the Bohemians and Polanders excepted. Among the Germans there were no Druids, and they had no ſacrifices; and therefore to the former altars were as uſeleſs as they were neceſſary to the latter. In Jerſey likewiſe, as well as in the other neighbouring iſlands, there are many altars and cromlechs. The principal cromlech in Ireland was "Crum-cruach," which ſtood in the midſt of a circle of 12 obeliſks, on a hill in Breſin, a diſtrict of the county of Cavan, formerly belonging to Leitrim. It was wholly covered with gold and ſilver; the leſſer figures on the 12 ſtones about it being only of braſs; which metals, both of the ſtones and ſtatues they bore, became every where the prey of the Chriſtian prieſts, upon the converſion of that kingdom. The druidical altars of a ſmaller ſize were called "carns," or "cairns." Theſe carns conſiſted of ſtones of all ſorts, from one pound to a hundred: they are round in form, and ſomewhat tapering or decreaſing in ſize upwards; but on the ſummit was always a flat ſtone: ſome of them contain at leaſt 100 cart-loads of ſtone: and if any of them be grown over with earth, it is by accident, in the long courſe of time during which they have been neglected; for this was not intended when they were firſt conſtructed, as was the caſe with regard to the ſepulchral barrows of the Gothic nations, which are generally of earth. Such a place is in the ancient Celtic language, and in every dialect of it, called "Carn," and every carn was ſo diſpoſed as to be within view of ſome other. On the carn, called "Crig-y-dyon," in the pariſh of Trelech, in Carmarthenſhire, the flat ſtone on the top is 3 yards in length, 5 feet over, and from 10 to 12 inches thick. The circumference of this carn at the baſe is about 60 yards, and its height about 6 yards: the aſcent being very eaſy: though perhaps a ladder was originally uſed for this purpoſe. In proceſs of time, the carns ſerved every where for beacons; though they were originally deſigned for fires of another nature. See Belenus and Bel-tein.

Of the altars called carns, many are to be ſeen entire in Wales, particularly two in a pariſh of Denbighſhire, hence called "Kerig-y-Drudion," or Druid's ſtones, and one in Llan-Hammwlch pariſh, in Brecknockſhire. Theſe Druids' altars were commonly placed in the middle of the temples, near the great ſtone or coloſſus, which we have already mentioned; ſuch as that at Carn Llechart, in the pariſh of Llan-gyvelach, near Swanſea, in Glamorganſhire, and others in Scotland. Theſe are called by the Welſh, in the ſingular number, "Kiſt-vaen," that is, a ſtone-cheſt; and in the plural, "Kiſtieu-vaen," ſtone-cheſts. But they denote things quite different from thoſe real ſtone-cheſts or coffins, commonly of one block and the lid, that are in many places found under ground. Wherever a circle occurs without an altar, it is certain that there was one formerly; as altars are found where the circular obeliſks are moſtly or all taken away for other uſes, or from an averſion to this ſuperſtition, or becauſe time has deſtroyed them. Thoſe who adopt the opinion, now commonly received, from the bones which are often found near theſe altars or circles, though ſeldom within them, that they were burying-places, forget what Cæſar, Pliny, Tacitus, and other authors affirm, concerning the human ſacrifices offered by the Druids; and in miſtaking the aſhes found in theſe carns, they betray an ignorance of thoſe anniverſary fires and ſacrifices for which they were reared. The huge coping-ſtones of theſe carns were to ſerve as altars, and altars of the leſſer form are frequently found near them; as in the large Latin and Greek churches, there are, beſides the high altar, ſeveral ſmaller ones.

CROMMYON, or Cromyn acris, in *Ancient Geography*, a promontory of the iſle of Cyprus, at the extremity of the peninſula, towards the north, between Soloé to the ſouth-weſt, and Lapathus to the ſouth-eaſt. It is now Cape Cormachitti.—Alſo, a village of Greece, in the territory of Corinth.

CROMMYONESUS, the name given by Pliny to a ſmall iſland of Aſia Minor, which he places in the vicinity of Smyrna.

CROMNA, a town ſituated on the coaſt of Paphlagonia, near the river Parthenius. Steph. Byz. ſuppoſes this place to have been the ancient Amaſtris; but Arrian ſtates that they were at the diſtance of 120 ſtadia from one another. The deſtruction of Cromna, however, contributed to the aggrandizement of Amaſtris.

CROMNUM, a town of Greece, in the Peloponneſus, ſituated near Megalopolis.

CROMONT, in *Geography*, a ſmall town of France, in the department of the Somme, 9 miles E. of Abbeville.

CROMORNE, *Fr.* in *Muſic*, a reed-ſtop in moſt of our old organs, built by Father Smith, and other Germans. And we believe that the word is of German origin: as krumon is crooked, and the name of this ſtop ſhould be written krumhorn. Whether it was at firſt intended that the tone of this ſtop ſhould imitate a cornet, a ſhawn, or a baſſoon, is not ſettled. Menage, in his Dict. Etym. thinks the latter; and the tone certainly reſembles a baſſoon more than any other inſtrument.

CROMPTON Point, in *Geography*, the N.E. point of the iſland of Dominica. N. lat. 15° 42′. W. long. 61° 21′.

CROMWELL, Thomas, earl of Eſſex, in *Biography*, was the ſon of a blackſmith at Putney, in Surrey, but who became inveſted with great authority, and at length was ſacrificed by the prince whom he had long and faithfully ſerved. In what manner Thomas Cromwell was educated, and for what profeſſion he was particularly intended does not appear, but we find him early in life ſituated as clerk to the Engliſh factory at Antwerp. In the year 1510 he viſited Rome; and it has been thought he ſerved as a ſoldier in the duke of Bourbon's army, and that he was preſent when that city was plundered. See Rome. As, however, this happened in the year 1527, and it is known that Cromwell was actively employed in England ſooner than this period; the conjecture is probably without foundation. He was patroniſed by cardinal Wolſey, and aſſiſted him in founding the two colleges at Oxford and Ipſwich, and in procuring, in 1525, the ſuppreſſion of ſome monaſteries for their endowment. When the cardinal was diſgraced, Cromwell uſed his utmoſt efforts to reſtore him to his ſovereign's favour; and by his exertions in the houſe of commons, of which he was a member, he prevented the paſſing of the articles of treaſon exhibited there againſt him. For his intrepidity on this occaſion, he obtained the king's favour, and was taken into his ſervice, in which he engaged with more zeal than honeſty. He ſuggeſted to Henry a project for raiſing a ſupply of money of his clergy, who through fear gave up, as a gift, about 120,000*l*. For this and other ſervices he obtained the honour of knighthood, which was in higher eſtimation at that period, than it is now; he was alſo appointed one of the privy-council; and in 1534 roſe to the poſts of principal ſecretary of ſtate and maſter of the rolls. In the following year he took an active part in the ſuppreſſion of the monaſteries, for which purpoſe he was made viſitor-general, and is ſaid to have exerciſed the office without any regard to the principles of juſtice or humanity. His ſervices were, however, rewarded by the king, who advanced him to the poſt of lord-keeper of the privy-ſeal, and to a ſeat in the houſe of peers, by the title of lord Cromwell of Okeham. After the abolition of the pope's ſupremacy, lord Cromwell, under the title of king's-vicar-general, was placed at the head of the whole eccleſiaſtical power in the kingdom. His influence in this ſituation he employed in favour of the reformation, to which he was apparently much inclined from conviction, having in early life committed to memory Eraſmus's tranſlation of the New Teſtament, and having been prepoſſeſſed in favour of the principles of the reformers during his reſidence in the Low Countries. Without referring to the minuter acts by which he promoted the cauſe which he had eſpouſed, we may obſerve that he encouraged an Engliſh tranſlation of the Bible, of which, when finiſhed, he directed a copy to be provided for every pariſh church. This in thoſe times was the moſt important and truly valuable gift that could have been made to a pariſh. Honours were ſtill increaſed on the head of lord Cromwell; he was appointed chief juſtice itinerant of the foreſts beyond Trent, and in 1539 was advanced to the dignity of earl of Eſſex, and lord high chamberlain of England. His fortune and his property in land were augmented in full proportion to his rank in life; he obtained many noble manors and eſtates out of the wrecks of the religious foundations. Envy and ill-will were, however, the conſtant companions of his good-fortune; he had in various inſtances laid himſelf open to his enemies, who never failed to take every advantage of his failings. The clergy hated him for his exactions on their body; the ancient nobility deſpiſed him on account of the meanneſs of his origin, and his ſudden elevation to the higheſt diſtinctions of the ſtate. To the friends of law and juſtice, his arbitrary proceedings againſt the innocent, or at leaſt againſt thoſe who were not permitted to defend themſelves, rendered him juſtly obnoxious. He had been chiefly inſtrumental in procuring the condemnation of the counteſs of Saliſbury and the marchioneſs of Exeter, on charges of high treaſon. Under ſuch circumſtances he could ſcarcely hope to finiſh his courſe without ſome reverſe, eſpecially ſince his only ſecurity was the will of a prince who was guided by no principle but that of gratifying his own paſſions at any price. Cromwell had recommended Anne of Cleves to Henry as a wife; from her he hoped for ſupport in the cauſe of the reformation, being a Lutheran. Her perſon did not anſwer the expectations of the king; he determined to diſmiſs her, and to avenge himſelf on Cromwell, who had been the means of uniting them. He was accordingly arreſted at the council table by the duke of Norfolk, a zealous catholic, on the charge of high treaſon; and, in conformity to the wicked precedent which he had given, he was condemned without being permitted to juſtify himſelf. He pleaded by an humble petition with the king; thrice was the prayer of the ſupplicant read to his majeſty, but he was inexorable; the great men of the earth rarely forgive, and Henry VIII. was not an exception to this rule. Cranmer, whoſe character we have already diſcuſſed and appreciated, was the only friend who ventured to acknowledge Cromwell in his misfortune: he wrote to the king, atteſting from his own knowledge, the loyal attachment of his faithful ſervant, and affirming, that "he loved his majeſty no leſs than his God." The decree was however paſſed, and Cromwell was beheaded on Tower-hill, July 28, 1540, declaring with his lateſt breath that he died in the catholic faith; which is ſcarcely to be accounted for on any principles of human action. Thus fell Thomas Cromwell, earl of Eſſex, under the weight of a tyrant's diſpleaſure, whom he had ſerved with fidelity, courage, and reſolution, in the moſt hazardous, difficult, and important undertakings. Mr. Hume denies that there were any grounds for the impeachment of lord Cromwell of treaſon, but admits that he juſtly merited his fate, for ſuffering himſelf to be the inſtrument of the king's tyranny in the caſe of the counteſs of Saliſbury and others. "He was," adds the ſame hiſtorian, "a man of prudence, induſtry, and ability, worthy of a better maſter, and of a better fate." Mr. Gilpin, ſpeaking of his condemnation, remarks, that "among all the arts of expediency, laid up in the cabinets of princes, the readieſt is to ſacrifice a miniſter. The death of Cromwell was repreſented to the king as the beſt mean of compoſing the people. But though prudential reaſons may oblige a prince to diſcard a miniſter, yet guilt only, and that nicely examined, can authorize an act of blood; the hand of a tyrant, however, generally throws aſide the balance. It is a nice machine, and requires pains and temper to adjuſt it. The ſword is an inſtrument more deciſive, and of eaſier diſpatch. Henry's was always ſtained with blood—often with innocent blood—but never with blood more innocent than that of Eſſex." Biog. Brit.

Cromwell, Oliver, one of the moſt diſtinguiſhed characters in Engliſh hiſtory, who raiſed himſelf to ſupreme power, from an obſcure ſituation, was ſon of Robert Cromwell and Elizabeth Stuart, his wife, and born at Huntingdon, on the 24th of April, 1599. At the free-ſchool in this town he received the early part of his education, which he completed at Sidney college, Cambridge. His attainments in literature were by no means conſiderable; and he has been charged with exhibiting, in his youth, all the turbulence of temper which was compatible with a ſyſtem of ſcholaſtic reſtraint. The death of his father called him home from Cambridge, and in a ſhort time after he was entered at Lincoln's-Inn, but, in the interval, the want of employment afforded him ſcope for indulgence in certain irregularities which gave his mother much uneaſineſs. In London he paid but little attention to the law, for the ſtudy of which he was intended, but giving into the vices of the town, he involved himſelf in expences, which the ſmallneſs of his fortune would ill ſupport, and reduced him to difficulties. Still, however, he has the apology uſually made, in like circumſtances, for youth; as he married before he had attained to the age of twenty-one, the daughter of ſir James Bouchier, and from this period he began to lead a grave and ſober life. By the death of his uncle, a few years after his marriage, he came in for an eſtate of nearly 500 *l. per annum*, which he had endeavoured to obtain before, by applying for a ſtatute of lunacy againſt his relation. Previouſly to this, he had been returned member of parliament for the borough of Huntingdon; but, on coming to his fortune, he removed to the Iſle of Wight, neglected the church, in which he had been educated, and openly joined himſelf to the Puritans. In 1628, he was elected member of parliament, and was ſhortly after appointed on the committee of religion, in which he diſtinguiſhed himſelf by his zeal againſt popery, and by complaining of the biſhop of Wincheſter's licenſing books of a very dangerous tendency. During the receſs from public buſineſs, he aſſociated much with the miniſters who had been ſilenced, and invited them to perform religious ſervices at his own houſe. By the ſupport which he gave to their cauſe, and by his reſtitution to perſons of property, of that which he had formerly gained by gambling, his affairs became again very much embarraſſed. In the hope of adding to his income by honeſt induſtry, he took a farm at St. Ives, which he held about five years, without experiencing thoſe gains which he had anticipated. Uneaſy at his preſent embarraſſed ſituation, he formed the project of embarking for the Weſtern world, which he would probably have put into execution, had he not been prevented by a proclamation againſt emigration. He now appeared in various uſeful concerns as a man of buſineſs, and was regarded by his friends as one deſigned for matters of higher import than fall to the lot of the generality of mankind. Oliver was elected member of the Long Parliament, for Cambridge, in the year 1640. From this event his future greatneſs is to be dated. In the houſe he was zealous and aſſiduous, and a very frequent ſpeaker, which gave him a conſiderable degree of influence, though he was deemed inelegant in his manners, and in his perſon he was remarkable ſlovenly and careleſs as to his dreſs. In 1641, he was the moſt active perſon in carrying the Remonſtrance, which was, in fact, the baſis of the civil war, and which was gained by a majority of nine only. This remonſtrance, of which we ſhall have occaſion to ſpeak more at large under the article ENGLAND, contained a conciſe hiſtory of the enormities of Charles's government, the evil counſellors who had guided and did guide him, and the miſchiefs which they had been meditating againſt the houſe itſelf, for their oppoſition to, and correction of, abuſes. It occaſioned a debate that laſted from noon, till ten o'clock the next morning, which has led ſome hiſtorians to compare the deciſion to the verdict of a half-ſtarved jury: it was, however, of ſo much importance to the cauſe of the oppoſition, that many from this time, who had been wavering in their politics, gave a decided voice againſt the meaſures of the court, and it diſpirited ſuch as adhered to the king ſo powerfully, that, from this period, they ventured to make no reſiſtance. Cromwell's firmneſs on the occaſion, contrary to the wiſhes of many leading men on the ſame ſide, who were willing to put off the diſcuſſion, was the principal cauſe of ſucceſs, and it ſo recommended him to Hampden, Pym, and others of the ſame party, that, from henceforward, they admitted him into all their councils. Naturally of a clear and penetrating mind, he ſoon obtained an inſight into every ſubject that was deemed of importance at the time, and ſo perfect a knowledge of his contemporaries, and of all their deſigns, that he was not only able to manage when they were removed, but even to contrive the means of diſmiſſing ſome, who, at this criſis, looked upon themſelves as his ſuperiors.

In the beginning of 1642, when parliament had determined upon the levy of forces, he went to Cambridge, where he raiſed a troop of horſe, of which he took the command by a commiſſion from the earl of Eſſex. Though ſubject to a higher authority, he engaged, of his own accord, in ſome ſpirited enterpriſes, which were very beneficial to his party. The celebrity that he acquired as a ſoldier laid the foundation of the greatneſs to which he afterwards attained as the ruler of the country. His ſucceſſes enabled him to increaſe his force, and he found himſelf in a very ſhort time colonel at the head of a thouſand well-diſciplined horſe-ſoldiers. Cromwell uniformly ſelected perſons of religious principle, who felt a zeal for the buſineſs in which they engaged, rightly judging that men of abandoned characters are never, on trying occaſions, to be truſted. His levies conſiſted of his countrymen, ſubſtantial yeomanry, and their ſons, whom he trained in excellent diſcipline, and rendered valiant by example and inſtruction. Cromwell has often been charged with hypocriſy, and where diſſimulation anſwered his ends, he doubtleſs made no heſitation in calling it in to his aid; but in this buſineſs he adopted the line of manlineſs and true courage: in addreſſing his men, he ſaid, "he did not mean to deceive them, by pretending to fight for king and parliament, for ſhould the king himſelf be found in the oppoſite army, he would as ſoon fire his piſtol upon him as upon another man."

Without attempting to trace the detail of Cromwell's military tranſactions, which will be given hereafter, we may obſerve that by various important ſervices he acquired the complete confidence of parliament, and was in the year 1643-4 made lieutenant-general of the horſe in the army of the duke of Mancheſter, and in the battle of Marſton-moor, July 3, 1644, his cavalry turned the fortune of the day, and gave the firſt ſevere blow to the royal party. He next diſtinguiſhed himſelf at the battle of Newbury, in which his valour was ſo conſpicuous, and the effects ariſing from it ſo very important, that he was ſtyled by his party "The Saviour of the Nation." By the diſcerning and the wiſe, his motives were ſuſpected; and his conduct was impeached in the houſe of lords as worthy of particular notice. He, on the other hand, exhibited charges of conſiderable moment againſt ſome members of the upper houſe. Theſe accuſations led to the carrying of the "ſelf denying ordinance," the profeſſed object of which was to exclude the members of both houſes from commands in the army. By this meaſure the earl of Mancheſter, the principal enemy to Cromwell, and other perſons of rank and conſequence, were excluded from offices in the army: from which, however, on the ſcore of his extraordinary merit, that ſet him above all ordinances, Cromwell was at firſt occaſionally, and at length abſolutely exempted. The chief command of the army was now committed to ſir Thomas Fairfax, a man of undoubted bravery, and unimpeachable integrity, but unfit to cope with Cromwell, who was lieutenant-general of the army. On the 15th of June, 1645, he diſtinguiſhed himſelf by the moſt brilliant exploits in the battle of Naſeby. On that occaſion he had the command of the right wing, and after Ireton had been beaten, and raſhly purſued out of the field by prince Rupert, it was Cromwell's charge which broke the king's infantry, and ſecured a complete victory. He followed up the ſucceſs of the day with other actions of high merit, and was rewarded by parliament with 2500*l.* *per ann.* and when he reſumed his ſeat in the houſe, thanks were returned to him in the warmeſt expreſſions, which he received with an affected humility, and declarations of profound ſubmiſſion to the will of that aſſembly. Thoſe who, in parliament, had excited the war, for the ſake of redreſſing grievances, and to ſet ſome bounds to the prerogative, were now deſirous of peace, to which they conceived nothing would ſo much contribute, as having the king's perſon in their hands. For this purpoſe ſir Thomas Fairfax was ordered to beſiege Oxford: the king however contrived to eſcape, and put himſelf into the hands of the Scots, who, at length, ſcandalouſly gave him up on condition of receiving a ſtipulated ſum of money. Parliament, having thus attained their object, was deſirous of diſbanding a part of the army. Cromwell, whoſe overgrown authority this meaſure was meant to check, contrived to turn it to his own advantage; and procured from the general regulation an exception for Fairfax's army, which was in fact his own. From this period, the ways of Cromwell were directed by a policy very difficult to unravel. Ambition was doubtleſs the paſſion that had faſtened on his mind: he ſought for power, and was careleſs as to the means of attaining his object. He profeſſed principles of deference and reſpect for the parliament, which he probably held in contempt: under the maſk of friendſhip for the fallen monarch he was plotting againſt his life. By his inſtigation, the king's perſon was ſeized by Cornet Joyce, who had no orders but the verbal inſtructions of Cromwell for what he did. When Charles was taken to head-quarters, the behaviour of the lieutenant-general was ſo reſpectful, that it was thought he meant to reſtore him to his loſt crown: he obtained a letter from the army to parliament to declare that their cauſe and that of the king was the ſame. By the arts of Cromwell, the king left Hampton Court, where he ſeemed to be gaining importance, and put himſelf into the hands of the governor of the Iſle of Wight, a perſon devoted to the intereſts of Cromwell. A ſecond civil war in defence of monarchy called him again into the field: he marched into Wales, quelled an inſurrection there; from thence he marched into Scotland, put the power into the hands of the other party, and made arrangements conformably to his own wiſhes, and then returned to London. In the mean time parliament opened a treaty with the king, which might have been concluded, had not Cromwell interfered: a detachment of the army ſeized the king's perſon, and lodged him in Hurſt caſtle, which was at firſt reſented by the parliament, who commanded the general to recal his orders; but inſtead of this a part of the army marched directly to London, took poſſeſſion of it, purged the houſe of commons of the beſt part of its members, and obliged the remainder to do what they pleaſed. The fate of the king was now drawing near, and it muſt be admitted that Oliver Cromwell was the prime mover in the cruel and bloody deed. He acted the hypocrite, and would willingly have kept through the whole buſineſs, in the back ground; but finding that his own energy was requiſite to accompliſh it, he came forward in the moſt public manner: he ſat in the court, ſigned the warrant, and probably procured not only the execution, but the executioner, whoſe name and character have never yet been fully aſcertained.

The conſtitution of the country was now deſtroyed, and in the ſtead of one ſovereign, there were nominally many, under the name of a Council of State, but Cromwell, who formed it, was the principal member. The ſpirit of the army, which he had foſtered for his own purpoſes, ſeemed to riſe againſt him; a mutiny broke out, which, however, by his vigilance and reſolution, was quelled without much ſerious miſchief. He was next called to Ireland, where three parties were oppoſed to each other, *viz.* the native catholics, the royaliſts, and the friends to the parliament. He went out in 1649 in quality of lord lieutenant, with ample powers, and with a full determination of reducing all to order. Here he practiſed the utmoſt rigour of the law of arms, and murdered a multitude of people who oppoſed his projects, under the milder title of military execution, a phraſe, which by others, as well as Cromwell, has been uſed to juſtify the moſt ſavage outrages againſt humanity. At Drogheda he is ſaid to have given up to the ſword more than 2000 veteran troops; and at Wexford, women and children did not eſcape his fury. By theſe means he reduced Ireland to obedience, and returned to London in the following ſpring, where he was received by the thoughtleſs multitude with the moſt triumphant exultation.

Soon after his return, it was diſcovered that the Scotch had invited Charles II., and were preparing an army in his ſupport. Cromwell recommended a previous invaſion of Scotland, and was himſelf appointed general commander in chief of all the forces of the commonwealth, ſtill keeping the lieutenancy of Ireland. Cromwell marched to Scotland at the head of 20,000 choſen troops, a ſtill larger army was raiſed to oppoſe him, which in the firſt conteſt were proved to be unequal to contend with the invaders. The battle of Dunbar, fought Sept. 3, 1658, terminated in a complete victory over the Scots, with great ſlaughter. Edinburgh caſtle fell in conſequence of this deciſive blow, and Cromwell reaped various other important ſucceſſes. In the mean time, Charles determined upon trying the ſtrength and attachment of his friends in England. Cromwell followed him, and at Worceſter on the 3d of September 1651, he obtained over the royal army what he denominated his "crowning victory," attended with the total deſtruction of his opponents. He now proceeded to London, where he was hailed with all the honours due to a conqueror and deliverer of his country. He was met by the parliament and its ſpeaker, the council of ſtate, and the magiſtrates of the city, who were aſſembled to render him the praiſe due to his ſucceſsful labours. A day of thankſgiving was appointed, and Cromwell himſelf was rewarded with 4000*l.* a year, taken from the forfeited eſtates. From this period he began to concert meaſures for ſecuring to himſelf the ſupreme power. The Long Parliament had become exceedingly unpopular in the country; they had long talked of diſſolving themſelves, but had always found pretexts for putting off the time to a more convenient opportunity. Cromwell took advantage of the odium which attached to an aſſembly that appeared determined to maintain the powers originally delegated to them for their country's good, with a view to the ſordid purpoſes of ſelf-intereſt. He reſolved upon a deciſive meaſure: he ſounded his friends, and talked to them of "*eſtabliſhing the kingdom*," a phraſe made uſe of to cover his real deſigns. He was well acquainted with human nature, and in every inſtance, he contrived to make perſons of different views, and almoſt oppoſite habits, ſuppoſe that their intentions, as to the remedy of evils, coincided with his own. To the ſober and religious, he complained of the ſcandalous lives, and diſſolute manners, of certain leading republican members. He expoſed the pride of ſome, the fraud of others, and the intereſtedneſs of all, except thoſe to whom he was immediately addreſſing himſelf. With the fifth-monarchy men, he converſed in their own ſtyle, profeſſing a deſire that the ſaints ſhould reign; but his real deſign he kept profoundly locked in his own boſom; ſo that all who were deſirous of a change, were willing to aid him in his efforts, upon the full perſuaſion that it would be ſuch a change as they themſelves wiſhed. Having thus prepared the way, on the 19th of April 1653, he called a council of officers, explained his deſigns, took a party of 300 ſoldiers, whom he placed about the avenues to the parliament-houſe, and entered himſelf, as a ſpectator of their proceedings. They were debating the neceſſity of continuing as a houſe till the November of the following year. Diſpleaſed with their arguments, he called major general Harriſon, and told him that he thought this was the proper moment for a diſſolution. Harriſon urged upon him the danger of the buſineſs: as if ſatisfied with his reaſons, he remained quiet a few minutes, till the very moment when the ſpeaker was about to put the queſtion for paſſing the act of continuing their duration, he then ſtarted up, and bade the ſpeaker to proceed at his peril: he commanded him to leave the chair, and told the houſe in a vehement tone that they had exiſted long enough, for the good they had performed. He then addreſſed individuals, charging them with vices which they probably could not deny, and for which they had no expectation of being called to account. A few of them attempted to reply; but his object was not debate,

bate, but deciſion. "Come, come," ſaid he, "I will put an end to your prating.—You are no longer a parliament; I ſay you are not a parliament;" and ſtamping with his foot, he bade them for ſhame begone, and give place to honeſter men. The ſoldiers inſtantly entered the houſe, one of whom he commanded to "take away the bauble," meaning the mace. An officer, at the ſame time, took the ſpeaker by the arm, and led him down from his ſeat. After which, with a degree of canting hypocriſy that never was ſurpaſſed, he addreſſed the houſe, ſaying, "It is you that have forced me upon this buſineſs, for I ſought the Lord night and day, that he would rather ſlay me than put me upon the doing this work." To conclude the ſcene, he ſeized the books and papers, turned the members out of the houſe, and locked the doors. His next ſtep was to diſſolve the council of ſtate, after which for a few days he governed by his own authority, calling to his aid a council of officers. Shortly after a new repreſentative body was ſummoned conſiſting of 142 members, who from their numbers were ſtyled the *Little*, from their manners the *Godly*, and from the name of one of its members, "Barebone's parliament." This body were found unequal to the charge which they had undertaken; the greater part from a ſenſe of weakneſs reſigned their power into the hands of Cromwell, and the reſt he forcibly diſmiſſed. The ſupreme power again devolved upon the officers, who conferred upon Cromwell the office of PROTECTOR OF THE COMMONWEALTH OF ENGLAND, SCOTLAND, and IRELAND. This happened Dec. 16, 1653, and he was ſolemnly inveſted with the high truſt in Weſtminſter-hall, and from this time he muſt be conſidered as the ſovereign of a great nation; his power was almoſt boundleſs, but he exerciſed it with prudence and dignity. He applied himſelf to ſtate affairs, made peace with Holland, and entered into treaties with Denmark, Sweden, and Portugal. France and Spain appeared ambitious of his friendſhip, and the general ſtate of Europe was ſuch as to give to England a large ſhare of conſequence among ſurrounding nations. In his domeſtic adminiſtration, he was an enemy to religious perſecution; and ſhewed a reſpect for the rights of conſcience. He diſplayed a zeal for juſtice, but was extremely ſevere in puniſhing conſpiracies againſt the ſtate, as he denominated thoſe which were levelled againſt himſelf. He ſummoned a parliament, in which Scotland and Ireland were united in ſending repreſentatives, and obtained by this method a ſupply of money neceſſary for the carrying on of government. This body was not ſufficiently obſequious to his will, and he diſſolved it in about five or ſix months. In 1655 an inſurrection broke out in the weſt of England, but Cromwell was too well informed of all the proceedings to feel any anxiety on this head; his numerous ſpies, and no monarch had more, gave him conſtant intelligence of every thing that paſſed, and he ſuffered the mal-contents to proceed far enough to involve themſelves in the penalties of treaſon, and then cruſhed them with a blow. Economy and frugality were not characteriſtics of Cromwell's reign, and the want of money led him to the ſeizure of property belonging to the king of Spain, which excited a war chiefly carried on in the Weſt Indies. In that quarter the reſult was not highly favourable to the Engliſh, unleſs in the ſubjection of Jamaica, which has continued ever ſince attached to this country. But the ſucceſſes of admiral Blake in the Mediterranean gave great importance to the protector's government, and raiſed him high in the opinion of foreigners. France was glad of an alliance, upon the condition of baniſhing the Stuart family from her realms, and giving up Dunkirk to England; and a ſplendid embaſſy from Sweden was ſent and received with great parade.

After the diſſolution of parliament, Cromwell's government might fairly be denominated a deſpotiſm, for the money was raiſed by his own decrees without the intervention of the people. He iſſued, among other mandates, one for inflicting the penalty of the tenth of the annual income upon all thoſe who had borne arms for the king, and commiſſioners were ſent into the ſeveral counties to levy the ſame, who were empowered to compound for the ſame on the terms of a three years' purchaſe. Such in thoſe days were the penalties of high treaſon.

In the year 1656, Cromwell had recourſe to another parliament in order to obtain the neceſſary pecuniary ſupplies; after he had obtained theſe he aimed at extorting from them the title of king, but his expectations not being anſwered, he contented himſelf with that of protector; he then attempted to form a new houſe of peers, but the ancient nobility refuſed to aſſociate with the ſons of the protector, and others whom he was anxious to raiſe to a ſimilar rank. About this period a pamphlet was written and circulated, entitled "Killing no Murder," inſiſting upon the right of tyrannicide; this work, which was the production of Titus, an officer in the army, made ſo deep an impreſſion on the mind of Cromwell, that he probably never enjoyed one hour's ſolid peace after the peruſal. New conſpirators were diſcovered, and many ſuffered, ſome in conſequence of projects diſcovered before they could be attempted, and others to allay the fears of the uſurper. Among theſe were ſir Henry Slingſby, and Dr. Hewett, a clergyman of the church of England; for the latter every intereſt was made, particularly by the protector's favourite daughter, but the irrevocable ſentence was paſſed and carried into execution. She fell ſick, and with almoſt her laſt breath execrated the cruel policy that took away the life of her friend. From this time the health of the protector began viſibly to decline; the cares and the fears, connected with his greatneſs, were doomed to bring him to a ſpeedy end. A ſlow fever terminated his exiſtence September 3, 1658. He does not appear to have expected this termination of the diſeaſe; he maintained, in oppoſition to the opinions of his phyſicians, the certainty of his recovery; but took the precaution to make his will, in which he bequeathed the reins of government to his ſon Richard, and to Henry his other ſon he left the governorſhip of Ireland. He was interred with great pomp in Weſtminſter Abbey. He died at a period when, according to the opinion of biſhop Burnet, "his life and his arts were exhauſted together, ſo that if he had ſurvived any longer, he would ſcarcely have been able to preſerve his power." The fabric of his greatneſs was falſe and unſound. By cunning and deceit he had attained his high ſituation; theſe ſeemed to render him the leſs aſſiſtance the longer he lived, and it is probable that in a very few years, or even months, they might have ſerved him no more. His own children are ſaid to have been all foes to his government, either royaliſts or republicans from principle; and, perhaps, ſays one of his biographers, "there was not a perſon in the nation ſincerely attached to, and a well-wiſher of his government." It were in vain to look for a diſintereſted account of the character of this great man, for great, in the common acceptation of the word, he unqueſtionably was, among thoſe who were the witneſſes of his life and conduct. No two writers in the preſent age ſeem agreed as to the degree of merit or demerit to which he is entitled. We ſhall, however, quote the opinion of Mr. Granger, who has indeed drawn different ſketches of him. "Oliver Cromwell," ſays he, "united in a very high degree, the characters of the politician and general, and occaſionally aſſumed thoſe of the buffoon and the preacher. He broke forth from his obſcurity, at an age when others think themſelves doomed to it for ever; and when many begin to entertain thoughts of retiring from the world, he began to make the moſt conſpicuous part in it. He availed himſelf of the virtues and vices, the talents and weakneſſes, of mankind; and ſuch obſtacles as would have been inſurmountable to an inferior genius, helped greatly to carry him on in his career."—"He is," ſays the ſame writer, "an amazing inſtance of what ambition heated by enthuſiaſm, reſtrained by judgment, diſguiſed by hypocriſy, and aided by natural vigour of mind, can do. He was never oppreſſed with the weight, or perplexed with the intricacy of affairs; but his deep penetration, indefatigable activity, and invincible reſolution, ſeemed to render him maſter of all events. He perſuaded without eloquence; and exacted obedience, more from the terror of his name, than the vigour of his adminiſtration. He appeared as a powerful inſtrument in the hand of Providence, and dared to appeal to the deciſions of heaven for the juſtice of his cauſe. He knew every man in the three kingdoms, and endeavoured to avail himſelf of their reſpective talents. He has always been regarded by foreigners, and of late by the generality of his countrymen, as the greateſt man this nation ever produced. It has been diſputed which he moſt deſerved, a halter or a crown, and there is no leſs diſparity betwixt the characters drawn of him, and the reports propagated by his enemies and his friends." Biog. Brit. Harris's Life of Cromwell, &c.

Cromwell, Richard, eldeſt ſon of the protector, was born at Huntingdon, in 1626, where he received his grammar learning. When he was about 20 years of age, he was entered at Lincoln's Inn, being probably intended for the bar, but he was too much attached to his pleaſures to make any conſiderable progreſs in his legal ſtudies. Neither in this, nor in any period of life, had he the ambition to diſtinguiſh himſelf. His political opinions were oppoſite to thoſe of his father, and he had not the ſmalleſt taſte for military diſtinction. It is ſaid that he pleaded, on his knees, for the life of Charles, and it is well aſcertained that he joined the party who wiſhed ſucceſs to the cauſe to which his father was the moſt formidable enemy. By the protector he was raiſed to ſome offices of diſtinction, and was one of his new peers. Richard rather acquieſced in his fate, than felt proud of the honour which he then enjoyed, and which, as the heir of Oliver, he might reaſonably anticipate. Upon the death of his father, he ſucceeded to the government, and received the accuſtomed homage, with addreſſes from all parts of the nation. His title and claim were acknowledged by continental powers, and, for a few months, every thing went on very ſmoothly. A parliament was then neceſſary, which, though called in the uſual manner, exhibited ſome alarming ſymptoms of oppoſition; diſaffection appeared alſo in the army. In this exigence, Richard adviſed with his privy council, who recommended a diſſolution of the parliament, with which he complied, and this act may be conſidered as the real termination of his power. He retained, indeed, the name and the appearance of protector a few days longer, though without any degree of authority, and his reign was finally ended by the reſolution of the council of officers to invite the ſurviving members of the Long Parliament, to return to the exerciſe and diſcharge of their truſt. By ſome of his friends Richard was adviſed to retain his power by force, and to cut off thoſe men who were aiming to deprive him of ſovereignty. But he deſpiſed their council, and ſpurned the thought of retaining power at the expence of blood. He quietly ſubmitted to all the ſacrifices that were required, and was particularly anxious that he might be freed from the debts which the ſplendour of his father's funeral ſeemed to fix upon him. Parliament gave him ſecurity for this purpoſe, and promiſed a liberal proviſion for himſelf and family. At the reſtoration he thought it right to retire to the continent, though there ſeems to have been no intention on the part of the king or his miniſters to moleſt him; and ſo completely was he forgotten, that his name was not once mentioned in either houſe. For ſome years he reſided at Paris, under a feigned name, and in great obſcurity; from thence he went to Geneva, and about the year 1680 he returned to England, and fixed his reſidence at Theobald in Hertfordſhire, under the name of Clark, where he lived much reſpected by thoſe who enjoyed his acquaintance. He died in the year 1712, in his 86th year, a happier and a better man than his father, but poſſeſſed of none of thoſe qualities that attract notice or lead to celebrity. He is deſcribed as an excellent character, poſſeſſing in his latter years great gravity and real piety. He was endowed with many amiable qualifications, and was much beloved by his friends, with ſome of whom he kept up a correſpondence to his death. He had been married, and left three daughters, who ſome years before their father's death had attempted to deprive him of his property; by an appeal to the law, he obtained his right, and was afterwards reconciled to his children, whom in his laſt moments he recommended to "live in love, as he was going to the God of love." Biog. Brit.

Cromwell, Henry, the youngeſt ſurviving ſon of Oliver, was born in January 1627-8, and at the age of 16 was introduced to military ſervice. In 1649, he accompanied his father to Ireland, where he attained the rank of colonel. He returned, and was elected member of the "Barebone's Parliament," but was afterwards ſent to Ireland in a political capacity, and at length was lord-lieutenant of that kingdom. In every ſituation he acted his part with honour, and was generally reſpected. Such indeed was the integrity of his character, that in a letter to his brother, he ſaid, "I will rather ſubmit to any ſufferings with a good name, than be the greateſt man upon earth without it." Upon the reſtoration of Charles, he lived quietly as a private gentleman, and took no part in the various changes of the ſtate. It is thought that he rejoiced in the ſucceſſion of the king to his crown, and he was not only included in the act of indemnity, but received ſome marks of favour from the king, of which he expreſſed a very grateful ſenſe, in a letter to lord Clarendon, through whoſe interpoſition the benefit was obtained. He died in the 47th year of his age, and was buried near his mother. After the reſtoration he conformed to the church of England, and died in that communion. Many are the teſtimonies to the excellence of his character: we ſhall only notice that of Mr. Neal, who ſays, "that he was a wiſe and diſcreet governor: that by his prudent conduct he kept the Iriſh in awe; that he brought that nation into a flouriſhing condition; and that he behaved with ſuch generous impartiality, as gained him the eſteem even of the Royaliſts themſelves." Biog. Brit.

CROMYON, in *Ancient Geography*, a burgh of Corinth, ſituated on the gulf to the eaſt of Schœnus. It is pretended that it took its name from Cromus, the ſon of Neptune. In the firſt times of Greece, this was the place where the monſter of cruelty, called *Sinis*, faſtened the limbs and arms of travellers whom he apprehended to branches of the pine-tree, which he bent to the ground; and then giving them liberty to reſtore themſelves, they thus tore to pieces the unfortunate wretches, whom the ſavage monſter doomed to this kind of death. Theſeus is ſaid to have deſtroyed him in the ſame manner. Pauſanias mentions the fact, and ſays that theſe cruelties were practiſed towards the point of the Iſthmus. Here was an altar of Melicertes. When Ino his mother plunged herſelf with him into the ſea, in order to preſerve him from the cruelty of his father, the fable ſays that a dolphin brought her to the ſhore, and that Siſyphus finding the body, interred it in this place, and inſtituted in honour of her the *Iſthmian* games.

CRONACA, Simone, in *Biography*, a Florentine architect, born in the year 1454. He travelled to Rome and other cities of Italy to ſtudy and take exact meaſurement of the antique edifices. Returning to Florence he acquired conſiderable reputation, and was employed to finiſh the Palazzo Strozzi, begun by Benedetto da Maiano. Amongſt his other works at Florence are the "Sagreſty of the Church of Santo Spirito, and the Church of S. Franceſco del Oſſervanza," at S. Miniato, in the ſuburbs of that city. He died in 1509, and was buried in the church of St. Ambrogio. Vaſari.

CRONACH, in *Geography*. See Cranach.

CRONBERG. See Cronenburg.

CRONE, in *Rural Economy*, a term applied to ſheep, which denotes an old ewe. Thus in ſpeaking of the aged ſtock of this ſort, they are uſually denominated crones.

It is ſtated by the author of the Farmer's Calendar as a common ſyſtem of management in incloſed diſtricts, to buy in old crones in the month of September, to put the ram to them in the following month, and to diſpoſe of the lambs as they become fat in the enſuing ſummer and autumn, ſo as to clear the whole within, or at moſt in about a year from the period of buying them in.

And this is ſuppoſed a tolerable method of management in caſes where the fences are in a perfectly ſecure condition, and the food in great abundance, though in general inferior to the ſyſtem of wether lambs. See Sheep.

Crone ſtock is, however, conſidered by the author of the Minutes of Agriculture as a very unprofitable ſort, eſpecially where the chief ſpring food is turnips, as they are not, from their want of teeth, capable of breaking them in a manner ſo as to go on well with ſuch kinds of food.

CRONE, or Koronow, in *Geography*, a town of Pruſſia, in Pomerelia; 56 miles ſouth of Dantzick.

CRONEBANE, a mountain in the county of Wicklow, Ireland, riſing about 1000 feet above the level of the ſea, which, with Ballymuctagh, is noted for its copper mines. The chief line of the metalliferous vein extends from the hill of Cronebane to that of Croaghan, nearly ten miles in length. The former of theſe mines is wrought by a chartered company with much ſcientific art. The ſpecies of ore which is found here is the moſt common of copper ores, called copper pyrites. Copper water, or water in which ſulphate of copper is diſſolved, is found in theſe mines, and it is accounted one of the ſtrongeſt in Europe. Its ſtrength however depends upon the quality of the copper. The attention of the traveller will be repaid by an inveſtigation of the proceſs by which this water depoſits almoſt pure copper ore. The ore is fuſed at Arklow, but afterwards farther refined at Swanſea or Neath, in South Wales. The ground around theſe mines was lately bog and rock, but by the exertions of captain Mills and Mr. Weaver, its appearance is now altered, and it produces excellent crops. Theſe mines are ſituated between Rothdrum and Arklow, about 28 miles ſouth from Dublin. Robertſon's Guide.

CRONEBORG, or Tawastehus, in Latin *Croneburgum*, a ſmall town of Swediſh Finland, chief place of the province of Tavaſtland, on a river which empties itſelf into the lake of Wana, 63 miles north-weſt of Borgo, 75 north-eaſt of Abo. It was built in the year 1650, in a pleaſant ſituation, by count Peter Brahe, and favoured with conſiderable privileges. In 1713, it was taken by the Ruſſians, and has always ſuffered conſiderably during the wars between the Ruſſians and the Swedes. Croneborg has the hundredth vote in the Swediſh diet. The caſtle, which is very ſtrong, ought to be excluſively denominated Tavaſtehus or Tavaſteborg. It is uſed as an arſenal and military magazine. When the Ruſſians invaded Finland in the latter end of February 1808, the Swedes retired under the walls of this caſtle, and took a concentrated poſition in its neighbourhood.

CRONENBOURG, a ſmall town of France, in the department of the Ourte, chief place of a canton, in the diſtrict of Malmédi, with a population of 639 individuals. The canton has five communes, and 2454 inhabitants, upon a territorial extent of 135 kiliometres.

CRONENBURG, or Cronberg, a ſtrong caſtle of Denmark, in the iſland of Zealand, on the weſt coaſt of the Sound, near the town of Elſineur, built by Frederick II. in 1756, for the purpoſe of defending the entrance of the Sound, which is only 1331 fathoms wide oppoſite the caſtle. It is conſtructed with large blocks of hewn ſtone, and adorned with ſeveral turrets. The fortifications are reckoned excellent. However, the guns of this caſtle could not prevent the paſſage of the Engliſh fleet under admirals Parker and Nelſon, in March 1801. Every veſſel in paſſing lowers her top-ſails, and pays a toll at Elſineur. This fortreſs, it is generally ſaid, guards the Sound; and all ſhips are obliged, on account of ſhoal and currents, to ſteer ſo near the batteries as to be expoſed to their fire, in caſe of refuſal. This notion, however, is erroneous: although the ſafeſt paſſage lies near the fortreſs, the water in any part is ſufficiently deep for veſſels to keep at a diſtance from the batteries, and the largeſt ſhips can ſail even cloſe to the coaſt of Sweden. The conſtant diſcharge of the toll is owing, not ſo much to the ſtrength of the fortreſs as to a compliance with the public law of Europe. Many diſputes have ariſen concerning the right which the crown of Denmark has to impoſe this duty. The Swedes were for ſome time exempted by treaty; but, in 1720, Frederick I. agreed that Swediſh veſſels ſhould be ſubject to the uſual impoſts. All veſſels, beſides a ſmall duty, are rated at 1¼ *per cent.* of their cargoes, except the Engliſh, French, Dutch, and Swediſh, which pay only one *per cent.*; in return, the crown takes the charge of conſtructing light-houſes, and erecting ſignals to mark the ſhoals and rocks, from the Categate to the entrance of the Baltic. The tolls of the Sound, and of the two Belts, ſupply an annual revenue of above 100,000 *l.*

It was in the palace which ſtands in this fortreſs that the unfortunate queen Carolina Matilda of Denmark, ſiſter to king George III. of England, was confined in 1772; from hence ſhe was removed to Zell, where ſhe died of a ſcarlet fever. This palace is a ſquare Gothic building of free-ſtone. From an inſcription over the gate, it appears that it was begun by Frederick II. and has been repaired and augmented by ſucceeding ſovereigns. It contains two good portraits of Frederick II. and Chriſtian IV. and ſeveral battle-pieces repreſenting the wars of Chriſtian V.

Adjoining to another royal palace, about half a mile from Cronenburg, is "Hamlet's garden," which tradition reports to be the identical ſpot where the murder of his father was perpetrated.

CRONICAL, in *Aſtronomy*. See Acronical.

CRONIUM, in *Ancient Geography*. See Cromyon.

Cronium *Mare*, a northern ſea, which, according to Pliny, was one day's ſail beyond Thulé. It is called "Mare

Pigrum" by Tacitus; and is now denominated the Icy or Frozen ſea.

CRONIUS, in *Chronology*, the ancient name of the Athenian month Hecatombæon, which was the firſt of their year, and anſwered to the latter part of our June, and beginning of July.

There were feaſts called *cronienes*, celebrated at Athens in this month, in honour of Saturn, anſwering to the *Saturnalia* of the Romans.

Cronius *Mons*, in *Ancient Geography*, a mountain of Greece, in the Peloponneſus. Dionyſius of Halicarnaſſus places it before Alpheus, in the territory of the town of Pylæ.

CRONOBERG, in *Geography*, a ſmall town of Sweden, in the province of Smoland, on an inconſiderable iſland in the Helge lake, which formerly had a very fine caſtle, the ruins of which are ſtill ſeen. It was built in 1002, by St. Siegfried, the firſt preacher of the goſpel in thoſe parts, and given to the biſhop of Wexie, for which reaſon it was called Biſhop's-berg or Biſhop's hill. But in the year 1545, it was enlarged and walled in by king Guſtavus I., when its name was changed into that of Cronoberg, Crown's hill.

CRONSCHWITZ, a town of Germany, in the circle of Upper Saxony, and territory of Neuſtadt; two miles north-eaſt of Weyda.

CRONSLOT, or Kronschloss, *Crown Caſtle*, is a fort built in the year 1703 by Peter the Great of Ruſſia, on a ſmall iſland in the gulf of Cronſtadt oppoſite the fort of St. Alexander. It defends the only paſſage through which ſhips of burthen can ſail from the gulf of Finland to Peterſburg; its fortifications project into the water; it mounts ſeveral batteries, and generally has a garriſon of 100 men.

CRONSTADT, or Kronstadt, a ſea-port town in the northern diviſion of Ruſſia, in the government of Peterſburg, built by Peter the Great in 1710, on the iſland *Retuſari*, called by the Ruſſians *Kotloi*, or *Kotlinnoi Oſtrof*, the kettle iſland, but ſince the year 1723 better known by the name of Cronſtadt. It lies 39 verſts weſt-north-weſt of Peterſburg, at the eaſtern extremity of the gulf of Finland, which, from this iſle to Peterſburg, is denominated the gulf of Cronſtadt. It is not more than eight fathoms above the level of the water, rather flat, about ſeven verſts long and one broad; has ſome wood, chiefly birch; and its ſoil is clay, ſand, and limeſtone. At the eaſtern extremity of the iſland is the town of Cronſtadt. Near it on the ſouth ſide are two ſmall fortified iſlands called St. Alexander and Cronſlot. There is a third iſland on the northern ſide of the channel ſmaller than either, named St. John.

Ships of war, frigates, and merchant veſſels, whoſe maſts exhibit a huge impervious foreſt; fortifications of granite projecting into the water, and ſpacious and lofty magazines give to the harbour of Cronſtadt a magnificent appearance at a diſtance: but the town itſelf anſwers not the expectations which this appearance excites. There are but few good houſes. It is a ſtraggling place, and like all Ruſſian towns, occupies a larger ſpace of ground than the number of habitations, which are mean and moſtly of wood, ſeems to require.

There are three different harbours. That to the eaſt, in which the greateſt part of the Ruſſian Baltic fleet is laid up, holds 25 large ſhips of war, but its iſſue is difficult, and the water being rather freſh, accelerates the wear of the veſſels, and cauſes them to rot. The middle harbour is for frigates, ſloops of war, and yachts belonging to the crown. The harbour to the weſt is appropriated to merchant ſhips, and may hold ſix hundred veſſels. Cloſe to it is the Peter's canal, which derives its name and its origin from Peter the Great, the immortal founder of Cronſtadt. Two fine obeliſks bear inſcriptions commemorative of this great undertaking.

Dry-docks for the refitting of men of war were begun by Peter at Cronſtadt, in the year 1719, but neglected under his ſucceſſors, and not completed before the reign of his daughter Elizabeth. Ten ſhips may be put upon the ſtocks at the ſame time. The docks are provided with flood-gates for admitting and letting out the veſſels, and the water is emptied into a vaſt baſon of granite, from whence it is re-pumped into the docks by means of a large ſteam engine erected by the Carron company of Scotland in the year 1772. The length of theſe works from the beginning of Peter's canal to the laſt dock is 4221 feet. The docks are lined with ſtone and paved with granite. They are 40 feet deep, and 105 broad. There is alſo a foundery for caſting cannon balls, and a rope-walk for cables of all ſizes.

Another canal was completed ſoon after the death of Catharine II., by means of which veſſels of all ſizes are enabled to take in their ſtores at the very gates of the magazines built on both ſides of the canal, which, like the Peter's canal, is lined with brick-work.

The marine hoſpital at Cronſtadt is on a very extenſive ſcale. In 1788 it had at different times 25,007 patients; in 1789, 16,809; of the former 20,924 were cured, of the latter 12,974.

The academy for cadets of the marine was removed towards the latter end of the reign of Catharine II. from Cronſtadt to Oranienbaum, from whence the emperor Paul transferred it to the Vaſſili Oſtrof quarter at Peterſburg.

The population of Cronſtadt is eſtimated at 30,000 individuals; moſt of whom belong to the fleet, and to the garriſon.

The number of regiſtered burghers does not exceed 300. The ſtreets are thronged with mariners from all the ports of Europe. There is an Engliſh chapel, and a Lutheran church for the Germans.

Cronſtadt, being ſeated on a ſmall iſland, has no other communication with the adjacent country than by water. Boats are continually paſſing between Cronſtadt and Oranienbaum, a diſtance of ſeven verſts, which in ſtill weather is croſſed in one hour's rowing. Oranienbaum is only 23 verſts W. of Peterſburg. In winter there is a common carriage road from Peterſburg to Cronſtadt on the ice, down the river Neva in a direct line over the gulf of Cronſtadt, marked out with fir branches, and by the ſide of it are ſeveral guard-houſes and a half-way or baiting booth. "Tooke's View of the Ruſſian Empire." "Storch's Picture of St. Peterſburg."—Alſo, a handſome and populous town of Auſtria, in Tranſylvania, near the frontiers of Moldavia, 60 miles E. of Hermannſtadt, and next in rank to that place. It has three large ſuburbs, and was anciently called *Braſſau*, *Braſſo*, *Braſſovia*.—Alſo, a caſtle in Sweden, erected in the year 1710, near the ſmall town of Froſan in the ſouthern part of the province of Jamtland.

Cronstadt, *the gulf of*, is that part of the gulf of Finland in the Baltic ſea which ſtretches from the iſland and town of Cronſtadt to the mouth of the river Neva, or rather to St. Peterſburg itſelf. See the preceding article.

CRONSTEDT, Axel Frederick, in *Biography*, a celebrated mineralogiſt, was born at Sudermania in 1722. From a very early period he ſhewed a great attachment to the ſtudies of natural hiſtory; and as he advanced in life he received ſeveral appointments from the government of Sweden, connected with the mines of that country. In 1753 he was elected a member of the royal academy of ſciences at

Stockholm ; and in 1755 made a tour to Norway, to inſpect the mines there. The greater part of his life was ſpent among the mines, the management of which fell chiefly on him. He died Aug. 1765. His principal work was entitled " An attempt towards an Arrangement of Minerals, or of the different Subſtances of the Mineral Kingdom." He publiſhed many papers on metallurgy, economy, &c. He was the firſt ſcientific writer on mineralogy, and was the inventor of moſt of thoſe terms which have been ſince applied to the diſtinction of the external characters of mineral bodies. Gen. Biog.

CROOK, in *Rural Economy*, a term often provincially employed to ſignify a ſort of ſtrong iron hook, ſuch as is in uſe for hanging field and other gates with. It is alſo ſometimes applied to the crooked ſtaff formerly made uſe of by the ſhepherd.

Crooks, a name applied in ſome diſtricts, as Devonſhire, to a ſort of pack-horſe furniture, by which various articles of the farm kind are conveyed on the back of the horſe. It is a ſort of contrivance which, according to the author of the rural economy of the above county, varies with the nature of the load.

And it is remarked by the ſame writer that " hay, corn, ſtraw, faggots, and other comparatively light articles of burden, are loaded between "crooks" formed of willow poles about the thickneſs of ſcythe-handles, and ſeven or eight feet long, bent as ox-bows, but with one end much longer than the other. Theſe are joined in pairs with light croſs bars, eighteen inches to two feet long ; and each horſe is furniſhed with two pair of theſe crooks, ſlung together, ſo as that the ſhorter and ſtronger ends ſhall lie eaſy and firmly againſt the pack-ſaddle ; the longer and lighter ends riſing, perhaps, fifteen or more inches above the horſe's back, and ſtanding four or five inches from each other. Within and between theſe crooks the load is piled, and bound faſt together, with that ſimplicity and diſpatch which long practice ſeldom fails of ſtriking out.

" Cord-wood, large ſtones, and other heavy articles, are carried between ſhort crooks, made of four natural bends or knees, both ends being nearly of the ſame length ; and in uſe the points ſtanding nearly level with the ridge of the pack-ſaddle.

" Dung, ſand, materials of buildings, roads, &c. are carried in " pots," or ſtrong coarſe panniers, ſlung together like the crooks ; and, as panniers are uſually ſlung, the dung, eſpecially if long and light, being ridged up over the ſaddle.

" The bottom of each pot is a falling door, on a ſtrong and ſimple conſtruction. The place of delivery, being reached, the trap is unlatched, and the load releaſed."

Theſe are rude methods of conveying ſuch ſorts of materials which have continued in uſe long after the cauſes which introduced them have ceaſed to exiſt ; better modes are now beginning to be practiſed.

Crooks, are ſhort tubes of braſs of different lengths, adapted to fit into the upper end of the tubes of French-horns, trumpets, and trombones, and into their mouth-pieces, by which the inſtrument is lengthened or ſhortened at pleaſure, in order to tune it to the pitch of the organ, or other inſtrument, with which it is to be uſed in concert, or for adapting it to perform in different keys.

CROOKED Haven, in *Geography*, a bay of Scotland, on the N. coaſt of the county of Banff, 2½ miles N.W. of Cullen.

Crooked *Iſland*, one of the Bahama iſlands, in the Weſt Indies. In this iſland is a ſingular excavation of the rocks, reſembling a dilapidated ſtructure, and formed by the violent agitation and continued action of the breakers from the ſea. For a minute deſcription we refer to M'Kinnen's Weſt Indies, p. 21.

Crooked *Lake*, a lake of America, in the Geneſſee country, communicating in an E. by N. direction with Seneca lake. – Alſo, one of the ſmall chain of lakes which connects the lake of the Woods with lake Superior, on the boundary line between the United States and Upper Canada, remarkable for its rugged cliffs, in the cracks of which are a number of arrows ſticking.

Crooked *River*, a river of America. in the ſtate of Georgia, and county of Camden, which diſcharges itſelf into the ſea oppoſite to Cumberland iſland, 12 or 14 miles N. from the mouth of St. Mary's. Its banks are well timbered, and its courſe is E. by N.

CROOKEDNESS. See Distortion.

CROOKHAVEN, in *Geography*, a ſmall town, or rather village, of the county of Cork, Ireland, on a harbour of the ſame name. It is at the weſtern extremity of the county, a few miles N.W. from Cape Clear. The harbour is narrow, but all good ground, well-ſheltered, and has water ſufficient for large ſhips. It is a commodious place for veſſels bound to the eaſtward. It is about 180 Iriſh miles S.W. from Dublin, and *3* eaſt from Mizen Head. N. lat. 51° 25'. W. long. 9° 38'. M'Kenzie.

CROOKNEL, in *Mineralogy*, a miner's term in Derbyſhire, for a belly or wide place of ore in a vein. See Lum, Kidney, Nest.

CROOM, in *Geography*, a ſmall poſt-town of the county of Limerick, Ireland, on the river Maig, 142 miles S.W. from Dublin, and 10 S. from Limerick.

CROONE, William, in *Biography*, a native of London, received his education at Emanuel college at Cambridge, of which he was admitted a fellow in the year 1654. His inclination leading to the practice of medicine, he ſoon after ſettled in London. In 1659 he was choſen rhetoric profeſſor of Greſham college, and the following year regiſter of the royal ſociety, which held their meetings there. In 1662, he was created doctor in medicine, by mandate of the king, and the ſame year he was elected a fellow of the royal ſociety, and of the college of phyſicians. In 1670 he was appointed lecturer in anatomy to the company of ſurgeons, in the place and on the recommendation of ſir Charles Scarborough. Dr. Croone had travelled ſome years over France, and other parts of Europe, and kept up a correſpondence with many of the foreign literati. On his death, which happened on the 12th of October 1684, he left one hundred pounds to the company of ſurgeons. His books on medicine he gave to the college of phyſicians, thoſe treating on mathematics to Emanuel college, to which college, and to ſix other colleges, he left the ſum of 20*l.* annually to each of them, to found lectures in mathematics, and to the college of phyſicians, and to the royal ſociety, the profits to be derived from a houſe in Old Fiſh-ſtreet, the King's-head tavern, for lectures to be read annually before thoſe learned bodies, on muſcular motion. The only publication by Dr. Croone is a ſmall tract, " De ratione motus muſculorum," printed in London, 1664, 4to., though ſeveral papers were left on philoſophical ſubjects. Ward's Profeſſors of Greſham college.

CROOTES, in *Mineralogy*, a ſubſtance found about the ore in the lead-mines at Mendip, being a mealy, white, ſoft ſtone, matted with ore.

CROP, in *Agriculture*, a term ſignifying the quantity or produce of any ſort of field crop, as of grain, pulſe, roots, plants, graſs, or any ſimilar kinds, raiſed by the farmer on any portion of ground at one time. And from this diverſity, they are likewiſe further diſtinguiſhed into corn, root, and green crops, according to the circumſtances of the caſe.

The culture and utility of the two laſt ſorts have been greatly increaſed within theſe laſt few years, in conſequence of their application, as cattle food, being more perfectly underſtood. It is indeed to this circumſtance that much of the modern improvement in huſbandry is owing, and from which a great deal of the increaſed profit of the farmer has been derived.

The nature of the different ſorts of crops, and the methods of diſtributing them on different ſorts of farms, will be fully conſidered in ſpeaking of the courſes of crops. See Crops, *Courſe of*.

Crop, in *Gardening*, a term denoting the produce or kind of any ſort of vegetable, plant, fruit, ſeed, or root, which is raiſed or cultivated upon any bed, border, or other compartment of the kitchen garden. They are diſtinguiſhed in many different ways, as into autumnal, winter, and ſpring crops, into early and late crops, and into ſeed or root crops, generally, as well as ſmall ſeed crops. And there are likewiſe various ſorts of fruit crops, both of large and ſmall kinds, as well as various deſcriptions of forcing or frame crops. The proper management of theſe different kinds of crops conſtitutes a principal part of the art of gardening.

Crop, in *Mining*, denotes the upper part or covering of a ſtratum; thus, the roof of a coal-mine is ſometimes called its crop.

CROPALATE, in *Geography*, a town of Naples, in the province of Calabria, 11 miles S.E. of Roſſano.

CROPANI, a town of Naples, in the province of Calabria Ultra: 9 miles E.N.E. of St. Severina.

CROPASSIA, a town of Naples, in the province of Calabria Citra: 7 miles W. of Umbriatico.

CROPERDY, a village in Oxfordſhire, in the hundred of Banbury, 3 miles N. of Banbury, and 78 N.W. of London; is ſituate on the Charwell river, and on the line of the Oxford canal, at a place where it was once propoſed that the Stratford and Croperdy canal ſhould join this. (See Canal.) In the year 1644, a battle was fought here between the forces of the king and thoſe of the parliament, in which the latter were defeated.

CROPHI, in *Ancient Geography*, a mountain of Egypt, between Elephantina and Syené. The ſources of the Nile, according to Herodotus, were between this mountain and that of Mophi.

CROPPER, or *Dutch Cropper*, in *Ornithology*, the name of a particular ſpecies of pigeon, called the *columba gutturoſa Bataviæ*, by Moore: the *gutturoſa*, a variety of the Columba *domeſtica*, which ſee. It is naturally thick, and has its name from its large crop, or bag of wind, which it carries under its beak, and can at pleaſure either raiſe or depreſs. Theſe are thick bodied, and ſhort; their legs are alſo thick and ſhort, and are feathered down to the feet; the crop is large and hangs low; the feathers on the thighs hang looſe; and their legs ſtand wide; they are gravel-eyed, and are generally very bad feeders.

There are of theſe pigeons of all colours, and thoſe who are careful of them, generally take them away from their proper parent, while young, and breed them under the females of other ſpecies.

CROPS, *Courſe of*, in *Agriculture*, denotes the means or methods of adapting and ſuiting them in ſuch a manner to the particular nature of the land or ſoil, as that they may render it the moſt abundant and productive, with the leaſt poſſible degree of deterioration or exhauſtion of its fertile properties. It has been well obſerved by a late writer that “the proper cropping of arable land is a matter of the utmoſt importance to the intereſts of the farmer, as upon it in a great meaſure muſt depend the profits and advantages which he is to derive from his labour and induſtry.” It is conceived by Mr. Billingſley, an experienced agriculturaliſt in the weſtern part of the kingdom, to be “the moſt prominent feature in good farming, and that by which the produce of the ſoil may be increaſed in a threefold proportion: and by another writer in a more ſouthern diſtrict, as one of the moſt important ſubjects that can occupy the attention or exerciſe the ingenuity and ſkill of the agriculturaliſt.” And Mr. Young, in his valuable calendar of huſbandry, conceives it to be the moſt important ſubject that has been treated of by the modern writers of huſbandry, and that on which they have thrown far more light than upon any other circumſtance in agriculture. It is a very ſingular and remarkable circumſtance, he ſays, that before the reign of his preſent majeſty, notwithſtanding the multitude of books on agriculture, there is not one author who had any tolerable ideas upon this ſubject, or even annexed to it any importance. They recite, he obſerves, courſes good, bad, and execrable in the ſame tone, as matters not open to praiſe or cenſure, and unconnected with any principles that could throw light on the arrangement of field-crops. But that “when once the idea was properly ſtarted, its importance, continues he, preſently became obvious, ſo that thirty years have carried to great perfection the precepts which practice has afforded in this branch of rural economy.”

And that it demands much regard by the cultivator is fully evinced, ſays a late writer, by the great advantages that have been gained by it ſince its principles have become more perfectly underſtood and more extenſively applied. It has indeed been well remarked by the editor of the “Annals of Agriculture,” that “wherever either very good or very bad huſbandry is found on arable land, it reſults more from the right or wrong arrangement of the crops than from any other circumſtance.” And that “no diſtrict is well cultivated under bad rotations, while it is exceedingly rare to ſee any badly managed under good ones.”

It may be obſerved farther that, in the arrangement of this buſineſs, as different ſorts of plants or crops not only require different kinds and proportions of nutritious materials to be drawn from the earth for their increaſe and perfect growth, but alſo different ſituations and conditions of ſoil, it muſt be neceſſary to adapt them as much as poſſible to the peculiar qualities of the ſoil, as well as the ſtate of the land, and the nature of the climate, in which it is placed; and as on the ſame principles ſome ſorts of crops may exhauſt or deteriorate the ſoils on which they grow, in much leſs proportions than others, which is well known to be the caſe with many kinds of what are termed *green* crops, when compared with thoſe of the *white* or corn kind; it will be requiſite to alternate or interpoſe them in ſuch a manner as that the ground may ſuſtain the leaſt poſſible injury in that way. In addition to the above obſervations and directions; it may likewiſe be of great utility to attend to other circumſtances, as thoſe of introducing ſuch ſorts of green crops as are moſt ſuited by the ſhade of their leaves and the kind of culture which they require while growing, for keeping the ground clean from weeds, and in a mellow and ſuitable ſtate for the reception of the more valuable kinds of grain crops, as in this way the neceſſity of having recourſe to the uneconomical proceſs of fallowing, may be conſiderably leſſened, if not wholly obviated. It has been ſhewn by experience that all the culmiferous claſs of plants injure the ſoil in a very high degree, which probably depends upon their having but few, and thoſe ſmall leaves; conſequently being neceſſitated to draw their nouriſhment chiefly from the ſoil at all periods of their growth, but eſpecially during the time of their maturating their ſeeds, when, from the dry withered ſtate of their leaves, it is impoſſible that any thing can be drawn from the atmoſphere. But they may be prejudicial in other ways, the ſeeds of their plants ripening all at the ſame time; on their beginning to ripen the plants become ſtationary, the roots ceaſing to puſh or penetrate into the ground, and of courſe to move or looſen it; and the withered leaves and ſapleſs ſtems being cut down, leave the land fully expoſed to the action of the ſun and winds, by which it becomes dry, hard, and compact, being greatly exhauſted by the diſſipation of its moiſture and other properties, while opportunities are given for its being filled with weeds before the winter ſets in. Of all the various ſorts of this claſs of plants, wheat, from its being the heavieſt in its grain, is probably the moſt deteriorating in its effects on the ſoil, while the difference between barley and oats is but trifling in this reſpect; and rye is well known to be leſs prejudicial in this way than any of the other kinds.

In regard to the green, or what are frequently termed leguminous crops, and thoſe of the root kind, it may be remarked that the former, from their ſeeds being formed in a ſucceſſive manner, their flowers, with green and ripe fruit preſenting themſelves at the ſame time on different parts of the ſame plant, they continue, of courſe, in a ſtate of growth, puſhing their numerous fibrous or other roots deeply into the ground, while at the ſame time they derive much of their nouriſhment from the ſurrounding air, by means of their green leaves, till the very period at which they are cut down. It is probably on this account that the ſtraw of ſome of the plants of this claſs is ſo much ſuperior to that of the grain kind, as well as the great difference in the ſtate and condition of the land, the leguminous plants keeping the mould not only looſe, friable, and mellow for the plough in the way noticed above, but by their cloſe thick ſhade, they preſerve the moiſture in the land in an effectual manner, and produce a fermentative proceſs, by which means the vegetable matters which are covered, are ſpeedily reduced, and the ſoil left in a rich, moiſt friable ſtate.

Red or broad clover is very beneficial in this way, and when cut readily ſhoots again, keeping the ſoil looſe by its deep tap root, and when ultimately turned in, affords a large portion of vegetable matter to the ſoil; and beſides it admits wheat to be ſown on a ſingle furrow, by which the great labour and expence of ſummer fallow is ſaved. This probably deſerves the firſt place as an ameliorating plant in cropping land.

And tares or vetches are in general conſidered as deſerving the next place in the ſcale of improving crops. They have much ſimilarity to the pea and bean in their habits of growth, but of leſs ſize. There are different varieties or ſorts of them, which ſerve the purpoſe of green cattle food at different ſeaſons of the year, but in ſome caſes are made into hay in the ſummer kind. They conſequently contribute largely in this way, as well as by the cloſeneſs of the ſhade which they afford, and the preſervation of moiſture to improve the ſoil.

Peaſe, when cultivated for the purpoſe of being cut green, as fodder, have ſimilar effects to thoſe of vetches in meliorating the ſoil as well as moſt of the properties of clover upon it. But when they are ſuffered to ripen their ſeed, they become exhauſting in a high degree, perhaps not very much leſs than grain.

The bean plant is found highly beneficial on the more ſtiff, heavy, clayey ſoils, as bringing ſuch ſorts of land into a ſtate of preparation for wheat; but though, like other plants of the ſame claſs, they exhauſt little, they do not ſhade the ground ſo perfectly as the crops which have been juſt mentioned, conſequently do not preſerve the moiſture ſo completely. Beſides, from their being moſtly ſuffered to ripen their ſeeds, they require manure. They are in general found more uſeful in breaking down and reducing ſtubborn ſoils, and preventing the growth of weeds, than in improving the land on which they are raiſed.

Turnips and cabbages are plants which afford conſiderable ſhade by the number and ſize of their leaves, and their roots penetrate to ſome depth in the ſoil. By the preparation of the ground, and the after culture which they require, the land is alſo rendered fine, and kept free from weeds, by which it becomes in excellent condition for barley. When not conſumed upon the ground, ſome deterioration is probably produced by them, as they require rich ſoils and manure, to raiſe them with ſucceſs. They are, however, crops which afford large ſupplies of food for cattle-ſtock in the latter part of the autumn, the winter, and the early ſpring.

The culture of the potatoe is had recourſe to with ſimilar intentions in reducing the ſoils which, from the nature and ſize of the root, is perhaps performed with more effect, and of courſe renders them in excellent order for barley, which is uſually found to ſucceed better after them than wheat. They cauſe great cloſeneſs and ſhade by which the moiſture of the land is well preſerved; but from the nature and ſize of the roots, they are found to exhauſt the ground in an equal degree even to wheat crops, and they require a large ſupply of manure.

Where the ſoils are ſuitable the carrot and parſnip may be grown with vaſt advantage, as affording an abundant ſupply of the moſt nutritious ſorts of food for domeſtic animals. From the nature of their top roots and their ſize, they prepare the land well for the crops which are to follow them. Under theſe crops, and thoſe of clover, tares, cabbages, and potatoes, the ſame quantity of land has been found to produce twice as much cattle food as when in the ſtate of graſs. There are ſeveral other plants that may be introduced in the courſes of cropping, under particular circumſtances with much propriety and advantage, but it is not neceſſary to notice them here.

It has been remarked by Mr. Middleton, in his Agricultural Report of Middleſex, in ſpeaking of green crops as a ſubſtitute for fallows, that “the aggregate benefits that may be derived to the country from this meaſure are not to be eſtimated, but among the firſt of theſe will ſtand the abolition of fallows, and the introduction of green crops to ſupply their place over an extent of about three millions of acres of arable land, which have hitherto under the fallow ſyſtem, produced nothing uſeful during the fallow year.” Further that, “ſo far as tares and turnips or potatoes, or peaſe and turnips, or potatoes, or any two good crops, can be raiſed in one year, in place of a fallow, the produce will be double in quantity what it has been under the former ſyſtem.” And he adds that “there are about nine millions of acres in England and Wales in the courſe of two crops and a fallow; that is, ſix in crop and three in fallow. Hence it follows that by procuring one crop in lieu of the fallow, fifty *per cent.* is added to the former produce. But ſo far as two crops can be obtained in place of a fallow, it adds 100 *per cent.*, or double the former number of acres of produce.”

And that “as moſt ſorts of ſoils when continued for any great length of time either under grain or graſs are liable, it is remarked by another writer on this ſubject, to ſuſtain injury, and become leſs capable of producing full crops; in the firſt caſe, probably from the carbonaceous principle being too greatly exhauſted, and in the latter from the occurrence of moſs or other noxious vegetable productions that eſtabliſh themſelves in conſequence of the weak and imperfect growth of the graſs plants; it may be proper to occaſionally alter and change the nature of their crops by keeping them for a while after being broken up from graſs under the plough, and then reſtoring them again to the ſtate of graſs, as in this way the deficient principles may probably be the moſt readily ſupplied where manure in ſufficient quantities cannot be procured, and the injurious vegetable products be the moſt effectually removed." And it is further neceſſary "to be conſtantly kept in view in directing the modes of cropping lands that ſuch an intermixture of green root, pea, bean, and grain crops be grown, as will not only be beſt adapted to keep the ſoil in the moſt perfect order, but ſuit the demands of the cultivator, for the purpoſes of ſale as well as the keeping of ſuch numbers of different ſorts of live-ſtock, as may be proportionate to the ſupplying of thoſe quantities of manure that may be requiſite for the preſerving the farm in the moſt perfect condition, or ſtate of heart."

It is likewiſe ſtated by the author of "Practical Agriculture" that, "in regulating the courſes of crops on all deſcriptions of land with the view of preventing their exhauſting the ſoil, it will be neceſſary to guard againſt the occurrence of grain, potatoe, or other crops of a ſimilar kind, in ſucceſſion, as the reſult of experiments attentively made, as well as the experience of the moſt correct agricultors in different diſtricts have decidedly ſhewn their effects to be very powerful when employed in ſuch a manner, in deteriorating and leſſening the productive powers of the ground."

In the trials of Mr. Arthur Young, in reſpect to the effects of different ſorts of crops on land, "which appear to have been conducted with a conſiderable degree of accuracy and attention, on a ſoil of the ſandy loam kind, incumbent on a wet clay marle bottom, rendered dry by means of previous hollow draining, and of the annual value of about fifteen ſhillings the acre, broken up from the ſtate of graſs under which it had been for a great length of time, and ploughed into ridges in contrary directions each ſucceeding year, no manure being applied except on particular lands or ridges in the fourth, though two or three white crops in ſucceſſion were found to exhauſt in a high degree, potatoes had a ſtill greater effect in the ſame way, much more than barley in moſt caſes, and in ſome courſes even more than wheat." Theſe experiments are fully recorded in the twenty third volume of the Annals of Agriculture; and more conciſely below.

And it is added, that, "the reſults are equally curious and intereſting, as they not only demonſtrate the advantages that may ariſe from the alternation of different ſorts of crops in different ways, but the effects of various rotations, both good and bad, upon the ſoil and produce derived from it. They would, however, it is obſerved, have been more ſatiſfactory, if the nature of the land had admitted the turnip and cabbage crops to have been conſumed upon the ground, as no certain concluſions can probably be drawn where this is not the caſe; for though a proportionate quantity of manure may be afterwards returned to the land, its application in that way does not ſeem to afford ſuch beneficial effects as when gradually incorporated with the ſoil during the time the animals are feeding on it, upon ſuch luxuriant vegetable ſubſtances. Beſides the effects of the urine and perſpiration, which are known to be of conſiderable utility in ameliorating the earth, are wholly loſt." It is further ſuggeſted by this able writer, that tares, clover, and other graſſes of the artificial kinds, ſhould likewiſe have been introduced, as by ſuch kinds of crops, the courſes would not only have been more varied, but the effects of different combinations more fully ſhewn.

And the able experimenter further remarks, that, "all the work of tillage was performed by the common implements of the farm, and that the crops in the whole of the thirty-ſix courſes were reaped and threſhed directly, diſtinct from each other, to obviate the danger of mixing and errors, and that they are minuted accurately to ſave the trouble of calculation. In the valuation all the ſtraw is rated at 10*s.* an acre, and the crops are likewiſe eſtimated, that the fluctuations of price may not affect the general concluſions; the turnips at 4*s.* a ton carted off, cabbages at 5*s.*, wheat 5*s.* a buſhel, barley 2*s.* 6*d.*, oats 2*s.* 3*d.*, beans 3*s.*, potatoes 6*d.*, any other value may however, he ſays, be put upon them according to circumſtances."

It is, however, added that, in order to afford a full and complete view of the effects of different courſes of crops, it would be neceſſary to compare them on ſoils of different qualities, and which vary much in reſpect to their nature, climate, ſituation, and other circumſtances. But even as they ſtand, the intelligent farmer may draw many uſeful deductions from them.

COURSE I.

Courſe.	*Produce.*	*Value.*		
		£.	*s.*	*d.*
1 Beans	3 qrs. 1 buſhel	4	5	0
2 Turnips	8 tons 6 cwt.	1	13	0
3 Wheat	2 qrs. 5 buſhels	5	15	0
4 Potatoes	234 buſhels	5	17	0
5 Beans	3 qrs.	4	2	0
6 Wheat	3 qrs. 3 buſhels	7	5	0
		28	17	0
	Per annum	4	16	2

COURSE II.

Courſe.	*Produce.*	*Value.*		
		£.	*s.*	*d.*
1 Beans	3 qrs. 1 peck	4	2	9
2 Cabbages	$6\frac{1}{2}$ tons	1	12	6
3 Wheat	2 qrs. 5 buſhels	5	15	0
4 Cabbages	7 tons	1	15	0
5 Beans	3 qrs. 7 buſhels	5	3	0
6 Wheat	3 qrs. 3 buſhels	7	5	0
		25	13	3
	Per annum	4	5	$6\frac{1}{2}$

COURSE III.

Courſe.	*Produce.*	*Value.*		
		£.	*s.*	*d.*
1 Beans	3 qrs. 1 buſhel, 1 peck	4	5	9
2 Potatoes	150 buſhels	3	15	0
3 Wheat	2 qrs. $2\frac{1}{2}$ buſhels	5	2	6
4 Cabbages	$5\frac{1}{2}$ tons	1	7	6
5 Beans	3 qrs. 5 buſhels	4	17	0
6 Wheat	3 qrs. 1 buſhel	6	15	0
		26	2	9
	Per annum	4	7	$1\frac{1}{2}$

Upon theſe courſes it is remarked, that their effects lead to different concluſions: in the firſt courſe, in which there are four green fallow crops, to two of the white or grain kind, little advantage is ſhewn except in the leaving of the

the land in fine tilth, and perfectly clean. Nothing of ſuperiority is ſhewn by the quantities of produce for lands newly broken up. But it is obſerved, that the turnips, by being drawn and removed from the land, were not favourable, as wheat or turnip ground is not generally good, except well trodden by feeding. Potatoes appear to exhauſt, and the experimenter ſuggeſts that eſtimating thirty tons of yard compoſt, the proportion employed at any imaginable rate, the courſe cannot be adviſable ; the loſs on the potatoe crop, would not, he thinks, be leſs than five pounds, nor would the turnips pay ſo as to leave a profit equal to the expences of newly broken up lands for the firſt ſix years.

He however ſtates the ſecond as a more profitable courſe from the great charge of the potatoes not being incurred, and it ſhews that though cabbages cannot be grown to any great advantage on ſuch ſoils, without manure, they may be of much utility by the pulverization and cleanneſs which they afford. The goodneſs of the grain crops, evinces, it is ſuppoſed, that they exhauſt but little, and that it is of great importance to have few white crops in rotations. And the third he conſiders as explaining the neceſſity of manuring for potatoes on all ſoils except ſuch as are rich and dry. With only two white crops in ſix years, the land ſeems rather, it is obſerved, to improve, notwithſtanding the potatoe crop. The goodneſs of the laſt crop of wheat, in compariſon with the firſt, proves, he ſays, the ſuperiority of cabbage and bean crops, over thoſe of beans and potatoes, in cleaning and rendering the ground fine and fit for the growth of wheat crops, in a perfect manner.

Course IV.

Courſe.	*Produce.*	*Value.*		
		£.	s.	d.
1 Beans	3 qrs. 1¼ buſhel	4	5	9
2 Beans	4 qrs. 2 buſhels	5	12	0
3 Wheat	2 qrs. 3½ buſhels	5	7	6
4 Cabbages	6½ tons	1	12	6
5 Beans	4 qrs.	5	6	0
6 Wheat	3 qrs. 1 buſhel	6	15	0
		28	18	9
	Per annum	4	16	6½

Course V.

Courſe.	*Produce.*	*Value.*		
		£.	s.	d.
1 Beans	3 qrs. 2 buſhels	4	8	0
2 Barley	3 qrs. 1 peck	3	10	7
3 Wheat	2 qrs. 2 buſhels	5	0	0
4 Barley	2 qrs. 2 pecks	2	11	5
5 Beans	2 qrs.	2	18	0
6 Wheat	1 qr. 7 buſhels	4	5	0
		22	13	0
	Per annum	3	15	6

Course VI.

Courſe.	*Produce.*	*Value.*		
		£.	s.	d.
1 Beans	3 qrs. 1 buſhel, 1½ peck	4	5	5
2 Wheat	2 qrs. 7 buſhels	6	3	0
	Carry over	10	8	5
	Brought forward	10	8	5
3 Wheat	1 qr. 6 buſhels	4	0	0
4 Wheat	2 qrs.	5	2	6
5 Beans	1 qr. 7 buſhels	2	15	0
6 Wheat	1 qr. 4 buſhels	3	10	0
		25	15	11
	Per annum	4	6	0

The experimenter ſays, that the reſults of theſe courſes ſhew, in the firſt, the utility of repeated bean crops in cleaning land ; and, when combined with cabbages, in preſerving the fertility of ſuch as is newly broken up. When compared with the firſt courſe, which ends in the ſame way, its advantages alſo appears, he thinks, great in different other reſpects. By the two laſt, the diſadvantages attending ſucceſſive crops of corn are particularly brought forward. And it is well remarked, that they alſo ſhew that any ſort of corn crops will ſucceed, to a certain extent, on lands recently broken up, from the ſtate of old graſs or ſward ; and that, for the firſt two or three years, they may afford a produce proportionate to the ſort of crop that is ſown or cultivated on them. But that the three laſt years, on being compared with the three firſt, the whole ſtill in corn, the product was in the ratio of 9*l.* 14*s.* 5*d.* to 14*l.* 18*s.* 7*d.* or a decreaſe of more than 5*l.* While, in the preceding courſes, with better rotations, the products have ſomewhat increaſed. The difference, he ſays, is therefore enormous. The decline in the barley, and even the wheat crops, notwithſtanding the intervention of beans in the latter caſe, is very great. Beſides, they leave the land in a bad condition, being in the fourth and ſixth years ſuch a bed of weeds, as could not be half deſtroyed by the hoeing of the beans. In theſe inſtances, the land not being left worth eleven ſhillings an acre, while in ſome of the preceding it was left of the value of ſixteen. Theſe, he well remarks, are the prejudicial effects of adopting bad courſes of cropping, from the circumſtances of old graſs lands being capable of affording a good produce for a time. The ſame conſequences may, likewiſe, he thinks, take place, even upon ſoils of a much better quality by ſuch methods of cropping. It is evident that they ſhould, therefore, be avoided as much as poſſible on all deſcriptions of ſoil by the correct farmer. The laſt of theſe courſes not only exhibits the badneſs of the practice of taking ſucceſſive grain crops, but that beans, by the aid of the hoeing culture, cannot afford a produce, even on newly broken up land, that will ſufficiently repay the great trouble and expence of the farmer.

Course VII.

Courſe.	*Produce.*	*Value.*		
		£.	s.	d.
1 Beans	3 qrs.	4	2	0
2 Turnips	4 tons	0	16	0
3 Beans	5 qrs. 2 buſhels	6	16	0
4 Potatoes	234 buſhels	5	17	0
5 Beans	3 qrs.	4	2	0
6 Wheat	3 qrs. 4 buſhels	7	10	0
		29	3	0
	Per annum	4	17	6

Course VIII.

Courſe.	*Produce.*	*Value.*		
		£.	s.	d.
1 Beans	3 qrs. 1 buſhel	4	5	0
2 Cabbages	6 tons	1	10	0
3 Beans	3 qrs.	6	10	0
4 Cabbages	6½ tons	1	12	6
5 Beans	4 qrs. 2 buſhels	5	12	0
6 Wheat	3 qrs. 6 buſhels	8	0	0
		27	9	6
	Per annum	4	11	7

Course IX.

Courſe.	*Produce.*	*Value.*		
		£.	s.	d.
1 Beans	3 qrs.	4	2	0
2 Potatoes	147 buſhels	3	13	0
3 Beans	4 qrs.	5	6	0
4 Cabbages	6½ tons	1	12	6
5 Beans	4 qrs. 2 buſhels	5	15	0
6 Wheat	3 qrs. 5 buſhels	7	15	0
		28	0	6
	Per annum	4	13	5

On theſe courſes, it is noticed, that the produce of the firſt of them, though there is only one grain crop in the ſix years, is ſo conſiderable, as to prove the diſadvantage of deteriorating courſes, eſpecially as the circumſtances under which they are put in are ſuppoſed by ſome to be unfavourable, on account of the land, after turnips and potatoes, from the repeated tillage which is required for ſuch crops, being left in too light and porous a ſtate for the growth of beans. It has the advantage, however, of leaving the land perfectly clean, and in a fertile condition. And likewiſe proves, in the opinion of the experimenter, that great attention may be had to the keeping of land clean and in heart, by gentle modes of cropping, without the danger of immediate injury being ſuſtained by it. And it is further ſuppoſed, that, if beans or wheat had been the crop of the fourth year upon the manure, in place of the potatoes, the profit, on the whole, would have been more, without the ground being left in a leſs rich condition. In regard to the two laſt courſes, they ſhow, from there being but one grain crop in ſix years, that though cabbages, by being removed from the land, exhauſt, three crops of beans are ſufficient to preſerve the land for a good wheat crop, beſides leaving it in a good ſituation. They are, conſequently, profitable courſes, and ſuch as are ſuited to the obtaining of perfect cleanneſs of culture. In the latter couſe, the profit is, however, leſs, from the circumſtance of potatoes being had recourſe to as a crop.

Course X.

Courſe.	*Produce.*	*Value.*		
		£.	s.	d.
1 Beans	3 qrs.	4	2	0
2 Beans	4 qrs.	5	6	0
3 Beans	4 qrs. 6 buſhels	6	4	0
4 Cabbages	8½ tons	2	2	6
5 Beans	4 qrs.	5	6	0
6 Wheat	4 qrs. 1 buſhel	8	15	0
		31	15	6
	Per annum	5	5	11

Course XI.

Courſe.	*Produce.*	*Value.*		
		£.	s.	d.
1 Beans	3 qrs. 7 pecks	4	2	9
2 Barley	4 qrs. 7 buſhels	5	7	6
3 Beans	4 qrs.	5	6	0
4 Barley	5 qrs. 4 buſhels	7	0	0
5 Beans	4 qrs. 1 buſhel	5	9	0
6 Wheat	3 qrs. 1 buſhel	6	15	0
		34	0	3
	Per annum	5	13	4

Course XII.

Courſe.	*Produce.*	*Value.*		
		£.	s.	d.
1 Beans	3 qrs.	4	2	0
2 Wheat	2 qrs. 6½ buſhels	6	2	6
3 Beans	3 qrs. 2½ buſhels	4	9	6
4 Wheat	3 qrs. 3¾ buſhels	7	8	9
5 Beans	3 qrs.	4	2	0
6 Wheat	3 qrs.	6	10	0
		32	14	9
	Per annum	5	9	1

The experimenter on theſe courſes ſuggeſts, that it is evident, from the firſt, that ſucceſſive crops of beans have a conſiderable ameliorating property, as both the cabbages and beans after them were very good. Their effects in preſerving the fertility ariſing from the old turf is likewiſe obvious, as well as that of keeping the land perfectly free from weeds, at the ſame time that a good profit is afforded. It alſo, he ſuppoſes, affords a ſtrong proof of the advantage of a careful method of cropping newly broken up lands. Such courſes ſhould, conſequently, he ſays, be more frequently employed on all thoſe ſtiff and retentive deſcriptions of land on which beans can be grown, both with the view of immediate profit, and the benefits that may enſue from the land being kept clear and free from noxious weeds.

In reſpect to the ſecond, it affords, in his opinion, an example of a good and correct mode of practice, without much exhauſtion; though, if compared with the preceding courſe, there appears to be, he ſays, a ſlight degree of deterioration from the wheat, in that being a quarter more. It may, however, be adopted as a very profitable courſe. The laſt of theſe courſes is well known to be a very profitable one on all the richer ſorts of heavy ſoils; and it is here ſhewn, he thinks, to anſwer well on ſuch as are of an inferior quality, even without the application of manure. The power of bean crops, in preſerving the fertility of lands newly broken up from ſward, is likewiſe here evinced by the ſixth crop, though inferior to others. This courſe ſhould not, however, in general, he thinks, be attempted, except on the richeſt ſort of heavy-ſoiled kinds of land.

Course XIII.

Courſe.	*Produce.*	*Value.*		
		£.	s.	d.
1 Turnips	3 tons	0	12	0
2 Turnips	5½ tons	1	2	0
	Carry over	1	14	0

		£.	s.	d.
	Brought forward	1	4	0
3 Oats	9 qrs.	8	12	0
4 Potatoes	252 buſhels	6	6	0
5 Beans	3 qrs. 1 buſhel	4	5	0
6 Wheat	3 qrs. 3 buſhels	7	5	0
		28	2	0
	Per annum	4	13	8

Course XIV.

Courſe.	*Produce.*	*Value.* £.	s.	d.
1 Turnips	3 tons	0	12	0
2 Cabbages	6 tons	1	10	0
3 Oats	10 qrs. 5½ buſhels	10	2	4
4 Cabbages	8 tons	2	0	0
5 Beans	3 qrs. 5 buſhels	5	17	0
6 Wheat	3 qrs.	6	10	0
		26	11	4
	Per annum	4	8	6

Course XV.

Courſe.	*Produce.*	*Value.* £.	s.	d.
1 Turnips	3½ tons	0	14	0
2 Potatoes	154 buſhels	3	17	0
3 Oats	8 qrs. 5½ buſhels	8	1	11
4 Cabbages	8 tons	2	0	0
5 Beans	3 qrs. 5 buſhels	4	17	0
6 Wheat	3 qrs. 1 buſhel	6	15	0
		26	4	11
	Per annum	4	7	6

The experimenter remarks on theſe courſes, that the firſt exhibits the utility of repeated turnip crops in the preparation of this kind of ſoil for grain crops, the produce of the oats from the pulverization they effected being very great. It is added, that oats are moſtly ſown on newly broken up-lands, but never with much ſucceſs on ſuch as are wet. The exhauſtion of the ſoil in this courſe ſeems not to have been great, though the oats were followed by potatoes, which are known to exhauſt, as the ſucceeding bean and wheat crops were both good, but more eſpecially the latter. It is obvious, however, he ſays, that as turnips and cabbages cannot be produced to advantage on ſuch cold, wet ſoils, without much manure; that ſuch rotations muſt be the moſt beneficial and proper on the drier ſorts of land, where ſuch crops can be grown and fed on the grounds by live ſtock. And, he adds, that the groſs product in the ſecond courſe is not to be compared with the firſt, as the potatoes affording ſix guineas left no profit. The largeneſs of the produce of oats ſeems to ſhew, he ſays, the beneficial effects of cabbage crops in preparing the ſoil. The inferiority of the wheat crop, when compared with that in the firſt of theſe courſes, is ſuppoſed to depend on the want of manure. Notwithſtanding there are two crops of cabbages and one of turnips in this courſe, it appears, he ſays, to be profitable. It would ſeem, however, to be the moſt ſuited to the more dry kinds of ſoil.

He ſtates farther, that in comparing the third courſe with the two that precede it, the deteriorating properties of potatoes are evidently much greater than thoſe of either turnips or cabbages, from the inferiority of the oat crop that followed them. And it is ſuggeſted that, "wherever potatoes enter with a ſmall produce, the expences more than abſorb the value."

Course XVI.

Courſe.	*Produce.*	*Value.* £.	s.	d.
1 Turnips	3 tons	0	12	0
2 Beans	4 qrs.	5	6	0
3 Oats	8 qrs. 7 buſhels	8	9	9
4 Cabbages	6 tons	1	10	0
5 Beans	3 qrs. 6 buſhels	5	0	0
6 Wheat	3 qrs. 2 buſhels	7	0	0
		27	17	9
	Per annum	4	12	11

Course XVII.

Courſe.	*Produce.*	*Value.* £.	s.	d.
1 Turnips	5½ tons	0	14	0
2 Barley	5 qrs. 1 peck	5	0	7
3 Oats	5 qrs. 5 buſhels	5	11	3
4 Barley	4 qrs.	4	10	0
5 Beans	3 qrs.	4	2	0
6 Wheat	2 qrs.	4	10	0
		24	7	10
	Per annum	4	1	3

Course XVIII.

Courſe.	*Produce.*	*Value.* £.	s.	d.
1 Turnips	3 tons	0	12	0
2 Wheat	2 qrs. 7 buſhels	6	5	0
3 Oats	4 qrs. 6½ buſhels	4	16	1
4 Wheat	2 qrs. 3 buſhels ½ peck	5	5	4
5 Beans	2 qrs.	2	18	0
6 Wheat	1 qr. 7 buſhels	4	5	0
		24	1	5
	Per annum	4	0	2

On theſe courſes he hints that the reſult of the firſt diſplays the advantage of beans over potatoes in reſpect to profit. In the ſecond, the land being left foul and in a bad condition, ſhews by the lightneſs of the wheat crop, when compared with thoſe in other courſes, that great deterioration had been produced by it. The laſt courſe exhibits a ſtill worſe practice, and that the land is left in a more deteriorated and foul ſituation by three wheat crops. Such courſes can of courſe never be had recourſe to with either the view of profit, or that of keeping the land in proper condition in reſpect to cleanneſs.

Course XIX.

Courſe.	Produce.	Value.		
		£.	s.	d.
1 Potatoes	106 buſhels	2	13	0
2 Turnips	4½ tons	0	18	0
3 Potatoes	136 buſhels	3	8	0
4 Ditto	198 buſhels	4	19	0
5 Beans	2 qrs.	2	18	0
6 Wheat	1 qr. 6 buſhels	4	0	0
		18	16	0
	Per annum	3	2	8

Course XX.

Courſe.	Produce.	Value.		
		£.	s.	d.
1 Potatoes	185 buſhels	2	12	6
2 Cabbages	5 tons	1	15	0
3 Potatoes	110 buſhels	2	15	0
4 Cabbages	4 tons	1	0	0
5 Beans	2 qrs. 2 buſhels	3	4	0
6 Wheat	2 qrs.	4	10	0
		15	6	6
	Per annum	2	11	0

Course XXI.

Courſe.	Produce.	Value.		
		£.	s.	d.
1 Potatoes	104 buſhels	2	12	0
2 Ditto	126 buſhels	3	3	0
3 Ditto	97 ditto	2	8	6
4 Cabbages	3 tons	0	15	0
5 Beans	1 qr. 7 buſhels	2	15	0
6 Wheat	1 qr. 4 buſhels	3	10	0
		15	3	6
	Per annum	2	10	7

On theſe courſes it is ſtated, that the deteriorating effects of potatoe crops are fully demonſtrated. With manure in the proportion already explained in the fourth courſe, the beans which ſucceeded were, he ſays, a very poor produce, and the wheat, though the only white crop in ſix years, a miſerable produce in a very good year. He adds, that in the fourth courſe, where there were two crops of wheat, with three of beans, the concluding wheat crop afforded three quarters one buſhel, without any manure, a difference that is highly ſtriking. And that in the eighth, three crops of beans, and two crops of cabbages, were followed with very good wheat, though cabbages removed from the ground exhauſt; but in theſe courſes there are ſcarcely any except ſucceſſive wheat crops, that exhauſt the land ſo greatly as potatoe crops are found to do.

With reſpect to the ſecond courſe, it diſplays little elſe, he thinks, but a continued loſs; and the third affords a proof of the loweſt decreaſe of produce that can be ſuppoſed on newly broken up-land; beſides, the ſoil is left ſo foul and deteriorated, that the whole of its fertility from improvement, and the decay of the old turf, appears removed. It makes ſtrongly, he thinks, againſt potatoes, which can probably only be introduced with advantage as a cleaning crop, and where manure is readily procured, and in great abundance.

Course XXII.

Courſe.	Produce.	Value.		
		£.	s.	d.
1 Potatoes	100 buſhels	2	10	0
2 Beans	3 quarters	4	2	0
3 Potatoes	142 buſhels	3	11	0
4 Barley	5 tons	1	5	0
5 Beans	2 qrs. 3 buſhels	3	10	0
6 Wheat	2 qrs. 1 buſhel	4	15	0
		19	13	0
	Per annum	3	5	6

Course XXIII.

Courſe.	Produce.	Value.		
		£.	s.	d.
1 Potatoes	101 buſhels	2	10	6
2 Barley	4 qrs. 7 buſhels	5	7	6
3 Potatoes	127 buſhels	3	3	6
4 Barley	3 qrs. 2 buſhels	3	15	0
5 Beans	2 qrs. 7 buſhels	3	19	0
6 Wheat	2 qrs. 5 buſhels	5	15	0
		24	10	6
	Per annum	4	1	9

Course XXIV.

Courſe.	Produce.	Value.		
		£.	s.	d.
1 Potatoes	100 buſhels	2	10	0
2 Wheat	2 qrs. 1 buſhel	4	15	0
3 Potatoes	104 buſhels	2	12	0
4 Wheat	2 quarters	4	10	0
5 Beans	2 qrs. 2 buſhels	3	4	0
6 Wheat	1 qr. 6 buſhels	4	0	0
		21	11	0
	Per annum	3	11	10

The experimenter has remarked, that the firſt of theſe courſes ſhews the exhauſting effects of potatoes in a ſtill more evident manner; but the effects of the beans are ſomewhat different than in the other caſes noticed above.

It is ſuppoſed evident from the ſecond, that barley ſucceeds better after potatoes than wheat; while the inferiority of the ſecond crop proves that the preparation they afford is not perfectly ſuitable, and that the wheat that ſucceeds is affected by their deteriorating property. The third courſe not only confirms the different reſults that have been ſtated, but affords, by a compariſon with the twelfth, proofs of the utility of having beans and wheat in alternate courſes.

COURSE XXV.

Courſe.	*Produce.*	*Value.*		
		£.	*s.*	*d.*
1 Potatoes	98 buſhels	2	9	0
2 Turnips	4 tons	0	16	0
3 Cabbages	5½ tons	1	7	6
4 Potatoes	270 buſhels	6	15	0
5 Beans	2 qrs. 2 buſhels	3	4	0
6 Wheat	2 qrs. 2 buſhels	5	0	0
		19	11	6
	Per annum	3	5	3

COURSE XXVI.

Courſe.	*Produce.*	*Value.*		
		£.	*s.*	*d.*
1 Potatoes	101 buſhels	2	10	6
2 Cabbages	6 tons	1	10	0
3 Cabbages	5½ tons	1	7	6
4 Cabbages	3 tons	0	15	0
5 Beans	2 qrs. 6 buſhels	3	16	0
6 Wheat	2 qrs. 2 buſhels	5	0	0
		14	19	0
	Per annum	2	9	10

COURSE XXVII.

Courſe.	*Produce.*	*Value.*		
		£.	*s.*	*d.*
1 Potatoes	100 buſhels	2	10	0
2 Potatoes	115 buſhels	2	17	6
3 Cabbages	3½ tons	0	17	6
4 Cabbages	3½ tons	0	17	6
5 Beans	2 qrs. 2 buſhels	3	4	0
6 Wheat	2 quarters	4	10	0
		14	16	6
	Per annum	2	9	5

The writer remarks, that in the firſt of theſe courſes, though the potatoes of the fourth crop were manured for as above, the poorneſs of the wheat crop, which was the only one of the grain kind in ſix years, ſhews the exhauſting effects of cabbage and turnip crops, when removed from the ground in combination with potatoes, to be conſiderable; and from the ſecond it is evident, that cabbages, when not conſumed upon the land, are ſo prejudicial as not to permit the ameliorating powers of beans to ſecure a favourable crop of wheat. Neither this nor the preceding courſe is therefore profitable. The laſt is ſtated to be a courſe of nothing but loſs, and which ſhews, in addition, the exhauſting effects of potatoes and cabbages to be great, when removed from the ground to be conſumed in other ſituations.

COURSE XXVIII.

Courſe.	*Produce.*	*Value.*		
		£.	*s.*	*d.*
1 Potatoes	96 buſhels	2	8	0
2 Beans	3 qrs. ½ peck	4	2	4
	Carried over	6	10	4
	Brought forward	6	10	4
3 Cabbages	6½ tons	1	12	6
4 Cabbages	4 tons	1	0	0
5 Beans	2 qrs. 2 buſhels	3	4	0
6 Wheat	2 qrs. 3 buſhels	5	5	0
		17	11	10
	Per annum	2	18	7

COURSE XXIX.

Courſe.	*Produce.*	*Value.*		
		£.	*s.*	*d.*
1 Potatoes	100 buſhels	2	10	0
2 Barley	4 qrs. 7½ buſhels	5	8	9
3 Cabbages	4 tons	1	0	0
4 Barley	4 qrs. 1 buſhel	4	12	6
5 Beans	3 quarters	4	2	0
6 Wheat	2 qrs. 6 buſhels	6	0	0
		23	13	3
	Per annum	3	18	10

COURSE XXX.

Courſe.	*Produce.*	*Value.*		
		£.	*s.*	*d.*
1 Potatoes	99 buſhels	2	9	6
2 Wheat	2 qrs. 7 buſhels	6	5	0
3 Cabbages	4½ tons	1	2	6
4 Wheat	3 qrs. 6 buſhels 1½ pecks	8	1	6
5 Beans	2 qrs. 6 buſhels	3	16	0
6 Wheat	2 quarters	4	10	0
		26	5	6
	Per annum	4	7	5

The experimenter obſerves, that the courſes in which potatoes and cabbages, not conſumed on the land, enter in any conſiderable degree, all prove the ſame thing, that, under particular circumſtances, they are both prejudicial in exhauſting the land; and that the two latter courſes, when compared with thoſe of eleven and twelve, diſplay the advantages of beans over potatoes and cabbages in a manner that is extremely obvious, and highly in their favour.

COURSE XXXI.

Courſe.	*Produce.*	*Value.*		
		£.	*s.*	*d.*
1 Potatoes	100 buſhels	2	10	0
2 Turnips	4 tons	0	16	0
3 Turnips	5 tons	1	0	0
4 Potatoes	288 buſhels	7	4	0
5 Beans	3 quarters	4	2	0
6 Wheat	2 qrs. 7 buſhels	6	5	0
		21	17	0
	Per annum	3	12	10

Course XXXII.

Courſe.	Produce.	Value.		
		£.	s.	d.
1 Potatoes	100 buſhels	2	10	6
2 Cabbages	5 tons	1	5	0
3 Turnips	4 tons	0	16	0
4 Cabbages	4 tons	1	0	0
5 Beans	3 quarters	4	2	0
6 Wheat	2 qrs. 6 buſhels	6	0	0
		15	13	6
	Per annum	2	12	3

Course XXXIII.

Courſe.	Produce.	Value.		
		£.	s.	d.
1 Potatoes	100 buſhels	2	10	0
2 Potatoes	112 buſhels	2	16	0
3 Turnips	4 tons	0	16	0
4 Cabbages	4½ tons	1	2	6
5 Beans	2 qrs. 5 buſhels	3	13	0
6 Wheat	1 qr. 3 buſhels	5	5	0
		16	2	6
	Per annum	2	13	9

Here the writer ſuggeſts, that the profit of theſe courſes is too trifling to recommend them; and the products of the fifth and ſixth years' crops are ſuppoſed to be leſs than they ought to be, from the circumſtance of manure being applied in the fourth, and there being only one grain crop in the courſe: of courſe, that potatoes, even when manured for, leave the ſoil in no very advantageous ſituation for the growth of wheat, though aſſiſted by the cleaning and improving qualities of bean crops.

And that the ſecond and third courſes are equally deciſive in ſhewing the exhauſting effects both of potatoe and cabbage crops, when not conſumed on the land, as well as that they are courſes that ſhould ſeldom be employed, where they cannot be manured for, and be fed off upon the land by live ſtock.

Course XXXIV.

Courſe.	Produce.	Value.		
		£.	s.	d.
1 Potatoes	98 buſhels	2	9	0
2 Beans	3 qrs. 1 peck	4	2	9
3 Turnips	4 tons	0	16	0
4 Cabbages	5½ tons	1	7	6
5 Beans	3 quarters	4	2	0
6 Wheat	2 qrs. 6 buſhels	6	0	0
		18	17	3
	Per annum	3	2	10

Course XXXV.

Courſe.	Produce.	Value.		
		£.	s.	d.
1 Potatoes	100 buſhels	2	10	0
2 Barley	4 qrs. 6 buſhels 3 pecks	5	6	10
	Carry over	7	16	10
	Brought forward	7	16	10
3 Turnips	4 tons	0	16	0
4 Barley	4 quarters	4	10	0
5 Beans	3 quarters	4	2	0
6 Wheat	3 quarters	6	10	0
		23	14	10
	Per annum	3	19	1

Course XXXVI.

Courſe.	Produce.	Value.		
		£.	s.	d.
1 Potatoes	100 buſhels	2	10	0
2 Wheat	2 qrs. 6 buſhels	6	0	0
3 Turnips	4 tons	0	16	0
4 Wheat	2 qrs. 7 buſhels 2½ pecks	6	8	0
5 Beans	2 qrs. 6 buſhels	3	16	0
6 Wheat	2 qrs. 6 buſhels	6	0	0
		25	10	0
	Per annum	4	5	0

On theſe three courſes it is obſerved, that the firſt ſhews ſtill more fully the effects of potatoes and cabbages. The ſecond alſo ſhews, that while the turf of newly broke-up grounds is in a ſtate of decay, ſpring corn ſucceeds well after potatoe crops. It likewiſe proves that three grain crops may be grown in ſix years, without the ſoil being greatly exhauſted, where proper care and attention is paid to the nature of the crops that are interpoſed between them in the different courſes.

From the numerous facts and obſervations which have been ſtated above, we may be enabled to comprehend more clearly the nature and principles of the modern ſyſtem of cropping land, or the art of properly regulating the courſes of crops; by which, long experience has now ſatisfactorily demonſtrated, that ground may be preſerved in a tolerable ſtate of heart with a conſiderably leſs ſupply of manure, than under other circumſtances; the great expence of the naked fallow proceſs be avoided; and where a proper plan is purſued in the conſumption of the different green and other crops, an abundant ſupply of dung be provided for the further improvement of the land.

It has been ſtated by a late writer in his "Syſtem of Practical Huſbandry," that the injurious conſequences of cropping land with grain, and other kinds of crops, which deteriorate and exhauſt in a high degree, may probably be prevented in the beſt manner on the more ſtiff and retentive ſorts of land, whether of the clayey or loamy kinds, by the interpoſing of bean and clover or tare crops between them; as the experiments detailed above have ſhewn the former to poſſeſs the power of ameliorating the condition of ſuch ſoils, and the latter ſeems not leſs calculated for the ſame purpoſe, as it is known to grow well on theſe ſorts of land; and on thoſe of a more light and dry quality, whether ſandy, or of a gravelly nature, the intermixing of turnip, pea, and other crops of the ſame ſort with thoſe of corn may be equally ſucceſsful. In many caſes, eſpecially on the more heavy kinds of ſoil, it may be neceſſary and highly beneficial to take two green crops for one of grain. This, it is remarked, is a practice that the reſults of the trials, juſt detailed, place in an advantageous point of view, and which has extended itſelf over a conſiderable tract of land, with great ſucceſs, in the county of Middleſex, and by which, from the cleanneſs of the cultivation, and the great vigour of the land, in conſequence of the few corn crops, the grain is found of a ſuperior quality. It is indeed remarked by Mr. Middleton, a writer of conſiderable experience, that "land under common circumſtances will not even bear without injury a corn crop every two years." This is fully ſhewn, he conceives, "by the turnip crops in Norfolk being uniformly found to be not only leſs certain, but much lighter than formerly, as well as from the ſame remark being applicable to the clover, and probably to the corn crops. Such diminutions in the quantity of produce, he ſuppoſes, demonſtrate that the valuable and favourite rotation of that diſtrict, as turnips, barley, clover, wheat, is ſomewhat more than the ground can ſuſtain, as it appears to be gradually ſinking under too much exhauſtion." With the aid of extenſive ſheep-walks, he conceives the ſoil not even capable of ſupporting the depreſſing conſequences of the preſent courſes of crops, particularly, when a five years' courſe, by introducing barley after wheat, is improperly employed.

Various rules have been laid down by writers on huſbandry for regulating and proportioning the different ſorts of crops to different kinds of ſoil. In the "Agricultural Survey of the County of Middleſex," the following are adviſed as the moſt ſuitable under the different circumſtances and caſes of ſoils:

For the *beſt* ſorts of land, alternate green and white crops.

For thoſe of a *full medium* quality, three green crops for two of the grain or white kind.

For *ordinary* land, two of the green for one of the corn kind. And,

For the worſt or moſt exhauſted, as downs and ſheep-walks, three green crops for one of the white or grain kind.

Theſe may be arranged as below to a ſtill greater number of green crops.

COURSE I.

Alternate Green and White Crops.

1 Turnips.
2 Barley.
3 Clover.
4 Wheat.

COURSE II.

Two Green Crops to one of Grain.

1 Corn, or Peaſe.
2 Clover, Beans.
3 Peaſe, Corn.

COURSE III.

Three Green Crops to one of Grain.

1 Corn- -or—1 Corn.
2 Clover, 2 Clover.
3 Tares, 3 Peaſe.
4 Turnips, 4 Beans.

Which affords four crops in three years.

COURSE IV.

Four Green Crops to one of Grain.

1 Tares.
2 Potatoes, or cole for ſheep feed.
3 Turnips.
4 Corn.
5 Clover.

Which affords five crops in four years.

COURSE V.

Five Green Crops to one of Grain.

1 Peaſe.
2 Beans.
3 Corn.
4 Clover.
5 Tares.
6 Turnips.

Which affords ſix crops in five years.

It is ſuggeſted, that by cropping in theſe ways and proportions, the land may be kept perfectly clean from weeds, and in a high ſtate of cultivation; and that under ſuch a ſyſtem it might be continued in a perpetual ſtate of tillage, "with a conſtant ſucceſſion of large products." And that in addition, the farmer would be more certain of obtaining plentiful returns for his labour, expence, and exertion.

The able writer of the Survey mentioned above, wiſhes alſo to draw the attention of farmers, particularly where the ſoil is proper for barley, to the crops ſtated below, in the view of affording a continued ſucceſſional *abundant ſupply* of the beſt kinds of *green* food, the whole year round.

Water meadows,
Rye-graſs,
Rye, cut green,
Winter tares,
Clover, the firſt crop,
Spring tares,
Clover, the ſecond crop,
After graſs of meadows, clover, and ſeeds of all ſorts.
Turnips,
Potatoes,
Cabbages, common ſorts, ſavoys,
Cole, green boor-cole, and purple boor-cole,
Swediſh turnips,
Turnip-rooted cabbage,
Kohlrabi.

Where theſe different crops are raiſed on a ſufficient ſcale to the extent of the farm, and the quantity of *live ſtock*, there can be no inconvenience ſuſtained, it is ſuppoſed, for the want of food for them, at any period or ſeaſon of the year. "Water meadows, ſays the writer, afford a vaſt deal of food from the middle of March; rye-graſs from the firſt of April; rye from the beginning of May; winter tares ſoon follow; then comes clover the firſt crop; ſpring tares; clover the ſecond crop; and the after-graſs of natural meadows, clover, &c. which will continue in perfection for heavy cattle till early ſown turnips are ready. Late ſown turnips and cabbages will be ſufficient till the end of February, without ſtoring; about which time the cole, Swediſh turnip, and turnip-rooted cabbage will come in, and continue good through March, April, and even May, if needful." All which, he thinks, more than complete the circle of the year.

The variations of courſes which are capable of being made uſe of under different ſtates and ſituations of land are very numerous, but the following may be ſufficient for the preſent purpoſe:

I. *On ſtrong wet ſoil, where a fallow is intended.*

Courſe.		*Courſe.*
1 Fallow,	or	1 Fallow.
2 Barley,		2 Barley.
3 Beans,		3 Clover.
4 Wheat,		4 Beans.
5 Tares,		5 Wheat.
6 Barley,		6 Cabbages.

7 Clover,

7 Clover,	7 Oats.
8 Beans	8 Tares.
9 Wheat	9 Barley.

It is the moſt improved practice in theſe caſes to let the fallow be the preparation for the firſt corn crop, depending on ſome kind of green crop for thoſe that follow, without any repetition of it.

Other courſes in this caſe may be as below:

Courſe.
1 Fallow.
2 Barley.
3 Clover.
4 Wheat.

Or in caſes where manure is in plenty, it may be better thus:

Courſe.		*Courſe.*
1 Fallow,	or	1 Cabbage, beans, or peaſe.
2 Wheat		2 Barley or oats.
3 Beans		3 Clover.
4 Barley		4 Wheat.
5 Clover		
6 Wheat.		

Alſo,

Courſe.		*Courſe.*
1 Cabbage,	or	1 Beans.
2 Oats		2 Wheat.
3 Beans		3 Cabbages.
4 Wheat		4 Barley.
		5 Clover.
		6 Wheat.

And in ſome caſes where the culture is well executed, the courſe may run in this way:

Courſe.
1 Turnips.
2 Oats.
3 Vetches.
4 Wheat.

In converting lands of theſe kinds to the ſtate of tillage from that of graſs or ſward, by means of paring and burning, the proper courſe may be:

Courſe.
1 Cole.
2 Beans.
3 Wheat.
4 Beans.
5 Wheat.

It is the remark of the Rev. Mr. Cartwright, in an able Eſſay in the fourth volume of "Communications to the Board of Agriculture," that tares, though by ſome objected to with propriety, as coming too late in the ſpring ſeaſon on ſuch ſorts of land, may be occaſionally introduced with advantage, in the view of being eaten off by ſheep, or mown green for horſes, milch cows, young ſtock, and hogs. By theſe methods of cropping, with proper regard to the eating off the green crops on the ground, where it can be effected without injury; or to the removing them to be conſumed in the fold yards, or other places, in order to the manure being afterwards applied; the ground may not only be ameliorated, by being rendered more rich and friable, but be preſerved perfectly free from all deſcriptions of weeds.

In the generality of the heavier kinds of land of this deſcription, when brought into tillage from the ſtate of old ſward, it would ſeem that beans would be the moſt ſuitable crop to begin with, notwithſtanding the moſt uſual practice has been to have recourſe to oats in ſuch caſes; as from the gradual decay of the turfy and graſſy materials, the growth of the beans may be greatly promoted, and large crops thus produced. Beſides, the roots of the bean plants, by their penetrating deeply, render the land more mellow, and at the ſame time improve it, bringing it more expeditiouſly to the proper ſtate for wheat.

Where, however, the quality of the land is more light and mellow, peaſe are often capable of being introduced with greater benefit as a firſt crop after breaking up. However, in very old ſward, from worms, grubs, and ſlugs being often prevalent in them, great injury may be ſuſtained by the firſt crops from theſe cauſes; conſequently the proceſs of paring and burning ſhould be adopted, or the uſe of the trench plough, that theſe and the graſſy material may be got quit of as much as poſſible. And in this view it has likewiſe been adviſed, as of much advantage, to have ſuch lands kept as cloſely fed down as poſſible before the time of breaking them up; as by ſuch a practice leſs *ova* may be depoſited by the fly, and conſequently fewer of ſuch injurious animals generated. But in all ſuch caſes, beans are conſiderably leſs liable to ſuffer injury in this way than peaſe.

II. *On Soils of the Sound loamy kinds where Fallows are excluded.*

Courſe.		*Courſe.*
1 Turnips,	or	1 Turnips.
2 Barley,		2 Ruta baga.
3 Clover,		3 Barley.
4 Wheat,		4 Clover.
5 Cabbages,		5 Beans.
6 Oats,		6 Wheat.
7 Tares,		7 Beans.
8 Barley,		8 Wheat.
9 Beans.		
10 Wheat.		

On theſe courſes it may be obſerved, that the ſoil muſt be in a high ſtate of fertility to ſupport the frequent recurrence of theſe exhauſting grain crops; and that more green crops will frequently be required.

III. *On the rich Kinds of ſandy Soils.*

Courſe.
1 Turnips.
2 Barley.
3 Carrots.
4 Barley.
5 Clover.
6 Wheat.

It would appear to be the practice of the beſt arable diſtricts, on theſe two laſt ſorts of ſoils, to have recourſe to turnips as a preparation for barley, and clover that for wheat, in this way.

Courſe.
1 Turnips.
2 Barley.
3 Clover.
4 Wheat.

But in this courſe it may ſometimes be proper to ſubſtitute oats in the place of the barley, as well as tares, chicory, or ſome other kind of artificial graſs ſeed, in the room of the clover.

In bringing lands of theſe kinds into a ſtate of tillage from that of graſs or ſward, where the practice of paring

ing and burning is employed, the proper courſe may be this :

Courſe.
1 Turnips.
2 Barley.
3 Clover.
4 Wheat.
5 Turnips.
6 Barley.
7 Clover.
8 Wheat.
9 Turnips.
10 Barley with ſeeds.

But where the land is only to be kept a ſhort time under the tillage ſyſtem, a more proper courſe may be :

Courſe.
1 Turnips.
2 Barley.
3 Clover.
4 Wheat.
5 Turnips.
6 Barley with graſs ſeeds.

In caſes where paring and burning are not practiſed, which is not ſo common, it may be the beſt plan to begin with beans or peaſe dibbled, and then go on as above. But in caſes of this kind, the turnip and clover crops are conſtantly to be eaten off, upon the land, by ſheep, or ſome other kind of live ſtock. In the more dry and light ſoils of this deſcription, pea crops may likewiſe be had recourſe to as a firſt crop, eſpecially the white ſort under the dibbling practice ; then going on with the other crops in the above manner. In caſes where potatoes are begun with, it will be requiſite to have more of the ameliorating crops, in conſequence of their greater effect in exhauſting and injuring the land, as has been ſhewn by the experiments ſtated above.

In particular diſtricts, on ſome ſoils, merely of the ſandy ſort, it is alſo the practice to make turnips the preparation for both graſs and grain ; and experience has ſhewn that there are few of theſe ſoils ſo light as not to afford ſuch a crop. In caſes of this kind, the courſe is uſually this :

Courſe.
1 Turnips.
2 Barley.
3 Graſs ſeeds.

Here the graſſes, being raiſed in the view of ſheep feed, ſhould of courſe be ſuch as will ſtand for ſome time, as it is not by any means a good method to break up the land again too ſoon ; for the flocks fed upon the turnips in the winter ſeaſon, are not provided with a due quantity of food on ſuch *new layers* for their ſummer ſupport.

In the county of Suffolk, as appears from the Agricultural Report of that diſtrict, on the better kinds of ſandy ſoils, the layers are frequently planted with peaſe by dibbling, to much advantage, after being broken up, without being fed with ſheep during the ſummer ſeaſon : the ſucceeding crop of wheat being, in ſuch methods, much larger. The following is conſidered as an excellent courſe on ſuch ſorts of ſoil :

Courſe.		*Courſe.*
1 Turnips.	Or, where the ſoils are poor, or of the nature of heath or ſheep walk, to bring them into cultivation.	1 Pare and burn for turnips.
2 Barley.		2 Turnips.
3 Trefoil and ray graſs.		3 Barley, with graſs ſeeds.
4 Peaſe dibbled.		
5 Barley.		

Where they are intended to be kept in tillage longer than this courſe, the turnip, barley, and graſs crops may be alternately had recourſe to, until the fifth or ſeventh year, or even longer, where it is ſuppoſed neceſſary. And here likewiſe, when potatoes are employed as the firſt crop after breaking up, from their deteriorating property being conſiderable, they muſt be ſucceeded by more numerous improving crops, as turnips and graſſes, as ſhewn in the above courſes.

In ſoils of this nature, which are of the poor, light, blowing kind, their want of tenacity muſt be corrected by the uſe of earthy ſubſtances of the clayey kind in ſuitable proportions, and the conſuming of the crops upon the land by ſheep. But where theſe means cannot be had recourſe to, the courſe given above will be found highly proper and beneficial.

IV. *On the more dry Sorts of Soils, as the Limeſtone or calcareous Kinds, and thoſe of the gravelly and flinty Deſcriptions.*

Courſe.
1 Turnips.
2 Turnips.
3 Barley.
4 Saintfoin for ten years or more, then pared and burned for.
5 Turnips.
6 Barley.
7 Peaſe.
8 Wheat.

The dry, gravelly, and flinty ſoils, where of the lighter deſcriptions, ſhould be cropped in ſuch a way as that their moiſture may be preſerved in them in the moſt perfect manner, and their fertility be impaired in the leaſt poſſible degree. In this ſituation, two or more of the green ſort of crops for one of grain may often be proper, as in the above courſes ; or, in the following manner :

Courſe.
1 Turnips.
2 Barley.
3 Clover.
4 Wheat.
5 Turnips.
6 Barley, with graſs ſeeds.

And in many ſituations and circumſtances of ſuch lands, peaſe, tares, and cole may be had recourſe to in the courſes with great propriety and benefit. And where flints are abundant, from having been ſuppoſed incapable of being performed with facility, it has been ſuggeſted that the turnips ſhould be ſown thin, and a portion of cole ſeed be blended with them, by which an abundant ſupply of ſheep food may be afforded. It has been alſo adviſed in theſe ſorts of ſoils, that the corn crops, particularly thoſe of the ſpring kind, ſhould be conſtantly ſown early, where the land is ſufficiently dry, that they may be ſo forward as to cover the ground well before the hot ſeaſon ſets in, and thereby prevent the injury that muſt be ſuſtained by too much diſſipation of their moiſture.

But that, on the heavier ſorts of ſoils of this nature, beans or peaſe may often be made the preparation for barley, or even occaſionally for wheat, in this way :

Courſe.
1 Beans or peaſe.
2 Barley.
3 Clover.
4 Wheat.

And the courſe may be further varied, by having recourſe to tares and turnips, according as the ſtate of the land may be ſuitable.

In regard to the thinner deſcription of chalky ſoils, and ſuch old down lands as are become ſo unproductive of herbage,

herbage, as to be incapable of being continued any longer in the ſtate of ſheep walk or paſture, it has been propoſed, as the beſt method of cropping them when brought under the plough, to make turnips or ſome other luxuriant green crop, which, while it keeps the land clean, and affords a large ſupply of green food for the ſupport of ſheep or other ſort of live ſtock, is highly beneficial by preſerving the humidity, which in ſuch ſorts of land is liable to be too rapidly carried off, the preparation for corn. The courſe in this view may ſtand thus:

Courſe.

1 Turnips.
2 Barley.
3 Clover.
4 Wheat.

Or in particular inſtances, as where ſeed weeds are apt to prevail in a high degree, two crops of turnips may be grown before any grain crop with much benefit. And in caſes where ſuch lands are deſigned to be kept for a greater length of time in the ſtate of tillage, two crops of turnips may be again taken after the wheat, which will leave the land in a perfect ſtate of preparation for barley; after which ſaintfoin may be introduced, as affording an excellent ſheep paſture for a number of years. But in theſe caſes the turnip and clover crops muſt always be fed off by ſheep, which ought not to be removed from the land during the whole of the time the crops are in conſumption; ſuch other ſorts of food as may be neceſſary being conveyed to them on the ground. In this way, it is imagined, the land will be left in the beſt ſtate poſſible for the growth of barley, without the great trouble and expence which muſt otherwiſe be incurred for manure.

In caſes where the ſoil is ſufficiently friable and mellow in its nature, the method of cropping may be in this way:

Courſe.

1 Peaſe.
2 Oats.
3 Turnips.
4 Barley with graſs ſeeds.

Or where it is intended to continue the courſe, it may be done by going on with turnips or peaſe as before; concluding the courſe with ſaintfoin, as ſupplying a paſture for ſheep for a number of years.

By properly attending to theſe directions in the courſes of cropping, and the modes of managing ſuch ſorts of land, very conſiderable improvement may be made, both in rendering them capable of producing excellent crops of the grain kind, and in affording a much larger ſupply of green food for the ſupport of ſheep, and other ſorts of live ſtock, than is commonly the caſe under other modes of cropping and conſuming their produce.

V. *On the peaty kinds of ſoil, and ſuch as have been long under the ſyſtem of grain crops.*

Courſe.

1 Cole-ſeed, or turnips.
2 Cole-ſeed, or turnips.
3 Oats.
4 Ruta baga, or Swediſh turnips.
5 Barley.
6 Graſſes.
7 Graſſes.
8 Graſſes.
9 Graſſes.
10 Potatoes.
11 Barley.
12 Tares, or peaſe.
13 Barley with graſs ſeeds.

In the buſineſs of cropping ſoils of the peaty, moory, and fenny kinds, it has been recommended by ſome writers, after freeing them by ſuitable draining from injurious moiſture and wetneſs, that a difference ſhould be made according as they are deep, or the contrary, in the ſuperficial peaty covering. It is ſuggeſted that, in the former kind, the moſt ſuitable method may be that of making turnips, potatoes, cabbages, cole, or any of ſuch ſorts of crops, the plants of which produce much ſhade; and which, by preſerving the moiſture in the more ſuperficial parts of the land, may promote their decompoſition and decay, the preparation for corn; in which intention the courſe may be:

Courſe.

1 Turnips, cabbages or cole.
2 Oats.
3 Turnips, cabbages or cole.
4 Oats.
5 Clover.
6 Wheat.
7 Turnips, &c.
8 Oats with graſs-ſeeds, to remain ſome years.

It may be remarked here that potatoe crops, though they have been conſidered objectionable by ſome farmers from their great exhauſting quality in this kind of land, have been ſhewn by experience to be highly beneficial and proper. Where this ſort of crop is in uſe the courſe may be:

Courſe.

1 Potatoes.
2 Oats.
3 Turnips, cole or cabbages.
4 Turnips, cole or cabbages.
5 Oats with graſs ſeeds.

On this deſcription of ſoil in the northern parts of Scotland, the uſe of potatoes, as a firſt crop, has been found, the author of Modern Agriculture ſays, by much the moſt certain and beneficial mode, the ſucceeding oat crops being not only in moſt caſes more certain, but greatly more abundant and productive.

But on the thinner kinds of ſoils of this nature, as thoſe of the moory and fenny ſorts, with the ſubſoil of a ſtiff and retentive quality, it may be the moſt adviſeable to commence with cole, making it the preparation for corn, in this manner:

Courſe.		*Courſe.*
1 Cole,	and	1 Cole.
2 Oats,		2 Oats.
3 Cole,		3 Beans with dung.
4 Oats,		4 Potatoes.
		5 Wheat.
		6 Cole.
		7 Oats.

But in the latter of theſe courſes, in conſequence of potatoes and wheat coming together, it is probable they may be too much for the land, as the experiments ſtated above have ſhewn them to be highly exhauſting crops; a better plan may be, therefore, that of ſubſtituting beans in the place of the potatoes, in this manner:

Courſe.

1 Cole.
2 Oats with manure.

3 Beans.
4 Wheat.
5 Cole.
6 Oats.

And it is not improbable but that, in ſome caſes of this nature, clover crops may be introduced as a preparation for the wheat. In this deſcription of ſoils immenſe benefits and improvements may be produced by attention to proper modes of cropping.

In thoſe circumſtances where the dry quality of ſuch ſoils, and their diſpoſition to the production of a good turf or ſward, is ſuch as to admit of their being cultivated under the convertible ſyſtem, or that of alternate grain and graſs, which is often a moſt advantageous method; it will be proper, in directing the courſe of cropping, not only to conſider the particular quality of the ſoil, but the growth of ſuch ſorts of roots and plants, or other crops, as may, while they tend to clean, improve, and prepare the ground for the production of abundant crops of grain and graſs, be the moſt ſuited to the feeding, rearing, and maintaining of thoſe deſcriptions of live ſtock which are capable of affording the moſt regular and abundant ſupplies of human food, at the different ſeaſons or periods when they are the moſt wanted.

This is a ſyſtem of practice which may often be carried on to great advantage and profit upon the loamy, gravelly, and fenny, as well as the thinner ſorts of peaty ſoils; as in conſequence of their having a great number of different green crops fed off upon the grounds, a degree of amelioration and improvement is effected, while they are under the tillage ſyſtem, which muſt be highly beneficial for the production of graſs; and by being occaſionally laid down to graſs for a ſhort interval, and thickly ſtocked with ſheep or other animals, they muſt become in an excellent ſtate for being again brought under the plough. This is in ſhort a ſort of huſbandry which has been found extremely beneficial in many diſtricts. It is practiſed with vaſt advantage in the county of Northumberland; it having been there found that, on the ſandy and dry light loamy ſoils, excellent grain crops, eſpecially oats, may be grown by the lands remaining three years under graſs, cloſely eaten with ſheep, which could never be done while they were managed according to their old method of practice."

Under this ſyſtem of management, on the more wet and ſtiff kinds of loam, where there is conſiderable fertility, the courſe of cropping may be as below, after firſt breaking up:

Courſe.

1 Beans or oats.
2 Turnips.
3 Barley.
4 Clover, or winter tares.
5 Wheat.
6 Turnips.
7 Barley.
8 Graſs ſeeds for three, four, or more years.

Or,

Courſe.

1 Oats.
2 Beans.
3 Wheat.
4 Fallow and graſs for four or five years.

On the dryer kinds of theſe ſorts of ſoil, it is ſuppoſed better to begin in a ſomewhat different way.

Courſe.

1 Peaſe or turnips.
2 Barley.
3 Clover.
4 Wheat.
5 Turnips.
6 Barley with graſs ſeeds for not leſs than three years.

Or,

Courſe.

1 Oats.
2 Turnips.
3 Barley with ſeeds to remain three or four years.

But in caſes where large ſupplies of green food are in demand, or danger is apprehended from the wire worm grub, &c., the courſe may be commenced with more propriety by turnips or cabbages.

In Cumberland, where different plans of cropping, in this view, are ſtated to have been attempted, the courſe of:

Courſe.

1 Turnips,
2 Barley,
3 Clover,
4 Wheat,

is ſaid to have been made uſe of till there was an evident falling off in the crops, eſpecially in thoſe of the green ſort; in which circumſtances the only means of reſtoring the lands has been found to be that of permitting them to remain, after they have been three years under the plough, the ſame length of time in the ſtate of graſs; it being diſcovered that "by this mode nature has time to prepare a ſufficient lea clod, which being turned up for the turnip fallow, will inſure a vigorous crop of turnips, as it is well known they always flouriſh upon freſh land, or where they find the remains of a lea clod to vegetate in."

Theſe, and various other facts of the ſame kind, fully ſhew that great advantage may be gained by cultivating lands under this alternate ſyſtem of tillage and graſs, eſpecially when, with the proper knowledge of the nature and modes of managing different kinds of live ſtock, that of the beſt means of connecting them with this ſort of tillage huſbandry, is fully comprehended.

Where the land, after ſome time, is to be reſtored to the condition of ſward, and the practice of horſe hoeing had recourſe to for preſerving the different crops in a perfectly clean ſtate; and the various green crops, as turnips, peaſe, and beans, are at the ſame time cultivated in double rows, on ridges of three feet in breadth, and thoſe of the cabbage kind in ſingle rows on the ſame ridges; the courſes given below have been ſtated to anſwer well, by the Rev. Mr. Cloſe, for any length of time, in all the different kinds of ſoils.

COURSE.

On Clays.

1 Turnips or cabbages.
2 Oats.
3 Beans and clover.
4 Wheat.
5 Turnips or cabbages.
6 Oats.
7 Beans and vetches.
8 Wheat.

COURSE.

On clayey Loams.

1 Turnips or cabbages.

2 Oats.
3 Clover.
4 Wheat.
5 Turnips or cabbages.
6 Barley.
7 Beans.
8 Wheat.

Course.	Course.
On rich or ſandy Loams.	
1 Turnips or Potatoes, and	1 Beans or turnips.
2 Barley,	2 Barley.
3 Clover,	3 Peaſe or clover.
4 Wheat,	4 Wheat.
5 Beans,	5 Wheat for any length of time, or potatoes.
6 Barley,	6 Barley.
7 Peaſe,	7 Peaſe.
8 Wheat.	8 Wheat.

Course.

On peaty Earth.

1 Turnips.
2 Barley.
3 Clover.
4 Wheat,
5 Potatoes.
6 Barley.
7 Peaſe.
8 Wheat.

Course.

On a chalky Subſoil

1 Turnips.
2 Barley.
3 Clover.
4 Wheat.
5 Potatoes.
6 Barley.
7 Peaſe.
8 Wheat.

In caſes of this kind it is ſuggeſted that ten acres in each hundred ſhould be laid down with ſaintfoin for eight or ten years.

Course.

On Gravels.

1 Turnips.
2 Barley.
3 Clover.
4 Wheat.
5 Potatoes.
6 Barley.
7 Peaſe.

Course.

On light Lands.

1 Turnips,
2 Barley.
3 Clover and rye-graſs.
4 Clover and rye-graſs.
5 Clover and rye-graſs.
6 Peaſe.
7 Wheat or rye.
8 Wheat.

The nature and principles on which the ſyſtem of cropping ground ſhould be founded, with the courſes which have been found moſt beneficial in the moſt improved practice, on ſoils of different ſorts and qualities, being thus pointed out, it may be proper to take a conciſe view of the modes which are actually followed in the beſt grain diſtricts of the country; as this may ſerve to guide the tillage farmer in many points and circumſtances, which could not be otherwiſe noticed.

It is remarked by the ſecretary to the board of agriculture, in his excellent Survey of the County of Norfolk, that in that great corn diſtrict, the principles of cropping, which have been conſtantly attended to for a long time, are thoſe of avoiding the taking of two corn crops in ſucceſſion, and of making turnips the preparation for barley, and graſſes that for wheat and other ſorts of grain.

The courſes uſually had recourſe to on ſandy lands and turnip loams, are the following. But the writer previouſly ſtates, that the fineſt rye he met with in 1802 was on the farm of Mr. Bevan, which was raiſed after the culture of cole for two ſucceſſive years, which was eaten off by ſheep. The rye was put in on one earth to the extent of thirty acres, fourteen of which were upon a black ſand: and Mr. Bradfield, his tenant, is ſtated to regularly purſue the courſe given below.

Courſe.		*Courſe.*
1 Turnips,	But if the ſeeds fail, changed to	1 Turnips.
2 Barley,		2 Barley.
3 Seeds,		3 Vetches.
4 Seeds,		4 Turnips.
5 Wheat,		5 Barley.
6 Turnips,		6 Turnips.

By which in the ſixth year, "the variation ceaſes, and it comes, as in the former, to turnips again. It is however added that to this ſyſtem there are two great objections; in the fourth year the farmer has no ſummer food for ſheep, and what is as bad, he doubles his quantity of turnips; he alſo loſes wheat in the courſe. To have two ſucceſſive years of vetches, appears to be a better ſyſtem, and a much leſs interruption, or rather none at all. If the firſt vetches are to be fed, graſs-ſeeds might be ſown with them for the ſecond year, and this would ſave the expence of ſeed, vetches, and tillage, for that year. At Snetterton the courſe given below is employed by Mr. Fowel.

1 Turnips, drilled at 18 inches.
2 Barley ditto at nine.
3 Seeds.
4 Seeds.
5 Peaſe, drilled at twelve inches, or wheat at nine, &c., and this is the courſe of the whole neighbourhood.

Wheat, peaſe, oats, or rye, the fifth year; if rye, a baſtard fallow for it: the ſecond year, ſeeds.

About Hingham the courſe is in general

1 Turnips,	1 Turnips.
2 Barley,	2 Barley.
3 Clover,	3 Clover.
4 Wheat,	4 Peaſe.
	5 Wheat.

And about Watton it is

1 Turnips.
2 Barley.
3 Clover.
4 Wheat.

In one field near his farm yard, Mr. Blomfield, at Billingford, had
1 Winter tares, and then turnips.
2 Barley.

And the crop always good; and Mr. Drake gets better turnips after wheat, the ſtubble ploughed in, than after peaſe." However, Mr. Wright of Stanhow never takes barley or peaſe after wheat, though his ſoil is a good loamy ſand; he thinks that no diſtrict where this is the practice deſerves the reputation of having the true Norfolk huſbandry;" while Mr. Drozier remarked, that upon the ſandy land of Rudham, and that vicinity, the greateſt improvement perhaps would be, to lay down for eight or ten years, to repoſe the land from turnips and corn, which would ſo freſhen it as to render it productive perhaps in the ſtyle of the firſt breaking up; but common graſſes wear out, and will not pay the preſent rents after two years; they ſow trefoil and ray."

Sir Mordaunt Martin's courſe is a five ſhift:

1 Turnips.
2 Barley.
3 Clover.
4 Wheat.
5 Potatoes, mangel wurgel, or vetches, &c.
6 Turnips.
7 Barley.
8 Trefoil and ray.
9 Peaſe.
10 Potatoes, mangel wurgel, vetches, &c.

It is added that "Mr. Overman of Burnham has found, from many obſervations, that peaſe do not ſucceed well if ſown oftener than once in twelve years: where he has known them return in ſix or eight years, they have never done well. He ploughed up a layer of four years, and drilled wheat upon it—then ploughed for winter tares; ploughed the ſtubble once for a ſecond crop of wheat, which the writer viewed; a very fine produce, and as clean as a garden. Three crops of great profit, on only three ploughings, and yet the land kept perfectly clean. Not a little reſulting from four years ſheep feeding without folding from it.

His common courſe is

1 Turnips.
2 Barley.
3 Seeds.
4 Ditto.
5 Ditto.
6 Wheat.
7 Turnips.
8 Barley.
9 Seeds.
10 Ditto.
11 Peaſe.
12 Wheat.

But with the variation of having part of the twelfth under peaſe on the three years layer, and alſo ſome tares. This courſe is partly founded on the experience of peaſe not doing well, if ſown oftener than once in twelve years."

And by Mr. Coke;

1 Turnips.
2 Barley, drilled at 6¾ inches.
3 Seeds.
4 Ditto.
5 Wheat, drilled at 9 inches.
6 Turnips.
7 Barley, drilled at 6¼ inches.
8 Seeds.
9 Ditto.
10 Peaſe, drilled at 9 inches, or tares at 6 inches.
11 Wheat, drilled at 9 inches.

Mr. Purdis of Eggmore has a very uncommon variation from the general huſbandry:

1 Turnips.
2 Barley.
3 Seeds.
4 Ditto.
5 Tares.
6 Wheat.

It is added, that "upon a large part of this fine farm the former courſe or rotation included a ſummer fallow, which afforded (broken at whatever time) little food for live-ſtock; tares now occupy the place, and ſupport immenſe herds of cattle and ſheep. What a noble ſpectacle, ſays the author, is this farm; 300 acres of turnips, 300 of barley, 600 of ſeeds, 300 of tares, and 300 of wheat; 1,800 acres arable, the crops luxuriant, much the greater part of the farm very clean, all of it except the layers, on which, however, are ſome thiſtles, too difficult to extirpate."

"But Mr. Thurtell, near Yarmouth, is in the four-ſhift, returning to turnips always after the wheat, for he thinks that nothing is ſo bad as taking a fifth crop." And at Caiſtor in Fleg, the land excellent, they are in the five-ſhift of Eaſt Norfolk; that is,

1 Turnips,
2 Barley,
3 Clover,
4 Wheat,
5 Barley;

with two variations practiſed ſometimes by Mr. Evorit at the Hall farm:

1 Cole ſeed inſtead of turnips and barley.
2 Ditto.
3 Wheat.
4 Barley, but not a great crop, and then turnips again.

"The other is to ſubſtitute peaſe inſtead of clover, followed by wheat, and then in the four ſhift, to come again to turnips." But a remarkable circumſtance in the rotation of crops here is, that ſpring corn will not ſucceed well after wheat, which follows cole ſeed; they will give an excellent ſummer fallow for this crop; ſpread 14 loads of fine dung *per* acre, and ſowing wheat after the cole get the fineſt crops; yet if barley or oats follow, the produce is ſeldom tolerable; oats better than barley, but neither good.

By ſome farmers at Hemeſby, the courſes or rotations are,

1 Turnips.
2 Barley.
3 Seeds, (clover once in 10 or 12 years.)
4 Wheat.
5 Peaſe, or oats.
6 Wheat.

"It may eaſily, ſays the author, be ſuppoſed that the wheat of the fourth year is much better than that of the ſixth. The courſe cannot be defended even on Hemeſby land, and the wheat ſtubbles were ſome of them not ſo clean as they ought to be."

And "at Thrigby, Mr. Brown, &c. is, he ſays, in the Fleg five-ſhift; barley after the wheat, with the variation, to avoid clover every other round, of ſowing half the barley with other ſeeds, and dibbling peaſe on the other half.

But at South Walſham, Mr. Syble and others:

1 Turnips.
2 Barley.
3 Seeds, one or two years.
4 Wheat.
5 Barley or oats.
6 Peaſe.
7 Wheat.

Unworthy of Norfolk in any caſe whatever.

The variation of the ſeeds is to prevent clover coming two rounds together, as the land here, as elſewhere, is ſick of it. Upon a part white clover trefoil. and ray, are ſubſtituted, and left two years; about one third of the wheat is on a two years layer. If the clover be a good crop, the wheat is better than after the other ſeeds. The barley after wheat (if that followed a two year's lay) is better than after turnips. But Mr. Syble, if the land is foul after the firſt wheat, is ſure then to take turnips. Sometimes peaſe on a two years lay, and then wheat; but he does not like peaſe, from their being ſo liable to failure. He is of opinion, the reporter ſays, that the huſbandry of Fleg and Blofield wants variation, from having been kept too long in a regular courſe. One, which has ſucceeded with him, is to ſow barley after peaſe or vetches, in which way he has had great crops. It is added that at Repps and Martham the common Fleg five-ſhift huſbandry, that is, barley follows wheat, clover and other ſeeds alternately, and the wheat is as good after the one as the other; and at Ludham, the common five-ſhift. "But that at Catfield he found a variation; there the courſe is a ſix-ſhift huſbandry:

1 Turnips.
2 Barley.
3 Clover, &c.
4 Clover, &c.
5 Wheat.
6 Barley.

"It is alſo ſtated, that Mr. Cubit practiſes this in common with his neighbours: the ſeeds rifled the ſecond year before harveſt, that is, rice-baulked raftered, half ploughed: ſome ſcaled: a clean earth as thin as poſſible: this management Mr. Thurtell reprobated for his ſoil: and what is ſingular, they ſeem to do it with equal reference to dibbling and broad-caſting."

And Mr. Repton, at Oxnead, has been, from the year 1773, regularly in the ſixth-ſhift huſbandry of,

1 Turnips,
2 Barley,
3 Seeds-hay,
4 Seeds-ollond,
5 Wheat,
6 Barley;

which is common throughout the county.

But Mr. Reeve, of Heveringland, is in the five-ſhift; the ſeeds two years: and with Mr. Bircham, at Hackford:

1 Turnips.
2 Barley.
3 Clover and other ſeeds alternately.
4 Clover and other ſeeds alternately.
5 Wheat.
6 Barley, oats, or peaſe.

"But, if the land be out of condition, the method to recover it is, to take,"

1 Turnips.
2 Barley.
3 Turnips.
4 Barley.

But Mr. Johnſon, of Thurning, thinks, that the common courſe of

1 Turnips,
2 Barley,
3 Seeds two years,
4 Seeds,
5 Wheat,
6 Barley;

which is the uſual ſyſtem about him, would be improved by the following variation:

1 Turnips,
2 Barley,
3 Seeds,
4 Seeds,
5 Seeds,
6 Peaſe,
7 Wheat,
8 Barley;

"in which the land would have reſt for feeding, three years in eight, inſtead of two in ſix, as in the other."

With Mr. England, at Bingham:

1 Turnips,
2 Barley,
3 Seeds,
4 Seeds,
5 Wheat;

"never adding barley after the wheat. Sometimes, on tender land, not equal to wheat, drills peaſe on the ollond; and then, if the land be clean, takes barley, or even wheat; but not without rape-cake."

And Mr. Reeve of Wighton:

1 Turnips.
2 Barley.
3 Trefoil, white clover, and ray.
4 Ditto.
5 Wheat, drilled.
6 Turnips.
7 Barley.
8 Clover.
9 Wheat.

It is obſerved, that "every idea of this moſt accurate farmer merits much attention; and this courſe among the reſt: whenever red clover is left a ſecond year, it diſappears, and the land is principally covered with ray-graſs: query if it is not much better when red clover is the object, never to leave it two years: this is an improvement in Mr. Reeve's intention; but it has not been his general practice." He mucked a barley-ſtubble for vetches; ploughed once for that crop; and then drilled wheat on one other ploughing. The ſtubble clean as a garden.

Mr. M. Hill has

1 Turnips.
2 Barley.
3 Seeds.
4 Seeds.
5 Wheat.
6 Turnips.
7 Barley.
8 Seeds.
9 Peaſe, or tares.
10 Wheat.

It is likewiſe obſerved, that he has now (1801) on his farm, a very fine field of wheat, drilled on a flag of a four years layer: he remarked it, the reporter ſays, as an inſtance of confidence in his landlord (Mr. Coke), not to have broken it up ſooner at the end of a leaſe. The ſame farmer ſows cole after winter vetches fed off; eats it off at Michaelmas; ſows rye for ſpring feed; eats that off, and tills for turnips, getting four green crops, to feed, on the land in two years. This is excellent huſbandry, ſays the writer of the report.

There are many other courſes, or modes of cropping, detailed, but it is unneceſſary to notice more of them in the preſent view.

In the county of Eſſex, as in moſt other tillage diſtricts, the courſes of crops are extremely various, according to ſoil and circumſtances; there is, however, in ſome caſes, a diſpoſition in the farmers to too much fallowing, which, probably, proceeds from the great deſire which they have to keep the land clean, a fallow, or fallow crop, being conſequently generally interpoſed between every two of white corn

In the diſtrict about Felſtead, Great Waltham, and the Roodings, &c., on their cold ſtrong loams, and poor loams on white clay, the courſe commonly purſued is that of crop and fallow, with ſome variations, by means of tares, clovers, peaſe, beans. The crop and fallow thus:

1 Fallow,	or	1 Fallow.
2 Wheat,	—	2 Barley.
3 Fallow,	—	3 Clover peaſe, or beans.
4 Barley,	—	4 Wheat.

But the following courſe is ſuggeſted as more proper:

1 Fallow,
2 Barley,
3 Clover,
4 Beans,
5 Wheat,
6 Tares,
7 Wheat,

applying the dung for beans.

On this, it is remarked, in the Agricultural Report of the county, that the fallow for barley is their own practice; that the clover is near enough to receive what benefit it has to give; that the clover and manure would ſecure beans, and afford an ample ſeaſon for mucking, which is of much conſequence on ſuch ſoil; that the wheat prepared for by the double fallow of clover and beans would be good; while winter tares ſoiled would leave ſufficient time for the moſt valuable fallow ſeaſon, July, Auguſt, and September; of courſe, little reaſonable doubt could be entertained of the ſeventh year.

In the coaſt diſtrict, on the fine impalpable loams and clays of Bradfield and Wicks, the courſe with Mr. Hardy is:

1 Fallow.
2 Barley.
3 Clover, red or white; generally red.
4 Wheat.
5 Beans.

When the clover miſſes, beans are ſubſtituted in its ſtead. And on the turnip loams of the ſame ſort, turnips are ſubſtituted inſtead of the fallow, except on about one-fifth, which is under peaſe. On ſuggeſting the propriety of wheat for a ſixth year after beans, it was objected to from the danger of the black graſs, or mouſe-tail, choaking it, as had often happened.

It is general, in all this part, never to put wheat in on a fallow, but always barley or oats, as the wheat never ſucceeded in this way. Beans have been tried on clover, and the wheat after the beans, but not with much ſucceſs, merely from the bad effects of the black graſs.

On land which is too heavy for the turnip culture, this mode of cropping is purſued by Mr. Woodrooffe at Ramſay.

1 Fallow,	or	———
2 Barley,	—	———
3 Clover,	—	3 Beans or peaſe.
4 Wheat,	—	4 Wheat.
5 Beans,	—	5 Beans.

Theſe fifth crops are only had recourſe to in caſes where the ground is in a good condition, from the uſe of manure. The beans being well hoed and cleaned, it is conſidered good huſbandry to fallow after them, as a double cleaning is thus given to the land, for though much is done by hoeing, it does not fully deſtroy either thiſtles or black graſs; while hand-weeding extirpates the latter completely.

This old five-courſe ſhift is thus varied, with good effect, by Mr. Blythe:

1 Fallow.
2 Barley.
3 Clover, white; and ray-graſs for two or three years.
4 Wheat.
5 Beans.
6 Wheat.
7 Beans.
8 Wheat.

This is done, without injury, from the black graſs. The laying down two or three years, or as long as may ſuit the object of live ſtock, is ſuch a check to black graſs, that much of the ſucceſs may depend upon it; but beſides this, it leſſons the great expence incurred in the tillage in ſuch caſes, and leaves the land greatly improved.

On remarkably fine mould, on a gravelly bottom, on the level vale-land of Gold Hanger, cloſe to the ſea wall, the courſe followed by Mr. Lee of Maldon, is this:

1 Turnips manured with 20 to 25 loads of dung, and ploughed for eight times.
2 Oats, ſome barley.
3 Clover, red and trefoil: both mown and fed crops very great.
4 Wheat; average four quarters.
5 Beans dibbled, ſix rows on an eight-furrow ridge, hoed three times; produce four quarters and a half.
6 Wheat, 4 quarters.

Oats here much more advantageous than barley after the turnips.

On fine ſandy loam, Mr. Pattiſon of Maldon, on Spital farm, follows this courſe:

1 Fallow.
2 Oats, ſix quarters, or barley five quarters.
3 Clover, fed and mown.
4 Wheat, four quarters.
5 Beans, four quarters.
6 Wheat, three quarters and three-fourths.

And at Burnham, on light land, Mr. Wakefield follows:

1 Turnips, fed by ſheep.
2 Oats, or barley.
3 Clover.
4 Wheat.
5 Mazagan beans, or peaſe, well hoed three times.

And on his medium marſh-land, on which turnips cannot be fed,

1 Coleſeed feed.
2 Oats, (never barley).
3 Clover.
4 Wheat.
5 Beans of any ſort, (peaſe never).

On a field of good land, Mr. Spurgeon's practice was as below, which is ſuggeſted, as removing "ſome ſteps the *neceſſity* of *repeated* fallows."

1 Fallow: ſoon after 70 loads an acre of chalk and earth compoſt.
2 Oats.
3 Clover manured, and none after.
4 Wheat.
5 Mazagan beans; the ſtubble well *caſed* for.
6 Wheat.
7 Peaſe; the ſtubble well *caſed* for.
8 Wheat.
9 Tares, well *caſed* for.
10 Wheat; the ſtubble quite clean.

And on land fit for turnips, near Rochford, Mr. Barrington purſues ;

1 Turnips.
2 Oats, very little barley.
3 Clover ; tares, peaſe, or beans, if a failure.
4 Wheat.
5 Oats.

But if good land,

5 Beans.

And when very good,

6 Wheat.

About Yieldham, where the ſoil is too heavy for turnips, the uſual courſe is ;

1 Fallow,
2 Barley,
3 Clover,
4 Wheat ;

and when the clover land is mucked for wheat, ſometimes

5 Oats.

Clover ſown once in four or five years is, however, apt to fail ; conſequently, variations are formed by peaſe, beans, or tares, and clover does well once in eight years.

In ſome caſes the courſe of,

1 Fallow,
2 Coleſeed,
3 Wheat,

is purſued with ſucceſs.

On turnip land at Layer de la Haye,

1 Turnips.
2 Barley or oats.
3 Clover.
4 Wheat.
5 Peaſe or oats.

At Cheſterford, on loamy ſoils or gravel, while open field, the flock farms are thus cropped.

1 Turnips.
2 Barley.
3 Peaſe or oats, if peaſe.
4 Wheat.

When encloſed, changed to,

1 Turnips.
2 Barley.
3 Clover, by ſome trefoil.
4 Wheat, and by ſome
5 Tares.

At Borcley, the courſe purſued by Mr. Coker on different ſorts of land, are theſe,

On Strong Land.	*On Dry Land.*
1 Fallow,	1 Turnips.
2 Barley,	2 Barley.
3 Clover,	3 Clover.
4 Wheat,	4 Wheat.
5 Beans or peaſe,	5 Peaſe.
6 Tares.	
7 Oats.	

But by changing red for white clover or trefoil one round, clover will then ſtand well.

In the practice of Mr. Sewell, at Mapleſtead, in the view of baniſhing fallows from ſtrong as well as light lands, the following courſes in one field have been ſucceſsful for ſome years.

1791 Turnips mucked for and drawn,
1792 One ploughing for carrots for ſeed ; crop 3½ cwt. *per* acre, at 63*s*.
1793 One ploughing for wheat, 18 buſhels *per* acre.
1794 One ploughing for winter tares, mown green for ſoiling.
1795 Three ploughings for barley ; ſix quarters and a half.
1796 Clover, half-fed, half-mown ; then all ſeeded ; 4 buſhels *per* acre.
1797 Mucked for wheat, the fed and mown equal 3½ quarters.
1798 Windſor beans dibbled at 18 inches ; three quarters.
1799 Wheat ; twenty buſhels.
1800 Peaſe ; four quarters and a half.
1801 One ploughing for oats ; ſix quarters.
1802 Trefoil ſeeded : badly got in ; nine buſhels at 20*s*.
1803 Wheat ; twenty-two buſhels.
1804 So much trefoil came up, that it was dunged and ſeeded, but failed ; only four buſhels *per* acre.
1805 Windſor beans, oats and peaſe, fair crop.
Next year ſummer fallow.

And Mr. Sperling follows.

1 Turnips, half drawn, half fed, in alternate ridges on dry land-fallow.
2 Barley, or oats, alternately.
3 Clover, red, white, or trefoil.
4 Wheat.

And when the land is in good order adds

5 Beans.
6 Wheat.

Wheat never ſown on fallow, which is bad huſbandry.

At Bocking, Mr. Saville follows.

1 Fallow or turnips, according to ſoil.
2 Barley.
3 Clover, the dung on the barley ſtubble.
4 Wheat.
5 Oats, by ſome, but here not allowed.

The variation where clover fails, is tares or peaſe.

He is ſtated as commencing an intereſting variation, in that of the alternate ſyſtem of corn and graſs. In which view, white clover, and ray graſs, have been ſown for two or three years paſt, in one field each year, with coleſeed for feeding by ſheep, having twelve acres in the whole ; the cole being a good crop, with a beautiful plant of the graſſes amongſt it, even where the thickeſt and higheſt. It is intended to feed or mow this graſs, for three, four, or five years, as circumſtances may direct, and then to break it up with the expectation of good corn crops. It is ſuggeſted that he will not be diſappointed, but that "the ſucceſs with ray demands cloſe feeding and no mowing."

And the ſame gentleman is ſtated as having another idea which has a tendency to leſſen the expences of fallows, and which promiſes in certain caſes to be beneficial ; it is that of ploughing the intended fallows as early as poſſible, and to harrow in cole, to be uſed as ſpring feed for ſheep.

At Barking, with Mr. T. Pittman a common courſe is,

1 Potatoes,
2 Wheat,
3 Clover ſown in April,
5 Wheat ;

and then potatoes again, but with ſome variation, as that of putting them in on the clover, which is found to afford better crops than corn ſtubbles.

Theſe are ſome of the courſes which are practiſed in this extenſive diſtrict, but various others are met with.

In the county of Hertford, where, on the clays and ſtrong loams, the fallow ſyſtem is ſtill in practice, the following courſes, Mr. Young ſays, are commonly in uſe about Sawbridgeworth.

1 Fallow.
2 Barley.
3 Clover.
4 Wheat.

Alſo, 1 Fallow.
2 Barley.
3 Peaſe.
4 Wheat.

And 1 Fallow.
2 Wheat.
3 Fallow.
4 Barley.

Many farmers purſuing,
1 Fallow.
2 Wheat.
3 Fallow.
4 Barley.
5 Clover.
6 Oats.

" It is however obſerved, that whatever fault may be found and perhaps juſtly, with ſo much fallowing, it muſt be admitted that their crops are good."

On the authority of Mr. Byde of Ware Park, all the turnip land he knows in the country is ſtated to be managed in this manner.
1 Turnips.
2 Barley.
3 Clover, the firſt crop mown, the ſecond fed.
4 Wheat, good farmers ſtopping here, and bad ones adding
5 Oats.

" And the turnips may be reckoned at 50*s.* an acre ; the barley three quarters, and the wheat 17 to 20 buſhels."

But the ſtrong heavy ſoils are thus cropped :
1 Fallow.
2 Wheat.
3 Fallow.
4 Barley.
5 Clover.
6 Oats.

Varying the courſe thus:
1 Fallow.
2 Wheat.
3 Clover.
4 Barley.
5 Fallow.
6 Wheat.
7 Oats, peaſe, or beans.

An acre of wheat yields 25 buſhels.

And on the ſame authority it is ſtated that about Watford there is a peculiar courſe of,
1 Fallow.
2 Beans, on which they put all the dreſſing.
3 Wheat.

And at little Hodham they have a courſe of,
1 Fallow, ploughed four times,
2 Wheat,
3 Fallow, four or five times ploughed,
4 Barley :

the only variation being, ſometimes
5 Clover,
6 Oats.

But Mr. Jones is, it is obſerved, decidedly of opinion, that the crop and fallow courſe is the moſt profitable. He aſſerts that beans will not ſucceed on this ſoil. The writer, however, ſays he knows they will on land exactly ſuch in Suffolk, and give four quarters *per* acre.

About Weſtmill the courſe is:
1 Fallow, ploughed four times.
2 Wheat.
3 Clover.
4 Barley on three earths.
5 Peaſe.

But Mr. Whittington on light land cultivates,
1 Turnips.
2 Barley.
3 Clover.
4 Wheat ; and if the land is in good order he adds,
5 Peaſe, or oats.

On clay land his courſe is,
1 Fallow,
2 Wheat,
3 Peaſe ;
or, 1 Fallow,
2 Barley,
3 Peaſe ;
or, 1 Fallow,
2 Wheat,
3 Clover,
4 Oats;

and this he reckons better than either of his former.

On propoſing barley on a fallow with clover, and then beans and wheat he objected, that if clover is ſown at the time of ſowing barley, it gets ſo forward as to ſpoil the crop ; and if ſown at rolling, it is apt to fail. This the writer, however, cannot admit to be fair reaſoning in a country where it is common to ſow clover on wheat in the ſpring, and even ſo late as May and July.

On much of the poor hungry gravel in the open fields near Hatfield, let at *7s. per* acre, the courſe is,
1 Fallow.
2 Wheat, producing two or three loads (five buſhels).
3 Oats, producing 4½ or three quarters.

On better land they cultivate,
1 Turnips, ſheep fed.
2 Barley ; four quarters are produced on an average.
3 Clover twice mown, two loads are grown.
4 Wheat, 22 buſhels are reaped.
5 Oats, or peaſe.

This is the courſe of Mr Caſſmajor, at North Mimms:

But his courſe on wet land is,
1 Summer fallow.
2 Barley, four quarters are grown.
3 Clover, twice mown, and 2½ loads at the two are grown.
4 Wheat, four or five loads are reaped.
5 Oats, peaſe, or beans ; three to four quarters of either are the amount of the produce.

" But the laſt crop in either caſe is only taken when the land is in high order." It is ſtated, that in this " there is a proof of the impropriety of the queſtion, whether clover may ſafely be ſown with barley on land in high order ; the point on which the objection to clover ſown with barley on land ſummer fallowed is founded." It is obſerved that Mr. Leach follows the under mentioned courſe.
1 Turnips.
2 Barley.
3 Clover.
4 Wheat.
5 Oats, or peaſe.

Then they return to turnips on ſome land ; but on about 40 acres of gravel, he ſows,
1 Turnips.
2 Barley.
3 Trefoil, white clover, ray graſs, common clover fed.
4 Ditto. fed.
5 Ditto. fed.

6 Oats, on one earth.
7 Three earths are given immediately after oats, and then wheat is ſown.
8 Winter fallow for barley.
9 Graſſes, as before, for three years ;

and then the land is cultivated as above. " Thus, ſays the writer, theſe 40 acres neither want nor have any manure more than they receive from the feeding of the ſheep on them, and from 60 buſhels of aſhes *per* acre, ſpread the firſt year on the graſſes only, and 30 buſhels of ſoot *per* acre on the wheat. It has anſwered greatly for 18 years to his full ſatisfaction. He made it a rule to feed his land as bare as poſſible, and always wiſhes not to let the ray run to bent."

And it is obſerved, that lady Melbourne has a field, which has been thus managed.

1 Potatoes were planted on it and well manured, and the produce amounted to 400 buſhels per acre.
2 Wheat was drilled on it, at the diſtance of nine inches. The crop amounted to ſeven loads, or 35 buſhels, an acre.
3 Winter tares were next ſown, for which 12*l.* an acre were this year (1803) offered ; but they were mown for ſoiling ; and at preſent the turnips after them are good.
4 Barley will be drilled next ſpring, as the fourth crop.

" Mr. Young of Hurral, who farms on a large ſcale, with much intelligence, purſues the common courſe of taking oats or peaſe after wheat. It is extraordinary, ſays the author, to ſee how general this practice is ; but if the clover is at all foul, he paſſes over this crop and ſows turnips. The ſame courſe holds to St. Albans, and he found it ſteady on the fine farm of 483 acres, of Mr. Clarke, at Sandrigbury." But Mr. Biggs, near that town, omits the oats after wheat, returning to fallow for turnips, inſtead of an after crop, except on 20 acres nearly in a year, which he ſows with peaſe.

Tares he ſows on the wheat ſtubble, and grows good turnips the ſame year. On his heavier ſtrong land, of which he has not much, his courſe of crops is :

1 Fallow.
2 Barley.
3 Peaſe.
4 Fallow.
5 Wheat.
6 Beans.

And that " the common Hertfordſhire courſe of 1 turnips, 2 barley, 3 clover, 4 wheat, 5 oats, continues about Watford, Rickmanſworth, and all around Berkhempſted and Hempſted." But Mr. Jennings of the latter place, has a courſe,

1 Fallow.
2 Wheat.
3 Peaſe, drilled.
4 Barley.
5 Clover.
6 Wheat, but not in general, only as a variation from his common courſe.

It is noted, that " Mr. Cotton, of the ſame place, obſerved, in defence of the common practice of taking oats after wheat, that they are the black oat, which, according to his opinion, ſucceeds beſt in land held together by roots, though of weeds which will yield better than land in tilth, though clean ; and this makes a bad manager in many caſes, obtain a better crop of black oats than a good farmer would produce on the ſame land."

" The old courſe continues to Beechwood and Marketſtreet ; where, if clover fails, they ſow peaſe, followed either by turnips or ſummer fallow. They ſow winter tares after wheat, three buſhels *per* acre. They uſe them for feeding and ſoiling, and then fallow for turnips, or give a baſtard fallow for wheat ; but the crop is not ſo good as on clover." Round Hitchin, in every direction, the old courſe of five ſhifts is continued : it is, however, varied by a few, by,

1 Turnips.
2 Barley.
3 Barley.
4 Clover.
5 Wheat.

And by ſome a ſixth ſhift of oats is added.

In the open land they follow a courſe of

1 Fallow.
2 Wheat or barley.
3 Oats or peaſe.

But ſometimes ſow turnips, by agreement, on the fallow.

" Mr. Sedgwick, of Rickmanſworth, on ſtony land, purſues a courſe of,

1 Fallow.
2 Wheat.
3 Oats or peaſe.

On dry land this is the common courſe, but often turnips are ſown after wheat. If a field grows ſo tired of clover as to want a change, their courſe is then ;

1 Turnips.
2 Wheat.
3 Barley, or peaſe, or oats.
4 Turnips.
5 Barley.
6 Clover.
7 Wheat.
8 Oats.

And Mr. Parker, at Munden, ſows

1 Turnips.
2 Barley.
3 Clover.
4 Wheat.

Upon which " he remarks, that by this courſe the land is favoured, as oats never follow wheat. If dung ſhould run ſhort, and a farmer not have it in his power to manure all his turnips, he may venture to ſow a field of turnips without dunging, and ſucceed ; a practice by no means to be depended on in the common rotation of taking oats after wheat. In order to favour the land, he has occaſionally omitted ſowing the clover, and taken peaſe for one round ; but he ſuffered in his wheat ; ſo that he ſcarcely knows what to do in the awkward circumſtance of the failure of clover." " And when clover fails at King's Langley, ſome farmers ſow peaſe, others (but this is not common) fallow for wheat, and then take oats :" and the earl of Eſſex ſows, near his farm-yard,

1 Tares, and then turnips.
2 Barley.
3 Clover.
4 Wheat.

And Mr. Young " ſaw at Caſhiobury very fine turnips after tares uſed in ſoiling, though ſown twice and three times. This courſe affords, he ſays, much provender for the yard, in tares and clover for ſoiling, and turnips for ſtaling. In other parts of the farm, oats follow wheat :"

But at Cheſhunt they ſow

1 Turnips.
2 Wheat.
3 Clover.
4 Wheat.

Alſo,
1 Fallow.
2 Wheat.
3 Oats, peaſe, or beans.

On the clays of Albury, Pelhams, &c. their courſe of crops is,

1 Fallow,	1 Fallow.
2 Wheat,	2 Barley.
3 Oats.	3 Peaſe.

Some courſes conſiſt of, 1 fallow, 2 wheat, 3 fallow, 4 barley; clover is alſo added with wheat; and oats and barley ſometimes. They feed their clover in the ſpring, and then give a baſtard fallow for wheat or barley. In the extenſive open fields about Barkway, the writer finds the rotations to be,

1 Fallow.
2 Wheat.
3 Oats.
4 Fallow.
5 Barley.
6 Peaſe.

The ſame in the open fields (and all are open) about Royſton. There are no incloſures, he ſays, in the pariſh, except ſmall patches, quite in or near the town. And "Mr. Foſter, of Royſton, practiſes a huſbandry which long ago the writer publicly recommended; not that he took it from that recommendation, but his practice has confirmed it."

Common Courſe.	*Mr. Foſter's Courſe.*
1 Fallow,	1 Fallow.
2 Wheat,	2 Wheat.
3 Oats,	3 Clover and trefoil.
4 Fallow,	4 Ditto.
5 Wheat,	5 Wheat.

It is noted that the "ſeeds are ſown on the wheat in March. The firſt year he tops them in May, and then mows the ground for hay or ſeed. The ſecond year, the flock-maſter feeds them with the reſt of the fields; but the graſs entices the ſheep to the ſpot, and dreſſes it conſequently better than other parts, and his following wheat has always been much ſuperior to that fallowed; even to the degree of beating that on which 3*l.* 4*s.* *per* acre have been beſtowed in dreſſing: a clear proof that ſo much fallowing is a real injury to the land. Beſides this, he keeps two horſes in eight fewer than before he practiſed this huſbandry." But Mr. Doo of Bygrave is in the Norfolk four-ſhift courſe, leaving out the oats taken ſo commonly in Hertfordſhire. If clover fails, he ſows turnips; and if turnips fail, carries on the fallow for barley. This is excellent huſbandry, the writer ſays.

However, round Baldock, generally, but with ſome exceptions, oats are taken after the wheat. And Mr. Smith of Cloth-hall, has a courſe of,

1 Fallow.
2 Wheat.
3 Clover.
4 Oats or barley.

And the four ſhift turnip courſe.

In the open field he finds,

1 Fallow.
2 Barley.
3 Peaſe.
4 Fallow.
5 Wheat.
6 Oats: this by agreement.

And in the open field near Baldock, he finds another courſe by a ſingular agreement.

1 Turnips.
2 Barley.
3 Barley.
4 Clover; which the pariſh flock-maſter eats till the laſt Thurſday in May; then removes his ſheep, and the farmer lets it ſtand for feed.
5 Wheat.
6 Oats.

It is ſuggeſted by the writer, that the practice in theſe courſes, of commonly taking a crop of oats after the clover land wheat, is incorrect in a very high degree. "It is, ſays he, putting in a corn crop the fourth from the fallow, for though clover is certainly to be eſteemed a fallow reſpecting amelioration, yet, in that of cleaning land, it is by no means powerful. If there is any couch in land, it is ſure to increaſe very conſiderably while the land reſts from tillage. This circumſtance makes it ſuch ill huſbandry to leave broad clover a ſecond year. To ſow wheat on one ploughing, which can deſtroy no root-weeds, and then to put in a ſecond crop of corn, muſt, in the nature of things, he ſuppoſes, be injurious by encouraging weeds. But what is the motive, he aſks, for this conduct? Thoſe who ſay that the land will bear it, ſimply aſſert that profit is thus to be gained, provided the land be kept in heart. He could never, he ſays, underſtand this, nor upon what principles the idea can be founded; and in order to place the queſtion in the cleareſt light, it appears to him that nothing more can be neceſſary than to contraſt the two courſes for any given number of years."

And upon the courſes in the clay diſtrict, where the fallow ſyſtem is found, he remarks, that "great crops are gained in favourable years, is, an undeniable fact. But great as theſe expences are, theſe exertions are little or no ſecurity againſt bad ſeaſons, which form a very material deduction from their profit. That huſbandry, upon the long run, will be moſt beneficial which is calculated by a variation of crops to be advantageous with a moderate produce. When a year's fallow and manuring are given to one crop, a moderate produce will not be a profitable return: if the farmer has not a great ſucceſs, he has loſs, and conſequently his hazard is conſiderable. The courſe he wiſhes to ſee tried effectually is this:

1 Fallow, in partial compliance, not with his, but with the opinion of others.
2 Barley.
3 Clover.
4 Beans.
5 Wheat.

"All the manure ſhould, he ſays, be laid for the beans. The fallow will ſecure barley. The clover will give good beans; and the beans, if well cultivated, are ſure to give good wheat." He adds, that "in anſwer to this, he has been told, that beans will not do in this county; that they have been tried, &c. The trials made have, he ſays, been broadcaſt, and therefore no rule whatever. They ſhould be dibbled in double rows; that is, two furrows dibbled, a row on each, and then two or three furrows (according to ſoil and circumſtances) ſhould be miſſed, and two others dibbled, and ſo on; the intervals ſhould alſo be well horſe-hoed; the rows muſt be hand-hoed and weeded, and the whole kept clean like a garden. The ſoil is, he ſays, unqueſtionably well calculated for this crop; for ſimilar land produces great beans in other counties, and therefore if well managed would do the ſame here. When beans are compared with fallow, let the conſumption of the ſtraw be conſidered, which yields excellent dung; let that dung be carried to the field, in addition to the quantity the land receives in the preſent ſyſtem ; a condition abſolutely neceſſary, if the compariſon be made fairly. Let theſe circumſtances be duly attended to, and he has little doubt what the reſult will be. But when random aſſertions are ventured, and the propriety of the recommendation queſtioned, he admits the fairneſs of all, if the propoſal could be applied at once to a whole farm. But how very eaſy is it, ſays he, to try the experiment on three or four acres in perfect management not merely for one ſeaſon good or bad, but to try ſuch a quantity every year. It would then be ſoon aſcertained, by a truly practical man, free from prejudices, whether the huſbandry be really adapted to the land or not." And he adviſes that "in the tillage preparatory to the beans, the Middleſex management ſhould be adopted, of ploughing while the land is dry in autumn, to throw the field into the deſtined form, it having been previouſly well gripped. Spring tillage ſhould alſo be avoided, as it is pernicious on wet, ſtiff ſoils, and nothing ſhould require to be done then except the planting of the field, when the weather would permit the work to proceed, without the land being injured."

In the diſtrict of Eaſt Lothian in Scotland, where the tillage huſbandry is extenſive, and in general well executed, the methods of cropping purſued by the beſt farmers on the different ſorts of ſoil, are the following :

On the coaſt lands, where the ſoils are of the dry gravelly loamy deſcription, they are under a four courſe ſhift, in this way :

1 Turnips, ſometimes with, and ſometimes without dung.
2 Barley, or ſpring wheat, with graſs ſeeds.
3 Clover, which is generally cut for hay, or given green to farm-ſtock in the houſe, and ſometimes paſtured with ewes and lambs.
4 Wheat, or oats, if wheat was taken before, dunged upon the clover ley.

It is ſtated in the Report of the Diſtrict, that, "after this the courſe again returns ;" and that, "upon this deſcription of land, the turnips are for the moſt part conſumed upon the ground with ſheep confined, by flakes, a mode by which the ſoil is greatly enriched. Of late years, however, an improvement has been made in the way of uſing turnips upon theſe lands, that deſerves attention. In place of eating the whole upon the field where they grow, a certain proportion is drawn, and either carried home and uſed for cattle in the houſe, or given to ſheep upon an adjoining ſtubble or graſs field : by this mode a double quantity of land is manured, and if the winter is wet, the turnip field is leſs injured than it would otherwiſe be, if the whole were conſumed where they grow. The quantity drawn and carried off in this manner is from a half to a third of the crop ; in ſome caſes five or ſix drills are taken out ; and the ſame number left. Taking out alternate drills is certainly a preferable mode, and is now pretty generally practiſed."

But that on the deeper loams with a dry bottom :

1 Turnips.
2 Barley, or ſpring wheat.
3 Paſture.
4 Oats.
5 Beans, drilled and horſehoed.
6 Wheat.

It is ſuggeſted, that, "this rotation requires land of the beſt quality. Dung is only once applied during the rotation, and is uniformly given to the turnips."

On the heavy loams on a retentive bottom :

1 Fallow, with dung.
2 Wheat.
3 Beans, drilled and horſehoed.
4 Barley.
5 Clover, which is dunged on the ſtubble.
6 Oats.
7 Beans drilled.
8 Wheat.

It is added, that, in "this courſe, the land is dunged twice, though not very heavily, a practice that is found to be very beneficial. Beans and wheat alternately are ſometimes taken on ſuch ſoils, but much manure is neceſſary, where a ſyſtem of this kind is executed."

And another courſe on this ſort of ſoil is :

1 Fallow, dunged.
2 Wheat with graſs-ſeeds.
3 Paſture, eaten by ſheep.
4 Oats.
5 Beans, or a mixture of beans and peaſe drilled.
6 Wheat or oats.

It is ſtated "that the above is a rotation of ſix, with only one manuring, but the quantity applied is generally greater than in the foregoing rotation, and the paſture being the ſecond after the fallow, and fed off with ſheep, compenſates in ſome degree, for the want of dung."

A rotation is ſometimes followed on the beſt clays, ſuch as is marked in the firſt claſs of the above.

And on thin clays,

1 Fallow without dung.
2 Oats with graſs-ſeeds, or if the fallow was dunged, wheat.
3 Paſture.
4 Oats.
5 Beans, dunged.
6 Wheat.

After which the fallow is repeated, and the courſe returns.

On the pooreſt of theſe clays, the courſe commonly followed, is,

1 Fallow, dunged.
2 Barley, ſometimes oats, with graſs-ſeeds.
3 Clover.
4 Oats.

It is here ſuggeſted, that, "on the coaſt, a conſiderable portion of what was formerly *link* grounds, covered with bents and other herbage of ſmall value, is now brought under the plough, and profitably employed in raiſing uſeful crops." That deſcription of ſoil is for the moſt part under a rotation of four, as follows :

1 Turnips with dung, or ſea ware.
2 Rye or barley, with graſs-ſeeds.
3 Clover cut for hay, or paſtured.
4 Oats, manure on the clover ley.

It is noticed, that the "great bar to the improvement of theſe ſandy ſoils, ariſes from the riſk to which they are expoſed of being blown by high winds, a circumſtance which frequently happens, and by which the crops, both of turnips and barley, are often greatly injured, and ſometimes entirely loſt." A remedy, the writer ſays, "has lately been ſuggeſted and put in practice, for that evil which bids fair to be attended with benefit. The ſeaſon during which the greateſt miſchief happens from blowing, is the latter part of the ſpring, and beginning of ſummer, and the winds by which the blowing is occaſioned, are generally from the weſt and ſouth ; to prevent the miſchief, to barley and turnips crops, it is propoſed to keep barley out of the rotation, and ſubſtitute rye in its place, that the ridges of the field ſhall run in a direction from north to ſouth, and that the three weſternmoſt ridges ſhall be ſown with rye before winter, leaving the three ridges immediately adjoining for turnips, ſowing again the three next ridges with rye, and ſo on, having alternately three ridges of each over the whole field. Where this is practiſed, the rye, by the time the turnips are ſown, has made conſiderable progreſs, and from the circumſtance of the ſides of the ridges being oppoſed to the wind, breaks its force ſo much, as to prevent it from hurting the turnips. Perhaps alternate ridges of rye and turnips would anſwer the purpoſe of ſhelter more completely, but as ſome loſs would ariſe from treading the rye in the working of the turnips, and as the latter, if the rye grew to any great height, would ſuffer from the want of a due proportion of the light and air, two or three ridges appear to be the proper breadth."

The above is conſidered as the rotation or courſe generally followed, on the different ſoils in the middle diſtricts, and coaſt lands; upon the deep and well ſheltered ſoils in the uplands, it is not materially different, except that winter wheat is ſeldom ſown, and ſpring wheat not at all; for the generality of that diſtrict, however, which is a dry gravelly loam, the rotation principally followed is one of four ſhifts:

1 Turnips with dung.
2 Barley or oats.
3 Clover.
4 Oats.

"But upon heath lands, broken up by a two years fallow, the rotation is generally different from any of the above. Where the ſoil of theſe lands is, however, deep, the above rotation is followed; but when the ſituation is elevated, and the ſoil thin, as is often the caſe, the moſt common rotation is as under."

1 Oats.
2 Clover.
3 Paſture.

It is ſuggeſted, that, "in this laſt, the land is permitted to remain for a number of years." But that, "in ſome caſes the ſyſtem is different; the ſecond year of the fallow, and after the lime is wrought in, turnips are ſown, and eaten off with ſheep, oats are ſown in the ſpring with graſs, and the land afterwards paſtured. The laſt is unqueſtionably the moſt profitable rotation, as along with the value of the turnip crop, which in ſome caſes may be conſiderable, the land is manured and has its parts conſolidated, by the treading of ſheep; this laſt is a circumſtance of great importance to ſoils of a looſe texture, as theſe frequently are."

And it is ſuppoſed by "ſome good farmers, that the rotation upon theſe new broken uplands, may be lengthened by taking a ſecond crop of oats, after the clover, and again ſowing down with graſs-ſeeds. It is believed that on ſome of the beſt of theſe lands, that may be done with advantage; but if the ſoil be thin, and contain few uſeful principles, the experiment is dangerous, as there is a riſk of rendering it uſeleſs for the future."

Theſe details of the courſes, which are purſued in cropping lands in theſe great grains diſtricts, clearly prove that much remains ſtill to be done in this way, before the greateſt poſſible advantages can be derived from the cultivation of the ſoil.

Having thus explained the principles on which the buſineſs of cropping land ſhould be conducted, the courſes of crops which are beſt ſuited to different circumſtances and ſorts of ſoil, and ſhewn the ſyſtems of cropping, which are commonly purſued in the beſt corn diſtricts of the kingdom, it may be proper to ſtate the uſual diſtribution of crops on farms of different deſcriptions. It is not however an eaſy matter to ſtate with exactneſs the proportions of crops of different ſorts, that may be the moſt ſuitable and advantageous on farms of different ſorts and ſizes under the arable or other ſyſtems, as much muſt always depend on ſoil, climate, and ſituation in ſo far as markets are concerned, as well as the ſort of cultivation which is practiſed, and other circumſtances which relate to the peculiar nature of the farm itſelf.

It has been ſtated that the governing principles in this ſort of arrangements ſhould be "that the extent of land, in the ſtate of natural and artificial graſs, be fully adequate to the ſupport of ſuch a number of live ſtock of different kinds, as may be ſufficient to ſupply ſuch a proportion of manure as is neceſſary for keeping the portion of ground under grain root, green, or other crops, in the moſt perfect heart and order. Hence the ſpace of ground to be conducted under grain, root green, and other arable crops, muſt conſtantly be proportioned to the quantity of manure that can be raiſed by the keeping of different ſorts of domeſtic animals, while the number of the laſt muſt be regulated by the amount of the food that can be procured from the graſs and green cattle crops which can be cultivated and preſerved for their uſe during the winter ſeaſon. As without conſiderable attention to theſe different circumſtances, it muſt be impoſſible, it is ſuppoſed, except near large towns, where manures can be obtained at a reaſonable rate, to cultivate land to the greateſt advantage."

The proportionate diſtribution of crops on a farm of 150 acres, 60 of which were dry turnip land, and the other part a mixture of clay with gravel lying on a wet bottom; being ſituated on the beſt cultivated portion of the Weſt-Riding of Yorkſhire.

Diſtribution of Crops.

Wheat - -	30 acres.
Barley - -	20
Oats - -	14
Meadow graſs - -	7
Red clover - -	14
Paſture - -	45
Summer fallow and turnips	20
	150

On another farm in the weſtern part of the ſame diſtrict; of the extent of 80 acres, cuſtomary meaſure of 7840 ſquare yards, under the grazing and dairying ſyſtems.

Annual diſtribution of the Crops.

3½ acres of oats.
1½ acre of barley.
21 acres of meadow, cut for hay.
20 acres paſtured with feeding cattle.
30 acres paſtured with milch cows, young cattle and horſes.

But it is ſuggeſted, that the proportion of grain is here much too ſmall, even under ſuch ſyſtems of management.

And upon a farm in the centre of the Riding; the ſoil of which is red greet and water ſhaken, incumbent on clay. The extent 200 ſtatute acres, under the arable ſyſtem.

Annual diſtribution of the Crops.

43 acres wheat being { 15 acres after fallow.
15 acres after clover ley.
13 acres after oats.

The quantity of ſeed ſown from 2½, to 3 buſhels per acre.

15 acres barley, after fallow, 3½ to four buſhels ſown *per* acre.
18 acres after oats, 5 buſhels ſeed per acre.
14 acres beans and peaſe, 3 to 4 buſhels ſeed *per* acre.
70 acres paſture and meadow.
16 acres clover.
31 acres ſummer fallow.
200

On a farm on a dry gravelly ſoil, the extent 78 ſtatute acres, reſtricted to ploughing more than 40 acres.

Annual diſtribution of the Crops.

18 acres wheat.
8 acres potatoes.
6 acres oats.
8 acres peaſe, cabbages, &c.
27 acres paſture graſs.
11 meadow land.
78

And on a farm where the ſoil was limeſtone, clay and moor, the extent of which was 139 ſtatute acres.

Annual diſtribution of the Crops.

Wheat - -	23 acres.
Barley - -	9
Oats - -	23
Beans - -	7
Meadow - -	12
Fallow - -	20
Paſture - -	47
	139

On a farm of the extent of 116 ſtatute-acres, the ſoil lime ſtone and clay:

Annual diſtribution of the Crops.

Wheat - -	22 acres.
Barley - -	9
Oats - -	8
Beans - -	5
Meadow - -	10
Fallow - -	13
Paſture - -	49
	116

The diſtributions of crops on different ſorts of land in the northern part of the ſame county, are in this way:

On a farm of 100 acres of light ſoil.

Annually.

	Acres.	Roods.	Perches.
In corn - -	40	0	0
In turnips -	20	0	0
In temporary graſs ley -	30	0	0
In clover - -	10	0	0
Total	100	0	0

And on another farm of 120 acres of heavy ſoil.

Annually.

	Acres.	Roods.	Perches.
In white corn - -	30	0	0
In Beans - -	10	0	0
In clover or peaſe - -	10	0	0
In green fallow crops -	10	0	0
In graſs - -	60	0	0
Total	120	0	0

For a farm of 200 acres, managed under the convertible ſyſtem, or that of alternately grain and graſs, being continued only three years under the plough, and then laid down to graſs, one, two, or a greater number of years, according to circumſtances.

Diſtribution of the Crops.

Under different ſtates of graſs	110 acres.
Under fallow crops - -	30
Under grain crops - -	60
	200

Or, Annually thus;

Under the ſtate of old turf or ſward	20 acres.
Under different artificial graſſes, as clover, lucern, ſaintfoin, &c.	10
Under irrigation, or the ſtate of preſerved graſs. -	5
Under different ſorts of fallow crops	30
Under wheat and barley after different fallow crops -	30
Crops of different graſſes 1ſt year	25
Crops of ditto. 2d year	25
Crops of ditto. 3d year	25
Under oat and other grain crops, after breaking up the graſs -	30
	200

Crops, *Courſe of*, in *Gardening*, is the method of putting in or cultivating culinary vegetables, ſo as that the ſoil and ſtate of the ground may be the moſt ſuitable to the nature of the plant, herb, or root, and at the ſame time be the beſt preſerved from being injured by the exhauſting properties of the crops.

From the general richneſs of garden-ground, and much manure being conſtantly employed in the raiſing of crops on them, much leſs attention has perhaps been paid to the courſes of cropping in the garden than in the field. It is, however, equally neceſſary in this caſe as in that and the ſame principles are equally applicable.

A variety of circumſtances, however, conſpire to prevent its being ſo effectually accompliſhed in the garden as in the farm; as the ſmallneſs of the portions of ground generally allotted to this uſe, the vaſt number of articles which are to be grown, and their great ſimilarity and relation to each other. It has, notwithſtanding, been ſuggeſted by Mr. Nicol that they may be claſſed in the following manner, with much propriety and advantage.

1 Brocoli, cabbage, cauliflower, and ſavoys.
2 Common beans, French beans, and peaſe.
3 Carrots, beets, and parſnips.
4 Turnips, early potatoes, onions, leeks, ſhallots, &c.
5 Cellery, endive, lettuce, &c. &c.

It is found in practice that cellery conſtitutes an excellent preparation for aſparagus, onions, and cauliflowers.

Turnips or potatoes are a good preparation for cabbages or greens.

Brocoli or cabbages, are a proper preparation for beans or peas.

Cauliflowers prepare well, for onions, leeks, or turnips.

Old aſparagus land affords a good preparation for potatoes or carrots.

The ſtrawberry, currant, gooſeberry, and raſpberry for the ſame.

Turnips give a ſuitable preparation for cellery, or endive.

And peaſe, when well manured for, are a good preparation for ſpinach, &c.

It is recommended by the writer mentioned above, that in all caſes a ſtudied courſe ſhould be had recourſe to, ſo that no crops of the ſame claſs or kind may immediately follow each other. In order to accompliſh which in the moſt perfect manner, the garden ſhould be divided with regularity into quarters, and numbered, a journal being kept for the purpoſe of entering every thing which regards the manner of cropping, manuring, trenching, digging, ridging up, and fallowing of each of them, in the manner below.

No. 1.

1793. Subtrenched after aſparagus without manure for carrots.

1794. Winter fallowed, planted with early cauliflowers with moderate dunging, 2d May.

1794. Winter fallowed ſowed with yellow turnips, with compoſt dreſſing, 20th July.

1795. Dug over lightly for ſowing onions without manure, 8th February.

1795. Dug over deeply for planting cabbages with light dunging, 5th October.

1796. Dug over lightly for ſetting Charleton peaſe without manure, for a late crop, 20th June.

1796. Trenched three ſpits deep in December, winter fallowed.

1797. Dug deep, to be ſet with early potatoes, with moderate dunging, 20th March.

1797. Dug common depth, for German greens, without manure, 10th September.

1797. Dug common depth, intended for leeks in June next.

The other numbers of the different compartments or diviſions ſhould be managed in the ſame way.

It is likewiſe remarked that it is becoming a practice with market gardeners to crop a portion of their ground every ſeaſon with ſome ſort of grain or graſs, which, beſides being found highly uſeful for their cattle, is of vaſt benefit to their ground. After being laid down a year or two with ſome ſort of the latter kind of crop, the ground is found to be capable of again growing good eſculent or kitchen vegetables.

CROPPING, in *Agriculture*, the operation or proceſs of putting different ſorts of field crops into the ground. In performing this buſineſs to the moſt advantage, various circumſtances are neceſſary to be taken into conſideration, ſuch as the ſeaſon, and the nature, ſtate, and preparation of the land, as well as the nature, quality, and quantity of the ſeed. By properly attending to all theſe different points of management, crops of almoſt all deſcriptions may be put into the ſoil, ſo as to ſucceed with much greater certainty, and in a much more perfect manner than is uſual in the ordinary methods of putting them into the ground.

Cropping, in *Gardening*, the practice of committing the various culinary and other garden crops to the ſoil. In this buſineſs much attention is neceſſary to the ſeaſon, as well as the particular habits and economy of the different ſorts of plants, roots, or other kinds of crops which are to be raiſed; and alſo to the proper preparation of the ground on which they are to be grown, both in reſpect to the manner and depth of ſtirring it. There are likewiſe many other circumſtances which require the notice of the careful gardener in this important department of his art.

Cropping, in *Rural Economy*, a term often employed to ſignify the cutting off the ears or other parts of different ſorts of animals, ſuch as ſheep, goats, horſes, dogs, &c. either with the view of ornament or as a mark by which they may be diſtinguiſhed from others of the ſame kind.

CROP-OUT, in *Mining*, ſignifies to *baſſet*, *out-go*, or burſt upon the ſurface. (See thoſe articles.) Since the diſcoveries of Mr. William Smith have been promulgated reſpecting the ſtratification, a large portion of theſe appearances of the edges of ſtrata, on the ſurface of the ground, has been denominated Endings *of the ſtrata* (which ſee.) Theſe are generally on the weſt or north-weſt ſides of hills and mountains, and are generally very irregular or fingered; but the diſlocations, depreſſions, and elevations of different parts of the ſtrata, with the denudation and excavation of other parts, have occaſioned the ſtrata frequently to crop-out, eſpecially in mountainous diſtricts, in every poſſible direction. See the above articles.

CROQUANT, *Fr.*; the name of a faction that committed great ravages towards the end of the ſixteenth century in ſeveral provinces beyond the Loire. In 1593 the peaſants of Perigord, Limoſin, and Poitou, aſſembled, and appointing for themſelves leaders and officers, refuſed to pay the impoſts, over-ran the country, and gave no quarter to gentlemen who fell into their hands. They were called *croquans*, becauſe they eat voraciouſly, and helped themſelves plentifully wherever they went.

CROQUE-Note, Fr. in *Muſic*, a title given in deriſion by the French, to ſuch unſkilful and unfeeling muſicians as are called in England mere fidlers and ſcrapers.

CROQUIS, a ſketch made in haſte, of any deſign to be completed afterwards.

CRORE, in *Commerce*, the term uſed in the Eaſt Indies for a ſum of money, equal to ten millions of rupees or 100 lacks; each lack comprehending one hundred thouſand rupees, or in a round ſum, 10,000*l.* ſterling.

CROS, in *Geography*, a town of Egypt, according to Steph. Byz.

CROSATO, Gio. Batista, in *Biography*, a Venetian painter of the 18th century, who died in the year 1756. He was the tutor of Bernardino Galliari. From the deſign of this artiſt Zucchi engraved a deſign of God the Father and the Saviour, for the Italian tranſlation of Milton's Paradiſe Loſt. A picture, by him, repreſenting the ſcourging of Chriſt, is in the church of St. Ermagora at Venice. Great part of his life was ſpent in Piedmont, where he is better known as an ornamental painter (*quadraturiſta*) in which line he acquired great reputation. Lanzi. Heinecken.

CROSE, or *Drawing-board*, in *Heraldry*, an inſtrument of the coopers, uſed as part of their armorial enſign.

CROSETTES, in *Architecture*, the returns in the corners of chambranles, or door-caſes, or window-frames; called alſo *ears*, *elbows*, *ancones*, *prothyrides*, &c.

CROSICIN, in *Geography*, a town of Poland, in the palatinate of Lemberg; 52 miles W.S.W. of Lemberg.

CROSIER, or Crozier, (from *Crocia*, low Latin, *à ſimilitudine crucis*; called alſo *Cambuta*, *Pedum*, and *Baculus Paſtoralis*), the paſtoral ſtaff of archbiſhops, biſhops, abbots, abbeſſes, as alſo of certain priors and prioreſſes. In the teſtament of St. Remigius, archbiſhop of Rheims, who died in the year of Chriſt 533, mention is made of an ornamented ſilver croſier, which he bequeathed to his cathedral church. The croſier originally was not longer than a common walking ſtick, and was uſed as ſuch by biſhops and abbots, at the ſame time that it was an emblem of their authority. In proceſs of time it became longer and more ornamented, until it reached the height, richneſs, and exquiſite workmanſhip which is ſeen in that of William of Wykeham, biſhop of Wincheſter, bequeathed by him to his college at Oxford, called New College, and ſtill preſerved there. The croſier of ordinary biſhops, and of abbots and abbeſſes, reſembles a ſhepherd's crook, being curved at the upper end, and ſhod at the bottom with a ſharp ferule, to denote its two-fold purpoſe, expreſſed in the following well-known verſe:

> "Curva trahit mites, pars pungit acuta rebelles."

The croſier of an archbiſhop conſiſts of a lofty, proceſſional croſs, with a ſingle bar to it; that of a patriarch of ſuch a croſs with two bars to it; and that of the pope of a triple-barred croſs.

The croſier being an enſign of ſpiritual juriſdiction, it was the priviledge of all eccleſiaſtical perſons, who had been canonically inveſted with it, to have it carried before them within the limits of their juriſdiction; that is to ſay, an abbot within the walls of his convent, a biſhop within his dioceſe, a metropolitan within his province; but by no means out of it. The archbiſhop of Canterbury might diſplay his croſier throughout all England, Wales, and, previouſly to the year 1150, throughout all Ireland; but the archbiſhop of York could not exhibit his on the ſouth ſide of the Humber. Hence when Richard I. was crowned a ſecond time, which ceremony took place at Wincheſter in the year 1194, by way of effacing the ignominy of his captivity at Trivallis, his brother Geoffrey Plantagenet, archbiſhop of York, finding that he was not permitted to have his croſier carried before him in the province of Canterbury, refuſed to be preſent at the coronation, as we are informed by Roger Hoveden. In conformity with this principle, abbots and abbeſſes were required to have a veil affixed to their croſiers; which veil, however, was faſhioned in the nature of a pendant, or flag, to ſignify that their authority was of a private nature, and confined to their reſpective communities. For the ſame reaſon, they were accuſtomed to hold the crooked head of the croſier inwards, namely, turned towards their own perſons; whereas biſhops held them outwards, that is to ſay, turned from themſelves. Theſe remarks, however trivial they may appear of themſelves, are of great uſe in aſcertaining the perſonage, character, and authority of many figures in our ancient ſculpture and painting. M.

Crosier, in *Aſtronomy*, four ſtars in form of a croſs; by help whereof, thoſe who ſail in the ſouthern hemiſphere find the antarctic pole.

CROSNE, in *Geography*, a town of Poland, in the palatinate of Lemberg; 80 miles W.S.W. of Lemberg.

CROSNIERE, a ſmall iſland in the Atlantic Ocean, on the coaſt of France, of about ſix miles in circuit, near the iſland of Noir Moutier, which is conſidered as a part of the department of the Vendée. It was gained from the ocean, in 1767, by means of dikes, which on a ſmall ſcale repreſent the famous dikes of Holland. The ſoil is uncommonly fertile, and well cultivated. There is but one commune or pariſh in the whole iſland.

CROSNO, Krosno, or Krosna, a ſmall town of Auſtria, in Gallicia or Auſtrian Poland, which carries on a good trade, chiefly in wine and other commodities of Hungary.

CROSS, Thomas, in *Biography*, an Engliſh engraver of the 17th century, by whom we have, amongſt others, the following portraits, executed in a poor, laboured ſtyle: Jeremiah Burroughs, 1646. James Burroughs, theol. 1648. John Richardſon, biſhop of Armagh, 1654. He alſo engraved the frontiſpiece to White's Rich Cabinet, 1684. Walpole. Heinecken.

Cross, ——, an Engliſh painter, who flouriſhed in the reigns of Charles I. and II. He is ſaid to have been ſo excellent a copyiſt, that being employed by the former monarch to copy ſome of the fineſt pictures in Italy, he brought away from the church of St. Mark at Venice, a fine Madonna by Raffaele, ſubſtituting the imitation for the original. So excellent was the deception, that the cheat was not diſcovered until too late to regain it. This picture is now ſaid to be in the Eſcurial in Spain. Pilkington.

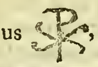
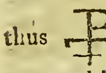
Cross, Crux, a ſort of inſtrument, compoſed of two pieces of wood, traverſing and cutting each other, ordinarily at right angles. Such being the form of the croſs, the body of the criminal was faſtened by nailing the feet to the upright part, and the hands on each ſide to the tranſverſe piece.

Pezron derives the word *crux* from the Celtic *croug*, and *croas*; though, perhaps, *croug* and *croas* might with as much juſtice be derived from *crux*.

The croſs was uſed amongſt the ancients as an inſtrument of puniſhment for malefactors, and particularly ſlaves; and was planted at ſeveral places, *in terrorem*, as our gallows, &c.

The death of the croſs was, both on account of the ſhame and pain of it, the moſt dreadful of any; ſo that it was inflicted on the vileſt criminals.

Sozomen obſerves, that it was Conſtantine who by law firſt aboliſhed the puniſhment of the croſs, which had obtained among the Romans till his time. It had alſo been in uſe among the Aſſyrians, Egyptians, Perſians, Carthaginians, and even the Greeks. The Jews pretend that they inflicted the puniſhment of crucifixion upon no perſon whilſt he was alive; but that, having firſt put them to death in ſome other way, they then faſtened them to the croſs either by the hands or neck. But inſtances occur of their frequently crucifying perſons that were alive. See 2 Sam. xxi. 9.

Conſtantine was induced to aboliſh crucifixion by his reſpect for the croſs of Chriſt. He would not ſuffer the inſtrument of our ſalvation to be thus diſhonoured, and rendered an object of averſion and horror, and he thought it indecent and irreligious, that the croſs ſhould be uſed for the puniſhment of the vileſt offenders, whilſt he himſelf erected it as a trophy, and eſteemed it the nobleſt ornament of his diadem and military ſtandards. Although the text of this law is not preſerved, the fact is aſſerted both by Pagan and Chriſtian writers. (*Vid.* Aurel. Victor. and Sozomen.) Influenced by the ſame religious ſentiment, he prohibited the breaking of the legs of criminals, which was a puniſhment often annexed to that of the croſs, as appears from the example of the two thieves crucified with Chriſt. The circumſtance in which Conſtantine's peculiar veneration for the croſs originated is related by Euſebius (De Vita Conſt. lib. i. c. 27, 28, 29, 30.) in the following manner.—This writer repreſents the emperor as deliberating, and determining what God he ſhould worſhip when he was undertaking the war with Maxentius, or, however, before he had finiſhed it; which was began in 311, when Conſtantine was conſiderably above 30 years of age. Weighing, ſays Euſebius, in his mind the misfortunes of thoſe who had worſhipped idols, he made choice of the Chriſtian religion; and conſidering with himſelf that he wanted ſome better aſſiſtance than military forces, he ſought for a God that might be his helper. In conſequence of his deliberation on this ſubject, he was convinced, that it was the utmoſt folly ſo far to trifle as to pay honour to ſuch gods as were mere nullities; and he therefore reſolved to worſhip only the God of his father. Euſebius proceeds in the following words: "He therefore called upon this God in his prayers, earneſtly intreating and beſeeching him, that he would make himſelf known to him, and afford him his powerful aid in the difficult affairs before him. Whilſt the emperor was putting up theſe earneſt prayers and ſupplications, a divine ſign (θεοσημεια) of a moſt wonderful nature appeared; which thing, poſſibly, if related by another, would not be eaſily credited. But the victorious emperor himſelf having told it to us, who wrote this hiſtory a long time after, when we had the honour of his acquaintance and converſation, and having likewiſe confirmed it with an oath, who can refuſe his aſſent to it, eſpecially when following events have borne teſtimony to the truth of it? He ſaid then, that about noon, when the day was declining, he ſaw with his own eyes in the heavens, the trophy of the croſs, placed above the ſun, conſiſting of light, with an inſcription annexed, τȣ́τω νίκα, BY THIS CONQUER; that at the ſight of it, aſtoniſhment ſeized him and his whole army, which then followed him in a certain march, and beheld that wonderful ſight." "In the mean time," as he ſaid, "he began to doubt with himſelf, what the meaning of this ſhould be; but whilſt he was revolving in his mind, and continued meditating upon it, at length night came on. As he ſlept, the Chriſt of God appeared to him with that ſign which had appeared in the heavens; and commanded him to make a ſtandard reſembling the ſign, which he had ſeen in the heavens, and to uſe it as a defence, in the battle with his enemies."—"As ſoon as it was day, he aroſe, and communicated this wonderful thing to his friends. And then ſending for ſuch as worked in gold and precious ſtones, he ſeated himſelf in the midſt of them, and gave them a deſcription of the ſign, and commanded them to make one like it in gold and precious ſtones, which we have alſo ſeen." Euſebius afterwards deſcribes the ſtandard. In a crown of gold at the top of the croſs was a figure, conſiſting of the two firſt letters of the name of Chriſt, according to the Greek orthography. This figure on ſome medals, is formed thus , in others thus , and the ſtandard thus marked is called *labarum*, which ſee. When the troops in any part of the army began to give way, the emperor cauſed the ſtandard with the croſs to be conveyed thither; and his faith, ſays Euſebius, was rewarded with victory, which began on that ſide where the greateſt danger was apprehended.

The appearance of the luminous croſs in the heavens is altogether denied by ſome, who call it a fiction, a ſtratagem, a political device of Conſtantine, to animate his ſoldiers, and to engage the Chriſtians firmly on his ſide. By ſome it was regarded as a pious fraud. This opinion, as Fabricius aſſures us (Apud Bib. Græc. l. v. c. 3. t. vi. p. 8., &c.), has been fully conſidered and confuted by Jo. Chr. Wolfius. By others, more generally, the croſs, which is ſaid to have been ſeen by Conſtantine in the heavens, is reckoned not only a reality, but a miracle. Fabricius (*ubi ſupra*) allows and contends for the reality of it, but does not think it properly miraculous. He ſuggeſts that it was a ſolar halo, which is a well known phenomenon; and in order to account for the inſcription, τȣ́τω νίκα, he ſuggeſts, that γραφη, in Euſebius's relation, means a *picture*, as well as a *writing*, and that λεγειν, when applied to a picture or image, means to *denote* or *imply*, and that the words of Conſtantine and Euſebius may be thus interpreted: to the croſs was adjoined a picture or image, intimating that by this he ſhould conquer; which image was a lucid crown, a repreſentation or ſymbol of victory. In confirmation of this ſolution, it has been alleged, that Euſebius, by not uſing the words ϛοιχεια, or γραμματα, nor mentioning in what language it was written, ſeems to ſpeak rather of an emblem or picture, than of a writing. Beſides, in the ſtandard which Conſtantine ordered to be made in form of a croſs, in memory of this omen, he placed a crown of gold and jewels on the top of it, and a cypher denoting the name of Chriſt, but not the words τȣ́τω νίκα. We ſhall here ſubjoin ſome pertinent and judicious remarks that have been made on this hiſtory of Euſebius by Dr. Lardner. (Works, vol. iv. p. 152, &c.) 1. This relation is delivered by Euſebius upon the ſole credit of Conſtantine; whereas a thing of ſo public a nature could not have reſted upon his credit and authority only, if it had been true. Other witneſſes might have been called to vouch for the truth of an event, ſo ſurpriſing, and ſo recent; *i. e.* 20 years before Euſebius wrote the life of Conſtantine; and the hiſtorian, from dutiful affection for the emperor, and from a juſt concern for his own honour, would not have failed to add ſomething to this purpoſe. 2. The oath or oaths of Conſtantine upon this occaſion, rather bring his relation into ſuſpicion. 3. Euſebius renders this whole account ſuſpicious, by not mentioning the place of this wonderful ſight; and this defect renders it probable, in Dr. Lardner's judgment, that Euſebius himſelf did not believe this ſtory, nor intend to vouch for the truth of it. 4. There are other things concerning the ſtandard related by Euſebius, which he alſo had from Conſtantine, and which are very unlikely, if not altogether incredible. Wherever the ſtandard was, ſays the hiſtorian, the enemies fled; and this is not improbable, becauſe it might animate Conſtantine's ſoldiers, and terrify the enemy. But it is added, that the ſalutary trophy was a ſafeguard to him who bore it, and there never was any one wounded in this ſervice. This relation, for which Euſebius does not make himſelf anſwerable, ſurpaſſes all credible accounts of miracles; that when many darts were thrown, none ſhould ſtrike the bearer, nor yet light upon the upper part of the ſtandard, where were the croſs and the motto, but only, and always, upon the narrow circumference of the ſpear, or pole of the ſtandard. 5. Lactantius, or the author of the book "Of the deaths of Perſecutors," who wrote a few years after this appearance in the heavens is ſuppoſed to have happened, ſays nothing of it, but only mentions Conſtantine's dream or viſion in his ſleep. But the truth of this viſion reſts ſolely upon the emperor's own word; and if the appearance of the croſs in the heavens be denied, which Conſtantine confirmed to Euſebius with an oath, the credit of the emperor, as to the whole matter, is ſo weakened, that nothing concerning it can be taken upon the authority of his teſtimony only. It is further added by Lardner, that ſince ſeveral eccleſiaſtical hiſtorians, who wrote after Euſebius, particularly Rufinus and Sozomen, inſiſt not upon the appearance of the croſs in the heavens, there were at that time Chriſtians, as well as others, who either were totally ignorant of it, or elſe did not credit the account, as related by Euſebius from Conſtantine. Indeed, it does not ſeem reaſonable to believe the relation of any one man, concerning a public appearance, which is atteſted by no others; nor did Euſebius himſelf believe it, much as Conſtantine endeavoured to impoſe upon his learned friend. In order to account for the difference in the relation of this ſight in the heavens, and the ſilence of hiſtorians reſpecting it, Dr. Lardner conjectures, that when Conſtantine firſt informed people of the reaſon that induced him to uſe the ſign of the croſs in his armies, he alleged nothing but a dream; but in the latter part of his life, when he became acquainted with Euſebius, he added the other particular of a luminous croſs ſeen ſomewhere by him and his army in the day-time; and the emperor having related this in the moſt ſolemn manner, Euſebius thought himſelf obliged to mention it. But the firſt account had been ſo long and ſo often told, that it was generally known, and the only one that was ſo known. Whence it came to paſs, that hiſtorians a good while afterwards related the viſion in the dream, as the original cauſe of Conſtantine's uſing the croſs, that being the common and prevailing tradition concerning it.

As to the time when the appearance of the croſs in the heavens and the dream of Conſtantine are ſaid to have happened, authors are not agreed; but theſe events have generally been referred to the 26th of October, A. D. 312. But this opinion is far from being ſatisfactory, as it is liable to many objections. Dr. Lardner ſuppoſes, that the ſign of the croſs began to be made uſe of by Conſtantine in his armies on occaſion of his laſt battle with Maxentius; ſome ſhort time at leaſt before this battle; and the day of it, the thought of employing this ſign muſt have come into Conſtantine's mind; whether by divine revelation and admonition, or his own politic contrivance, let the inquiſitive judge, ſays Lardner, after mature conſideration. Conſtantine was a politician as well as a Chriſtian, and he might have adopted the ſtandard of the croſs, and the mark of it upon the ſhields of his ſoldiers, with a view of reconciling them to his change of religion, and alſo as a means of ſucceſs in his deſigns, and of victory over his enemies.

After this digreſſion, we ſhall return to the more immediate ſubject of this article. As to crucifixion, or the manner wherein the puniſhment of the croſs was effected, the critics, both ancient and modern, are exceedingly divided; the points in diſpute are, whether the criminal was faſtened with three nails, or with four; whether the feet were immediately faſtened to the croſs, or whether they reſted on a little piece of wood, in manner of a ſtep, or reſt, called *ϖηγμα*; whether the croſs was planted in the earth before the perſon was nailed on, faſtening him afterwards by means of a ſcaffold raiſed to the height of the place where the feet were to be nailed; or whether he was nailed before the croſs was raiſed or planted, as the painters repreſent it: or laſtly, whether the patient was faſtened quite naked, or covered: queſtions that have all been occaſioned by the crucifixion of Jeſus Chriſt.

In reference to this event, we may here add, that our Saviour was ſcourged before he was delivered to be crucified (Matth. xxvii. 26. Mark, xv. 15.), agreeably to the uſual cuſtom among the Romans, who ſcourged perſons condemned to capital puniſhment before execution. He alſo bore his croſs. (John, xix. 16, 17.) It was the conſtant practice among the Romans for criminals to carry their own croſs. Thus Plutarch (De iis qui ſero puniuntur), alleges this circumſtance as an illuſtration of the miſery of vice; "that every kind of wickedneſs produces its own particular torment, juſt as every malefactor, when he is brought forth to execution, carries his own croſs." We are alſo told by the evangeliſt, that our Lord was crucified without the city. This is conformable to the Jewiſh law, and to examples mentioned in the Old Teſtament. Among the Romans alſo this cuſtom was very common, at leaſt in the provinces. The robbers at Epheſus, mentioned by Petronius Arbiter (Satyr. c. 71.), were crucified by order of the governor of the province, without the city. This was the cuſtom likewiſe in Sicily, as appears from Cicero (in Verr. l. x. c. 66.) Perſons devoted to this kind of death often lingered for a long while before their pain terminated in diſſolution. Sometimes they remained ſuſpended till they died of hunger; and in ſome caſes they were ſuffered to remain on the croſs till their bodies were devoured by birds of prey; nor were their relations allowed to take them down and bury them. The law of Moſes, however, forbade the bodies to remain on the croſs after ſun-ſet. See John, xix. 31, 32, 33.

Cross, in *Antiquity*, was under one form or other of it, a kind of monument of art, which very long and very generally ſubſiſted, which was conſtructed of various materials, but moſt commonly of ſtone, and which was intended to anſwer a variety of purpoſes, civil and religious. Under the article Cromlech, we have already mentioned ſeveral ſtone ſtructures, which were erected in the Britiſh iſlands by the Druids, Saxons, or Danes, and which ſerved as temples or altars, or burying-places. The ſtones that formed them were ſometimes placed acroſs one another, probably more from neceſſity or convenience, than from any particular view to the figure of a croſs. After the introduction of Chriſtianity, and more eſpecially after the age of Conſtantine, the croſs became an object of very general veneration, and traces of it are diſcernible in many of our churches and monuments, as well as in our civil and religious cuſtoms and ceremonies. Thoſe monuments of ſtone, which ſerved as inſtruments of Druidical ſuperſtition before the plantation of the goſpel in the Britiſh iſles, were afterwards appropriated to the uſe of Chriſtian memorials, by being formed in the figure of a croſs, or marked with this emblem of ſanctity and object of veneration. Structures of the kind now mentioned, were appropriated to various purpoſes; and we find them ſubſiſting in ſeveral places, as memorials of the demarcation or boundary of property, pariſhes, and ſanctuaries; as ſepulchral monuments; as public records of battles, murder, and other diſaſtrous events; as places of public prayer, preaching, and proclamation: and others were placed by the road-ſide, in market places, at the junction of three or four ſtreets or roads, and on the ſpot where the corpſe of any perſon of rank and eminence was ſet down for the reſt of the attendants, in its way to interment; ſo that "a tranſeuntibus pro ejus animo deprecetur." It was a common practice for mendicants to ſtation themſelves near ſome of theſe croſſes, and beg alms in the name of Jeſus; and to this cuſtom the provincial proverb, ſtill retained in the north of England, ſeems to allude, when applied to a perſon very urgent in his intreaties; "He begs like a cripple at a croſs." Croſſes were alſo in former times erected on the tops of houſes, by which tenants pretended to claim the privileges of the templars-hoſpitallers, of defending themſelves againſt their rightful lords. This was condemned by the ſtatute Will. II. c. 37. Theſe ſtone-croſſes were anciently incitements to ſuperſtition, and even objects of worſhip. See *Exaltation of the* Cross, *infra.*

Such was the veneration with which croſſes were formerly regarded, that when St. Auguſtine firſt came to preach the Chriſtian faith to the Saxons, he had a croſs borne before him with a banner, on which was the image of our Saviour. Croſſes were alſo erected by many Chriſtian kings, before a battle, or great enterprize, with prayers and ſupplications, for the aſſiſtance of Almighty God. Oſwald cauſed a croſs of wood to be erected before he fought with Cadwallo, holding it till the earth was rammed in round about it, while all his ſoldiers kneeled down devoutly. Many inſtances occur of croſſes that were placed to mark the boundaries

aries of diſtricts, of church-property, and of ſanctuary. Of the former claſs are "Stump-croſs," being the boundary-ſtone between Friſby and Aſhfordby, in the county of Leiceſter; another of the ſame name on the ſummit of a high hill at Townley, in the pariſh of Whalley, and county of Lancaſter; the ſhire croſs-ſtone, on the mountain called Wry-noſe, near the river Dudding, dividing Cumberland from Weſtmoreland; the croſs yet remaining on Stainmore, which is the boundary-ſtone between Yorkſhire and Cumberland; and the ſtone-croſs, called "Mugdrum croſs," near Lundoris in Fifeſhire, which, according to Camden, marked the boundary between the diſtricts of Fife and Strathern, which was alſo a place of ſanctuary.

At Ripon, in Yorkſhire, the boundaries of ſanctuary of the collegiate church were diſtinguiſhed by croſſes. Among the monumental croſſes, thoſe at Penrith church-yard, in Cumberland, are ſomewhat ſingular and curious. Such are thoſe in the church-yard of Glames in Scotland, and that in the church-yard of Bewcaſtle in Cumberland, the latter of which is aſcribed by many antiquarians to the Danes. Theſe monumental ſtones are very numerous in Wales, Scotland, Ireland, and the north of England. There were two of this kind in the monks' cœmetery at Glaſtonbury; and ſuch was alſo the monument of St. Dunſtan at Canterbury. Croſſes were uſually erected in the way leading to parochial churches and cœmeteries. Cornwall abounds with ſtone-croſſes. In church-yards, by the ſides of roads, and on the open downs, they remain ſolitary and neglected, though among the lower claſſes of the people a ſort of ſuperſtitious reverence is ſtill paid to theſe monuments. The preaching-croſs, ſtone-pulpit, or oratory, was probably firſt erected for the purpoſe of ſheltering and accommodating the miniſter when he preached to a large concourſe of people in the open air, or for his convenience in reading the funeral ſervice. Of this kind are the croſs near the monaſtic houſe of the Black-friars in the city of Hereford; that in the church-yard of Iron-Acton in Glouceſterſhire; that at Holbeach in Lincolnſhire; and that on the ſouth ſide of the abbey at Shrewſbury, commonly called "St. Winifrid's pulpit." But the moſt noted of this claſs was "St. Paul's croſs" in London, which was probably at firſt of the monumental kind. This was the moſt celebrated place in London for public ſermons, though it was often abuſed by the agents of the predominant party. This croſs appears to have been ſtanding at the time when Dugdale wrote his hiſtory of St. Paul's. There was another public preaching croſs in Spitalfields, near London, where the lord-mayor, and principal officers of the city, &c. regularly attended to hear ſermons in Eaſter-week. Thoſe diſcourſes, called the Spital-ſermons, originated at this croſs; but they are now preached at St. Bride's.

Croſſes not only marked civil and eccleſiaſtical limits, but probably ſerved for ſtations, when the bounds were viſited in proceſſions; a ſtation denoting a church-oratory, or other reſting place, where a prayer was ſaid or a ſhort verſe ſung. In the iſle of Iona were 360 croſſes, of which one only now remains. Croſſes alſo on the road, or without the limits of the cœmetery, ſeem to have been endowed with a privilege of ſanctuary.

The market-croſſes are of various ſhapes and ſizes. Their general deſign was to excite public homage to the religion of Chriſt crucified, and to inſpire men with a ſenſe of morality and piety amidſt the ordinary tranſactions of life. In almoſt every town that had an abbey, or any other religious foundation, there was one of theſe ſtructures. At moſt markets and fairs it was then, as it is now, cuſtomary to pay certain tolls on articles that were ſold. Many of theſe tolls belonged to monaſteries, and in populous places they muſt have produced conſiderable revenues. To promote theſe, as well the doctrines of their religion, the monks frequently harangued the populace from theſe croſſes; and it is reaſonable to ſuppoſe that they ſtrongly urged the neceſſity of a ſtrict adherence to religion, honeſty, and induſtry. Previouſly to the diſſolution of the monaſteries, there was hardly a market town in England without one or more of theſe ſtructures; and many of them ſtill remain, exhibiting beautiful ſpecimens of the architecture and ſculpture of the times. To this claſs we may refer the "White Friar's croſs" in the road, about one mile W. of Hereford; the croſſes at Coventry, Glouceſter, Cheddar, Malmeſbury, Chicheſter, Stourhead in Wiltſhire removed from Briſtol, Wincheſter, Leighton-Buzzard in Bedfordſhire, and Glaſtonbury. Croſſes of memorial are thoſe which were erected in places where the bodies of eminent perſons halted in their way to interment. Of theſe a ſeries formerly ſtood by the ſide of the road which communicated between Paris and St. Denis, where the kings of France were uſually interred. The moſt memorable and intereſting objects of this kind were thoſe which king Edward I. of England erected at the different ſtages where the corpſe of queen Eleanor reſted, in its progreſs from Nottinghamſhire to London. Mr. Gough (Vetuſta Monumenta, vol. iii.) ſtates, that there were originally 15 of theſe elegant ſtructures; but only three are now remaining, which, by their peculiar beauty, as ſpecimens of architecture and productions of art, ſerve to excite regret at the deſtruction of the others. Hiſtorians, however, differ, not only as to the place and time of queen Eleanor's death, but alſo concerning the number of croſſes erected. The moſt probable account is that ſhe died at Hereby in the county of Nottingham, in November, A.D. 1290. At the places, probably near a religious houſe, where the corpſe halted for a night, the king afterwards ordered a ſumptuous croſs to be erected. The firſt of the three above-mentioned is the *Croſs at Geddington*, about four miles from Kettering, in Northamptonſhire, which is of a triangular ſhape, elevated on eight ſteps, and divided into three compartments; the firſt, or lower one, is ſolid, covered with ornamental ſculpture, each face divided into ſix pannels, attached to which are ſix ſhields, charged with the arms of England, Caſtile, Leon, and Ponthieu. Above this is an embattled turret, from which riſe ſix pillars, ſupporting as many decorated canopies. Beneath theſe are placed three ſtatues of the queen, diſpoſed in ſo abſurd a manner, that the pillars at the angles directly interſect the front of each figure. The ſecond is the *Queen's croſs* near Northampton, the moſt perfect of the three, and very ſimilar in ſhape and ornaments to that at Waltham, though the latter is of an hexangular form, and the former is octangular. Standing on eight ſteps, in an open country, and on elevated ground, it aſſumes a very impoſing appearance. Like the others, it is divided into three ſtories, the lower of which has eight faces, ſeparated by buttreſſes at the angles. Each face is ornamented with a pointed arch, having a central mullion, with tracery, and the whole crowned with a purfled pediment. Two ſhields are alſo attached to each face, charged with the arms of England and Ponthieu ſingly, and thoſe of Caſtile and Leon quarterly. A carved book is alſo affixed to four of the ſides. On the weſtern face have been inſerted the arms of Great Britain, in a garter, under a crown, beneath which is a Latin inſcription; and on another tablet is another inſcription, the former importing that it was repaired in the year 1713, and the latter in 1762.

The third is the *Croſs at Waltham* in Hertfordſhire, which, though more dilapidated than either of the former, is more enriched in its architecture, and more elegant in its ſculpture. This formerly ſtood on ſteps, but the ground having been raiſed round it, the ſteps are covered and it appears ſhorter than the others. This has ſix faces. For a further account of theſe croſſes, illuſtrated with appropriate and excellent engravings, ſee the valuable work of Mr. Britton, entitled "Architectural Antiquities of Great Britain," parts iv. and v.

Croſſes, &c. are forbid to be brought into England, by 13 Eliz. c. 2, on pain of a *præmunire*, &c.

Cross, *Invention of the*, *inventio crucis*, an ancient feaſt, ſolemnized on the third of May, in memory of St. Helena's (the mother of Conſtantine) finding the true croſs of Chriſt deep in the ground, on mount Calvary; where ſhe erected a church for the preſervation of part of it: the reſt being brought to Rome, and repoſited in the church of the Holy Croſs of Jeruſalem.

Theodoret mentions the finding of three croſſes, that of Jeſus Chriſt, and thoſe of the two thieves; and that they diſtinguiſhed between them by means of a ſick woman, who was immediately healed by touching the true croſs. The place is ſaid to have been pointed out to her by St. Quiriacus, then a Jew, afterwards converted and canonized.

Nothing, ſays Tillemont, is more certain than this diſcovery of the true croſs in the days of Conſtantine; for it is atteſted by Rufinus, Sulpitius Severus, Theodoret, Socrates, Sozomen, Ambroſe, Paulinus, and Chryſoſtom. The account he gives of this wonderful diſcovery is as follows: "When St. Helena, the mother of Conſtantine, was arrived at Jeruſalem, and had begun to viſit the ſacred places, the Holy Ghoſt inflamed her with a deſire to find the wood of the croſs. But no perſon had ever ſeen it, or could tell where it had been hid. She then inquired for the place where Chriſt was crucified, and found it out by the help of the Jews and Chriſtians; or, as Rufinus ſays, by ſome revelation; and being moved by the Holy Spirit, ſhe ordered the buildings to be pulled down, and the rubbiſh to be removed. The faith of this female ſaint was recompenſed beyond expectation; and upon digging very deep, they found the holy ſepulchre, and near it three croſſes, with the title which had been affixed to the croſs of Chriſt, and the nails which had pierced his ſacred body. But a difficulty ſtill remained, which was to diſtinguiſh the croſs of Chriſt. St. Macarius, biſhop of Jeruſalem, propoſed the method. He was a prelate illuſtrious for his wiſdom, truly worthy of God, and had juſt overthrown the hereſy of Arius at the great council of Nice. This holy man, knowing that one of the principal ladies of the city lay extremely ill, told Helena, that they muſt carry the three croſſes to the ſick perſon, and beg of God that he would cure her by the application of the true croſs. The empreſs, and all the people being preſent, he touched the woman with two of the croſſes ineffectually; but as ſoon as he had made uſe of the third, ſhe aroſe in perfect health, and ſtronger than ſhe had ever been. It is believed, ſays Sozomen, that they applied the croſs to a dead body, which inſtantly revived. St. Paulinus and St. Sulpitius Severus mention only this laſt miracle. Helena, full of joy, adored not the wood itſelf, ſays St. Ambroſe, which would have been a Pagan folly, but the king of heaven who ſuffered upon it. She took part of this treaſure to carry to her ſon, and incloſing the reſt in a ſilver box, ſhe committed it to the biſhop of Jeruſalem. It was carefully kept in the church, which was built there, and the biſhop alone had the power to give little pieces of it, which were conſidered as a ſingular favour and bleſſing. St. Paulinus relates a *very ſingular thing* concerning that part of the croſs which was at Jeruſalem. This croſs, ſays he, having a vital virtue in an inſenſible and inanimate ſubſtance, hath yielded, and continues to yield, almoſt daily, its precious wood to the deſires of an infinite number of perſons, without ſuffering any diminution, continuing all the while as if it had been untouched. It permits itſelf every day to be divided into ſeveral parts, and yet remains expoſed entire to the veneration of the people. St. Cyril of Jeruſalem ſays only, that the pieces of the croſs were brought away from Jeruſalem, and were ſpread all over the earth twenty-five years after." (H. E. vii. 5.) In the review of this relation a difficulty occurs, whether the diſcovery of the croſs was a fiction formed ſome years after the death of Helena and of Conſtantine, or whether Helena really found a croſs. Upon the whole, it ſeems moſt probable, that the ſtory was invented by the Chriſtians at Jeruſalem, after the emperor and his mother were dead. The diſcovery in the time of Conſtantine reſts principally upon the authority of Cyril of Jeruſalem, the only witneſs who lived at that time, and who ſpeaks of no miracles attending the diſcovery; and the queſtion is, whether the epiſtle of Cyril, which mentions it, be genuine or ſpurious, or interpolated; and alſo whether Cyril, ſuppoſing it genuine, made up that part of the ſtory himſelf, and dated the diſcovery at too early a period. If Helena found a croſs, it is impoſſible now to know how the fraud was conducted, on the part of thoſe who were actors, both hiders and finders, in this tranſaction. Euſebius, who lived at the time, and was biſhop of Cæſarea, in the neighbourhood, ſays not a word of the croſs, though he relates the diſcovery of the ſepulchre of Chriſt, and mentions the magnificent church which was erected there, and names Macarius as the perſon to whom the care of the building was committed. (Vit. Conſt. iii. 25, &c.) It is, therefore, to be concluded, either that he knew nothing, or believed nothing of it. One would hope that the letter aſcribed to St. Cyril is ſpurious or interpolated. Helena was fourſcore years old when ſhe took this journey to Jeruſalem; and it is more probable that ſhe ſhould have been impoſed upon, than that ſhe ſhould have had any ſhare in the contrivance. After her death ſhe was ſainted and highly honoured: her body is ſaid to be in an abbey in France, and alſo at Rome; but there is no great inconvenience in ſuppoſing it to be in two places at once. The multiplication of the croſs atteſted by Paulinus, leads us to this opinion. (See Tillemont, H. E. vii. 18.) The eccleſiaſtics of Jeruſalem, at whatever time they contrived the diſcovery of the croſs, knew their own intereſt very well. It muſt have drawn a ſwarm of pious vagrants to their city, and have brought in great revenues to the church and to the biſhop, if they gave only *6d.* a-piece, to ſee the box in which the croſs was locked up. The finding of the croſs hath alſo been aſcribed to one Judas, a Jew, by Gregory of Tours. See the remarks of J. Baſnage, Hiſt. des Juifs, vi. 14. § 10. Jortin's Remarks on E. H. vol. iii. Gibbon's Hiſt. vol. iv.

Cross, *Exaltation of the*, an ancient feaſt, held on the 14th of September, in memory of this, that Heraclius reſtored to mount Calvary the true croſs in 628, which had been carried off fourteen years before, by Choſroes, king of Perſia, upon his taking Jeruſalem from the emperor Phocas.

The adoration of the croſs appears to have been practiſed in the ancient church, in as much as the heathens, particularly Julian, reproach the primitive Chriſtians with it. And we do not find that their apologiſts diſclaimed the charge. Mornay, indeed, aſſerted, that this had been done by St. Cyril, but could not ſupport his allegation at the conference of Fontainbleau. St. Helena is ſaid to have reduced the adoration of the croſs to its juſt principle, ſince ſhe adored in the wood, not the wood itſelf, which had been direct idolatry and heatheniſm, but him who had been nailed to this wood. With ſuch modifications, ſome proteſtants have been induced to admit the adoration of the croſs. John Huſs allowed of the phraſe, provided it were expreſsly added, that the adoration was relative to the perſon of Chriſt. The Roman catholics have been charged, in our opinion unjuſtly, with the adoration of the croſs. To this purpoſe, it has been ſaid, that Imbert, the good prior of Gaſcony, was ſeverely proſecuted in 1683, for telling the people, that in the ceremony of adoring the croſs, practiſed in that church on Good Friday, they were not to adore the wood, but Chriſt who was crucified on it: the curate of the pariſh told them the contrary: it was the wood! the wood! they were to adore. Imbert replied, it was Chriſt, not the wood: for which, it is ſaid, that he was cited before the archbiſhop of Bourdeaux, ſuſpended from his functions, and even threatened with chains and perpetual impriſonment. It little availed him to cite the biſhop of Meaux's diſtinction; it was anſwered, that the church allowed it not. This ſtory we have cited, as it has been related by various authors, in order to have an opportunity of contradicting the allegation implied in it, conſidered as a charge againſt the Catholics. We are well aſſured by a Catholic prieſt, of unqueſtionable veracity and honour, that as Boſſuet's expoſition was ſolemnly approved of at its firſt publication, by the whole prelatic body of France, and by the reigning pontiff, Innocent XI., ſo it will be formally ſubſcribed to, ſhould the occaſion require it, by every Catholic biſhop in the three kingdoms, and by Pius VII. himſelf. But it is unneceſſary to add any thing further on this ſubject, beſides appealing to the very words of the council of Trent on the ſubject in queſtion; *viz.* of a council from the doctrinal decrees of which the Catholics are never permitted to ſwerve, and which was ſpecially held to determine the ſenſe of their church upon all modern controverſies. "Imagines porro Chriſti, Deiparæ Virginis, & aliorum ſanctorum in templis præſertim habendas, & retinendas, eiſque debitum honorem, & venerationem impertiendam: non quod credatur ineſſe aliqua in iis divinitas vel virtus propter quam ſint colendæ; vel quod ab eis ſit aliquid petendum; vel quod fiducia in imaginibus ſit figenda: velut olim fiebat à gentibus quæ in idolis ſpem ſuam collocabant: ſed quoniam honos quæ eis exhibetur refertur ad prototypa quæ illæ repreſentant: ita ut per imagines quas oſculamur, & coram quibus caput aperimus & procumbimus Chriſtum adoremus & ſanctos, quorum illæ ſimilitudinem gerunt, veneremur." Concil. Trid. ſeſſ. xxiv. cap. 21.

CROSS-*bearer, port-croix, cruciger,* in the Romiſh *Church,* the chaplain of an archbiſhop, or a primate, who bears a croſs before him on ſolemn occaſions.

The pope has the croſs borne before him every where; a patriarch any where out of Rome: and primates, metropolitans, and thoſe who have a right to the pallium, throughout their reſpective juriſdictions.

Gregory XI. forbad all patriarchs and prelates to have it borne in preſence of cardinals. A prelate bears a ſingle croſs, a patriarch a double croſs, and the pope a triple one on their arms.

CROSS-*bearers,* alſo denote certain officers in the Inquiſition, who make a vow before the inquiſitors, or their vicars, to defend the catholic faith, though with the loſs of fortune and life. Their buſineſs is to provide the inquiſitors with neceſſaries. They were formerly of great uſe; but in proceſs of time, ſome of their conſtitutions were changed, and they were called, of the penance of St. Dominic. Limborch's Hiſt. Inq. by Chandler, ch. x. See FAMILIARS, and INQUISITION. See alſo ALBIGENSES.

CROSS-*birth,* in *Midwifery.* When in labour, the arm, ſhoulder, or any other part of the child than the head, preſents to the mouth of the uterus, it is uſually called a croſs-birth.

CROSS, *pectoral,* is a croſs of gold or ſilver, or other precious materials, often enriched with diamonds, which the biſhops, archbiſhops, &c. and regular abbeſſes, wear hanging from the neck.

CROSS *of Jeſus Chriſt, order of,* was inſtituted, in 1217, by St. Dominic, and confirmed by pope Innocent VI. in 1220. The badge of this order was a croſs potence per croſs counter-changed, argent and ſable, in pale the letter P, ſurmounted with the letter X, or.

CROSS, *order of the ſtarry,* or *Croiſade,* an order for ladies inſtituted in 1668, by the empreſs Eleanora de Gonzaga, wife of the emperor Leopold; on occaſion of the miraculous recovery of a little golden croſs, wherein were encloſed two pieces of the true croſs, out of the aſhes of part of the palace. It ſeems the fire had burnt the caſe wherein it was incloſed, and melted the cryſtal; yet the wood remained untouched. The enſign of the order is a medal of gold chaſed and pierced; in the centre the imperial eagle; over all a croſs ſurmounted with the letters I. H. S., and a ſmall croſs over the letter H, with a motto, "*Salus et Gloria*:" worn pendent at the breaſt by a ſmall black ribbon.

CROSS *of St. Louis,* a French order, which was purely of a military nature. It was inſtituted by Louis XIV. in addition to that of *Chriſtian Charity,* which had been founded by Henry III., king of France, in favour of maimed officers and ſoldiers in 1693. This order conſiſted of eight great croſſes and 24 commanders, beſides the king, who was grand maſter, the dauphin always inveſted with it, the treaſurer, recorder, and uſher. Land and ſea officers wore it promiſcuouſly. The croſs conſiſted of eight points enamelled, white, edged with gold, having in the angles four *fleurs-de-lis,* and on the middle a circle, within which is the image of St. Louis in armour, holding in his right hand a crown of laurel, and in his left a crown of thorns, &c. The croſs of the knights was attached to the button hole of the coat by means of a ſmall ribbon crimſon coloured and watered.

On one ſide was this inſcription, *Ludovicus magnus inſtituit* 1693; and on the reverſe there was a blazing ſword with the following words, *Bellicæ virtutis præmium.*

CROSS, *Maids of the,* a community of young women inſtituted in 1265, at Roye, in Picardy, and ſince diſperſed to Paris and other towns. They inſtruct young perſons of their own ſex; ſome take the three vows of poverty, chaſtity, and obedience; others retain their liberty. They are under the direction of a ſuperior.

CROSS, *judgment of the,* a cuſtom in France and other parts of Europe, in the middle ages, of giving judgment in favour of one of two contending parties, who held his arms for the longeſt time lifted up to a croſs.

Charlemagne ordered, that if any difference ſhould ariſe between his children, they ſhould be terminated by the judgment of the croſs. In a placitum or trial in the preſence of this emperor, we have ſuch an account of it as ſufficiently ſhews the imperfect manner in which juſtice was adminiſtered even during his reign. In the year 775, a conteſt aroſe between the biſhop of Paris and the abbot of St. Denys, concerning the property of a ſmall abbey. Each of them exhibited deeds and records in order to prove the right to be in them. Inſtead of trying the authenticity, or conſidering the import of theſe, the point was referred to the *judicium crucis,* in the manner ſtated in the ſequel of this article. The perſon employed by the biſhop on this occaſion, had leſs ſtrength, or leſs ſpirit than his adverſary, and the queſtion was decided in favour of the abbot. If a prince ſo enlightened as Charlemagne countenanced ſuch an abſurd mode of deciſion, it is no wonder that other monarchs ſhould tolerate it ſo long. Lewis the Pious confined this judgment to eccleſiaſtical affairs: his ſon Lotharius aboliſhed it in all caſes; and he aboliſhed even the trial by cold water. When we conſider how much the croſs was an object of ſuperſtitious veneration at the period to which we now refer, we cannot be ſurpriſed that it was employed as an ordeal. It was uſed to this purpoſe in a variety of ways. In criminal trials, the judgment of the croſs was commonly thus conducted: When the priſoner had declared his innocence upon oath, and appealed to the judgment of the croſs, two ſticks were prepared exactly like one another; the figure of the croſs was cut on one of theſe ſticks, and nothing on the other; each of them was then wrapped up in a quantity of fine white wool, and laid on the altar, or on the relics of the ſaints; after which, a ſolemn prayer was put up to God, that he would be pleaſed to diſcover, by evident ſigns, whether the priſoner was innocent or guilty. Theſe ſolemnities being finiſhed, a prieſt approached the altar, and took up one of the ſticks, which was uncovered with much anxiety. If it was the ſtick marked with the croſs, the priſoner was pronounced innocent; if it was the other, he was declared guilty. (Spelm. Gloſſ.) When the judgment of the croſs was appealed to in civil cauſes, the trial was conducted in this manner: the judges, parties, and all concerned, being aſſembled in a church, each of the parties choſe a prieſt, the youngeſt and ſtouteſt that he could find, to be his repreſentative in the trial. Theſe repreſentatives were then placed one on each ſide of ſome famous crucifix; and at a ſignal given, they both at once ſtretched their arms at full length, ſo as to form a croſs with their body. In this painful poſture they remained while divine ſervice was performing; and the party whoſe repreſentative dropped his arm firſt, loſt the cauſe. (Murator. Antiq. t. 111.)

Cross, in *Baptiſm*. In the adminiſtration of this Chriſtian ordinance, a practice, though not enjoined by any expreſs command, or ſanctioned by any known example in Scripture, was adopted at an early period, of ſigning the forehead of the perſon baptized with the ſign of the croſs. The uſe of the croſs indeed was very frequent in the primitive times. Such was the reſpect paid to it, that it formed, in one mode or other, a diſtinguiſhing part of their civil and religious ceremonies. The firſt Chriſtian writer who mentions it in connection with baptiſm, is Tertullian, after the middle of the 2d century; and he alſo ſays (De Cov. Mil. c. 2.) "that at every ſetting out, or entry upon buſineſs, whenever we come in, or go out from, any place, when we dreſs for a journey, when we go into a bath, when we go to meat, when the candles are brought in, when we lie down or ſit down, and whatever buſineſs we have, we make on our foreheads the ſign of the croſs:" and ſpeaking of baptiſm, in his treatiſe, ("De Carn. Reſur.") he ſays, "the fleſh is ſigned, that the ſoul may be fortified." This ſignation was performed with the oil uſed in the attendant ceremony of unction, with which the prieſt touched the head or forehead in the form of a croſs. Tertullian, however, on other occaſions, deſcribes the cuſtom of baptizing without mentioning ſigning with the croſs. This father alſo ſpeaks (De Præſcript. adv. Hæret.) of prieſts, who, imitating the ſervice of God in the idolatrous rites of Mithras, baptized ſome as his believing and faithful ſervants, and ſigned them in their foreheads as his ſoldiers. Cyprian, who lived in the third century, obſerves (De Unit. Eccleſ. § 16.) that this ſign was made in the forehead; and hence (De Lapſis, § 1.) he calls a Chriſtian's forehead, "a ſigned forehead." In ſucceeding ages, the ſame practice of ſigning with the ſign of the croſs is mentioned as uſed whenever a perſon was baptized; and it was done, as the form of baptiſm in the ſervice of the church of England expreſſes it, "in token that hereafter he ſhall not be aſhamed to confeſs the faith of Chriſt crucified, and manfully to fight under his banner againſt ſin, the world, and the devil, and to continue Chriſt's faithful ſoldier and ſervant unto his life's end." It has been ſaid, however, that this ceremony does not appear to have been uſed in baptiſm till the latter end of the fourth or fifth century. See Baptism. To this ceremony, as well as ſome others, enjoined by the ſervice of the church, and by the injunctions of queen Elizabeth, the puritans ſcrupled conformity, A. D. 1567; alleging that the ſign of the croſs in baptiſm is no part of the inſtitution as recorded in Scripture; and that, although it was uſual for Chriſtians, in the earlier ages, to croſs themſelves, or make a croſs in the air upon ſome occaſions, yet there is no expreſs mention of its being uſed in baptiſm till about the 5th century. They alſo alleged, that it had been abuſed to ſuperſtition by the church of Rome, and regarded with ſuch veneration by ſome proteſtants, that baptiſm itſelf was thought to be imperfect without it; and that for thoſe reaſons it ought to be laid aſide. On occaſion of a debate upon the croſs in baptiſm in the upper houſe of convocation, A. D. 1603, Bancroft, biſhop of London, and ſome others warmly vindicated it; but Dr. Rudd, biſhop of St. David's, pleaded, with ſingular candour and conſiderable eloquence, but without much effect, for charity and moderation. He was anſwered by other prelates, and forbidden by the preſident to reply. The puritans, and alſo the proteſtant diſſenters of modern times, object to the impoſition of any rite, the obſervance of which, as a religious act, is not authorized by precept or pattern in the Chriſtian code of their faith and practice.

Cross, in *Botany*, is uſed to expreſs the arrangement of the petala of certain flowers; called *plantæ flore cruciformi*. See Cruciform.

Cross, in *Coins*, a name given to the face, or right ſide, the other being called the pile, or reverſe. It has been a common error that the reverſe was meant by the croſs, becauſe at this time with us marked with figures diſpoſed in that form; but the ſtamping of the head of the prince in theſe kingdoms, on the right ſide of the coin, was preceded by a general cuſtom of ſtriking on that part the figure of a croſs, while the other, called the pile, contained the arms, or ſome other device.

Cross, in *Dialling*. See Dial.

Cross, in *Heraldry*, is defined by Guillim, an ordinary compoſed of fourfold lines; whereof two are perpendicular, and the other two tranſverſe; for ſo we muſt conceive of them, though they be not drawn throughout, but meet by couples, in four right angles, near the feſs-point of the eſcutcheon. See Ordinary.

The content of a croſs is not always the ſame: for when it is not charged, cantoned, nor accompanied, it has only the fifth part of the field; but if it be charged, it muſt contain the third part thereof.

This bearing was firſt beſtowed on ſuch as had performed, or at leaſt undertaken, ſome ſervice for Chriſt, and the Chriſtian profeſſion; and is held, by divers, the moſt honourable charge in all heraldry. What brought it into ſuch frequent uſe was the ancient expeditions into the Holy Land; and the holy war pilgrims, after their pilgrimage, taking the croſs for their cognizance; and the enſign of that war being the croſs.

In thoſe wars, ſays Mackenzy, the Scots carried St Andrew's croſs; the French a croſs argent; the Engliſh a croſs or; the Germans, ſable; the Italians, azure; the Spaniards, gules.

St. George's croſs, or the red croſs, in a field argent, is now the ſtandard of England; that ſaint being the reputed patron of this nation.

Guillim enumerates thirty-nine different ſorts of croſſes uſed in heraldry, the ſeveral names of which here follow; and the deſcriptions of them are to be ſought for under their proper articles. A croſs voided, a croſs wavy-voided, a croſs patée fimbriated, a croſs patée fitched on the foot, a croſs patée on three parts and fitched on the fourth, a croſs engrailed, a croſs patonée, a croſs flory, a croſs patonée voided, a croſs avelane, a croſs patée lambeaux, a croſs furchée, a croſs croſlet, a croſs croſlet fitchée at the point, a croſs bottonée, a croſs pommée, a croſs urdée, a croſs degraded fitchée, a croſs potent, a croſs potent fitched, a croſs calvary, a croſs croſlet ſet in degrees, a croſs patriarchal, a croſs anchored, a croſs molinée, a croſs clechée, a croſs flory or fleur-de-lis, a croſs double fitchée, a croſs a-ſeize points, a croſs milrinée, a croſs raguled, a croſs pointed voided, a croſs pall, a tau or St. Antony's croſs, a croſs voided and couped, a croſs couped pierced, a croſs molinée pierced lozenge-ways, a croſs molinée quarter-pierced, a ſaltire or St. Andrew's croſs, which will be diſtinctly ſpoken of under that denomination; and ſo all the other may be found more particularly deſcribed under the names of their ſeveral differences.

Colombiere makes ſeventy-two diſtinct ſorts of croſſes, of which we ſhall only mention thoſe that differ from ſuch as have been mentioned above; as a croſs remply, which is only one croſs charged with another; a croſs party, that is, one half of one colour, and the other of another; a croſs quartered, that is, the oppoſite quarters of ſeveral colours; a croſs of five pieces, that is, of ſo many colours; a croſs mouſſue, and abaiſée; a croſs barbée; a croſs croiſſanante, or creſcented, that is, having a creſcent at each end; a croſs forked of three points; a croſs pometée of three pieces; a croſs reſſercelée; a croſs pointed; a croſs ankered, and ſurankered; a croſs ankered with ſnakes heads; a croſs orled; a high croſs; a croſs rayonnant, or caſting out rays of glory; a croſs of Malta; a croſs of the Holy Ghoſt; a croſs forked like the ancient reſts for muſquets; a croſs with eight points; a croſs bourdonnée; a croſs cramponnée and tournée; a croſs cablée; a croſs inclining; a croſs pater-noſtre, that is, made of beads; a croſs trefle; a croſs fleuronnée; a croſs vuidée, clechée, and pommetée; a croſs crenellée and baſtielée; a croſs with four ſteps to every arm; a croſs rounded; a croſs and an half; a croſs eſtoilée, or ſtarways; a croſs corded; a croſs doubled of ſix pieces ſet together; a double croſs ſplit in pale; a long croſs cut in pieces and diſmembered; a croſs couped or cut through in feſſe, of the two contrary colours to the field; a chevron ſurmounted by an half croſs; four tails of ermine in a croſs, the tops of the ermines oppoſite to each other in the middle; four pieces of vair placed croſs-ways, and counterpointing in the centre; the croſs or ſword of St. James; croſs potence cramponnée on the dexter upper arm, and a potence about the middle of the ſhaft.

Theſe are the various croſſes we find in the aforeſaid authors; which ſome may think too many, as not being all uſed in England: but heraldry extends to all countries; and all terms uſed require to be explained.

Nor is it only in croſſes that the variety is ſo great; the like is found in many other bearings, and particularly in lions, and the parts of them; whereof the ſame Colombiere gives us no leſs than ninety-ſix varieties. Leigh mentions but forty-ſix ſeveral croſſes; Sylvanus Morgan, twenty-ſix; Upton, thirty; Johannes de Bado Aureo, twelve; and ſo others, whom it is needleſs to mention. Upton owns he dares not preſume to aſcertain all the various croſſes uſed in arms, for that they are at preſent almoſt innumerable: and therefore he only takes notice of ſuch as he had ſeen uſed in his own time.

CROSS, in the *Manege*, a figure which horſes deſcribe in making curvets. To teach a horſe to deſcribe this figure, he ſhould firſt be made to walk upon a ſtraight line, about four times the ſpace of his own length; then go backward upon the ſame line; afterwards advance to the middle of it, then go ſide ways to the right hand about twice the meaſure of his own length; the ſame on the left, and then return to the middle of the line, where he ſhould ſtop and be careſſed. When he can tread theſe lines equally, advance, go backward, and to either ſide, flying the heel, it will be right to put him to make a curvet at the beginning, the middle, and the end of each line; and if, upon repeated trials, he is found ready and obedient, he may be called upon to make the entire croſs in curvets.

CROSS, in *Mining*, are two nicks cut on the ſuperficies of the earth, thus +, which the miners make when they take the ground, to dig for ore. This croſs gives the miners three days liberty to make, and ſet on ſtones.

As many of theſe croſſes as the miner makes, ſo many mears of ground he may have in the vein, if he ſet on ſtones within three days after the making his croſs or croſſes. But if he makes but one croſs, and a ſtander-by makes the ſecond, and a ſtranger makes the third, every one is ſerved with the next mear, according as they have, firſt or laſt, ſooner or later, made their croſs, or croſſes, upon the ground.

CROSS, in *Surveying*, is a mathematical inſtrument of great utility to a land ſurveyor, as it enables him, while going about his ſurvey with his chain, to meaſure the length of the ſtation lines, at the ſame time to take offſets, or perpendicular directions to the corners of a field, or irregular boundaries; ſo as to get the exact figure of the boundaries of one or more fields. When a theodolite is diſpenſed with, the uſe of this inſtrument is abſolutely neceſſary. The principle of this inſtrument conſiſts in two lines of ſight, placed at perfect right angles to each other, and about 4 inches apart, either on wood or braſs. *Fig.* 1, *Plate* III. *(Surveying)* repreſents one uſually made of braſs by mathematical inſtrument makers; it conſiſts of four ſights fixed on a croſs, at right angles to each other, and when in uſe is ſcrewed to a wooden ſtaff about 6 feet long, with an iron pointed ferril at the bottom, to go eaſily into the ground.

For portability, the ſights are made to take away from the croſs, by unſcrewing four ſcrews, *a*, *a*, *a*, *a*, and the ſtaff by braſs ſockets to unſcrew into three parts, each two feet in length.

Another kind of croſs, (and rather more uſed by ſurveyors,) is made of a braſs cylindrical tube, about two or three inches in diameter, with four ſight-ſlits pierced out of it's circumference at perfectly equal diſtances, which cauſe any two of the oppoſite ſights to be at right angles to the other two. (See *fig.* 2.)

The correctneſs of the ſights of any croſs may be eaſily proved, by looking at one object through two of the ſights, and without moving the inſtrument, obſerving an object through the other two ſights; then turning the croſs on its ſtaff, look at the ſame object through the oppoſite ſights; if they are accurately in the direction of the ſights before, the inſtrument is correct.

To ſurvey a field by the croſs, (ſuppoſe of the form of A B C D E, (*fig.* 3.): place marks at the ſeveral angles. Meaſure the line A C, and alſo the perpendiculars from the angles, to that line as determined by the croſs. To find a perpendicular, ſuch as at F, place marks at pleaſure on the line A C, and ſet the croſs at the ſame time, in ſuch a place, ſo that through two of the ſights you can obſerve two of the ſtaves placed on that line, and the ſtaff at E. If at this ſtation E be not viſible, remove the inſtrument backwards or forwards, till the lines, A F, E F, make a right angle in F, by which means the triangle, A F E, will be had. After the ſame manner is the point, H, found, where the perpendicular D H falls, whoſe length, together with that of H F, is meaſured to have the plot of the trapezium E F H D.

Again, meaſure H C, making a right angle with H D, and the figure of the triangle, D H C, will be had. Laſtly, find the point G, where the perpendicular, B G, falls after the ſame manner, and the whole figure of the plot, A B C D E, will be given; the area of which is obtained by adding thoſe of the triangles and trapezium together.

The determination of a very irregular boundary of a river, hedge, &c. by the croſs, is as follows: Let A *h i k l m n*, *fig.* 4, be the irregular boundary, meaſure a ſtraight line, as A B, along the ſide of the foregoing line, and while meaſuring, obſerve when you are oppoſite to any corner or bend of the hedge, as at *c d e*, &c. From thence meaſure the perpendicular offsets as at *e h*, *d i*, with the offsets ſtaff; but if they are long ones, with the chain. The ſituations of theſe offsets are readily found by the croſs as above directed.

Fig. 2, repreſents the cylindrical croſs with the additional improvements by Mr. W. Jones. A ſmall compaſs and needle are applied at its upper part, as at A, and a moveable graduated baſe at B, turning by rack and pinion. A nonius, C, is engraved at the bottom of the cylinder, ſo adapted to the graduations of the moveable limb, as to ſubdivide them into 5 minutes of a degree. Where no great accuracy is required, this ſmall pocket inſtrument unites the advantages of a croſs, circumferentor, and ſmall theodolite.

A uſeful ſurveying croſs by reflexion, (*fig.* 5.) was contrived many years ago by the father of the late Mr. George Adams. It conſiſts of the index and horizon glaſſes of the Hadley's quadrant, placed together with the inclination of 45 degrees. The ſmall mirror, A, is left half unſilvered, ſo that an object ſeen reflected firſt from the large glaſs, and then from the ſmall one, will appear to coincide with another object, ſeen by direct viſion through the unſilvered part of the glaſs, whenever the two objects ſubtend a right angle from the centre of the inſtrument. Thus, in *fig.* 6, ſuppoſe a perſon at C looking into the ſilvered part of the ſmall mirror, ſees the windmill, B, after two reflections, upon, or coincident with a tree, A, viſible through the unſilvered part of the glaſs; he is certain that the windmill, C, is perfectly at right angles with the tree A, at the point where the centre of this optical ſquare is held. Upon this principle, the reader may readily conceive how, with its aſſiſtance in the field, a perpendicular may be found to any given point, or from any particular point to raiſe a perpendicular. For the objects, by direct viſion, through the tranſparent part of the glaſs, will always coincide with the objects ſeen by reflection, when they are at right angles to each other from the centre of the inſtrument. *Fig.* 5, repreſents the glaſſes uncovered; when complete, it has a ſmall braſs box cover, with an opening behind the glaſs A, and a ſlight hole for the eye, as ſhewn at C, *fig.* 6.

This ſmall pocket inſtrument has been found uſeful to military officers for determining the perpendicular poſitions of men or marks in the field. See Jones's edition of Adams's Geometrical, &c. Eſſays, 1803. page 200.

Cross, as a ſignature to a deed, is derived from the Saxon practice of affixing the ſign of the croſs, whether they could write or not. Several charters ſtill remain, to which kings and perſons of great eminence affix "ſignum crucis manu propria pro ignoratione literarum." Hence is derived the expreſſion of *ſigning* inſtead of *ſubſcribing* a paper. In the 9th century, Herbaud Comes Palatii, though ſupreme judge of the empire by virtue of his office, could not ſubſcribe his name. So late as the 14th century, Du Gueſclin, conſtable of France, the greateſt man in the ſtate, and one of the greateſt men of his age, could neither read nor write. The greater number of the clergy were not much leſs ignorant than the laymen. Many dignified eccleſiaſtics could not ſubſcribe the canons of thoſe councils in which they ſat as members.

Cross-*Bars*. See Carriage.

Cross-*Bar Shot*, are ſhot with iron bars croſſing through them, ſometimes ſtanding ſix or eight inches out at both ſides. They are uſed at ſea, for injuring the enemy's rigging; and at ſieges, for deſtroying the paliſades in the covert-way, ditches, &c.

Cross-*Battery*, in *War*. See Battery.

Cross-*Bill*, in *Chancery*, is an original bill, by which the defendant prays relief againſt the plaintiff.

Cross-*Bill*, in *Ornithology*, the Engliſh name of the Loxia *Curviroſtra*, which ſee.

Cross-*Bow*, a ſpecies of bow made uſe of before, and for a conſiderable time after, the invention of gunpowder, for throwing arrows, &c. See Bow, and Archery.

Cross, *Cape*, in *Geography*, a cape of Upper Canada, which projects from the N.E. ſide of St. Mary's river, at the outlet of Lake Superior, oppoſite the Falls. N. lat. 46° 30′. W. long. 84° 50′.—Alſo, a cape on the weſtern coaſt of North America. N. lat. 57° 57′. E. long. 223° 21′.

Cross-*Creek*, a townſhip of America, in Waſhington county, Pennſylvania.

Cross *Cauſes*, in *Chancery*, are ſuch as occur on a croſs-bill filed by the defendant againſt the plaintiff in the original cauſe: theſe are generally contrived to be brought in together, that the ſame hearing and the ſame decree may ſerve for both of them.

Cross-*Fell*, in *Geography*, a mountain of England, in Cumberland, which, in Dr. Garnett's opinion, is the higheſt mountain in England. In Mr. Houſeman's Deſcription of Cumberland, its height above the level of the ſea is ſtated to be 3390 feet; according to Pennant, 3839 feet. The ſummit preſents a large heap of looſe whitiſh free-ſtone, or, more probably, argillaceous grit.

Cross-*Fire*, in the *Art of War*, is when the lines of fire from two or more parts of a work croſs one another. It is frequently made uſe of, to prevent an enemy's paſſing through a defile. The flanks as well as the faces of two adjoining baſtions afford croſs-fires. The faces of two adjoining redoubts furniſh a croſs-fire.

Cross-*Furrow*, in *Agriculture*, a term ſignifying the oblique or croſs grip, or gutter, which is formed in tillage lands, for the purpoſe of receiving the ſuperabundant rain, or other water, from the outer and other furrows, in order to convey it away from them into a ſide ditch, or other proper outlet. See Furrow.

Cross-*Furrowing*, the proceſs or operation of forming or conſtructing croſs gutters or furrows. It is a buſineſs which requires conſiderable care and attention to perform it well; but which is capable of being executed either by the ſpade or the plough, when properly conſtructed for the purpoſe. Some attentive farmers are likewiſe in the habit of having recourſe to the ſpade after the plough, in performing this ſort of field work. It ſhould always be executed in a perfect and complete manner, as much of the ſucceſs of the crop depends upon it. See Furrow, and Furrowing.

Cross-*grained Stuff*, in *Joinery*. Wood is ſaid to be croſs-grained, when a bough or branch has ſhot out of it: for the grain of the branch, ſhooting forward, runs athwart that of the trunk.

In wood well grown this defect is ſcarce perceivable, except in working; but in deal-boards theſe boughs make knots. If the bough grew up with the young trunk, inſtead of a knot is found a *curling in the ſtuff;* very ſenſible under the plane.

Cross-*Haven*, in *Geography*, a ſmall town of the county of Cork, Ireland, ſituated at the mouth of the river Oonbuy, which flows into the weſt of Cork harbour. Sir Francis Drake, in 1589, having a ſmall ſquadron of five ſhips of war, was chaſed into this harbour by a ſuperior fleet of Spaniards, and moored his ſhips in a ſafe baſin behind a hill, whilſt the Spaniards ſailed up the harbour of Cork in purſuit of him, and returned without diſcovering his retreat. A little up this river Oonbuy, near the ſpot where the caſtle of Corigoline was built, the firſt earl of Cork intended to have founded a town, which ſhould rival Cork in trade; but the rebellion of 1641 ruined the deſign. Croſs-haven has about 50 houſes, placed one above another on the ſide of a hill, the permanent inhabitants of which are chiefly fiſhermen; but it is much frequented in the ſummer for ſea-bathing. It is about 9 miles from Cork. Smith.

Cross-*Headings*, in *Canal-making*, are ſmall culverts or ſoughs, branching from the main heading or drain, where a tunnel or ſubterraneous arch is to be formed, for more effectually collecting the ſprings out of the ſtrata, without which it is often impoſſible to proceed with the work. See Canal, and Tunnel.

Cross-*Jack*, or *Square-Sail* of a ſloop, in *Nautical Language*, is a quadrilateral ſail, ſquare on the head and leeches; the head is bent to the croſs-jack yard, and it hangs at right angles with the ſhip's length, and parallel to the deck, extending within ſix inches of the cleats on the yard-arms. The depth of this ſail is four-fifths of the depth of the fore-leech of the main-ſail. This ſail has two reef-bands, four inches broad; the lower one, at one-ſixth of the depth of the ſail from, and parallel to, the foot; and the upper one at the ſame diſtance from the head. A reef-cringle is made at each end of the upper reef-band; and three bow-line-cringles are made on each leech; the upper bow-line-cringle is on the middle of the leech, and the others are equally diſtant from that and the clue. The clues are ſometimes marled on; and for this purpoſe, ten marling-holes are made each way from the clues. The bolt-rope, on the foot and leeches, ſhould be $1\frac{1}{2}$ inch or 2 inches in circumference; and, on the head, 1 or $1\frac{1}{2}$ inch. The clue-rope, when there is one, ſhould be $2\frac{1}{2}$ inches. When ſewing on the bolt-rope, one inch of ſlack-cloth ſhould be taken up in every cloth in the head and foot. To find the quantity of canvas in this ſail; multiply the number of cloths by the depth, and add the quantity in the foot-gores, bands, and pieces.

Cross *Iſland*, in *Geography*, an iſland in the Atlantic ocean, near the coaſt of Main, at the entrance into Machias bay. N. lat. 44° 30′. W. long. 67° 15′.—Alſo, one of the ſmaller Shetland iſlands of Scotland; 35 miles S. of Lerwick.

Cross *Multiplication*, a method of multiplying feet and inches, by feet and inches, or the like; ſo called, becauſe the members are multiplied *croſs-wiſe*. See Multiplication.

Cross-*Piece*, in *Ship-Building*, a rail of timber extended over the windlaſs of a merchant-ſhip, from the knight-heads to the belfry. It is ſtuck full of wooden-pins, which are uſed to faſten the running-rigging as occaſion requires.

Cross *Sound*, in *Geography*, a bay of the North Pacific ocean, on the weſt coaſt of North America, diſcovered by captain Cook on the 3d of May, 1778, and ſo called from the name given in the Engliſh calendar to the day of diſcovery. This inlet appeared to branch into ſeveral arms, the largeſt of which turned to the northward. The S.E. point of this ſound is a high promontory, to which was given the name of *Croſs-Cape*. It lies in N. lat. 57° 57′. E. long. 223° 21′. The moſt advanced point of land to the N.W. lies under a very high peaked mountain, to which was given the name of "Mount Fair-weather." M. la Peroufe, in his "Voyage round the World," (vol. i. Eng. edit.) obſerves, that the entrance into Croſs Sound appears to form two very deep bays, where it is probable ſhips might find very good anchorage. At this Sound the high mountains covered with ſnow terminate: their ſummits are from 13 to 1400 toiſes high. The lands that form the coaſt to the S.E. of Croſs Sound, though 8 or 900 toiſes high, are covered with trees to the top; and the chain of primary mountains ſeems to go very far into the interior of the continent. To the northward of Croſs Sound is Mount Crillon, which is almoſt as high as Mount Fair-weather, which lies to the northward of the bay des Français. Theſe points ſerve as land-marks to the harbour which they ſurround; and as their latitude does not differ 15 minutes, one of them, in coming from the ſouthward, may be eaſily miſtaken for the other. Mount Fair-weather is accompanied with two leſs elevated mountains; and Mount Crillon, which is more iſolated, inclines its point to the ſouthward. In the vicinity of Cape Croſs there is a great number of ſmall iſlands very thickly wooded, between which are ſeveral channels that muſt have formed good roads. Captain Cook has called this part of the coaſt the "Bay of Iſlands." From Croſs Sound to Cape Enganno (the Cape Edgecumb of Cook) lies an extent of coaſt of 25 leagues, in which are 20 different harbours; and Perouſe ſays, that three months would ſcarcely ſuffice to explore this labyrinth of navigation. Cape Enganno is a low land covered with trees, and ſtretching far out to ſea. Mount St. Hyacinth (Mount Edgecumb of Cook) reſts upon it and forms the fruſtum of a cone, but rounded off at the top, and is at leaſt two toiſes high. To the eaſtward of this mount is an extenſive bay, ſo open to the S. and S.E. winds, which are the moſt dangerous, that navigators ought to dread anchoring there. Captain Dixon anchored there to trade for furs, and gave it the name of "Norfolk Sound." Its latitude was 53° 5′ N., and its longitude 138° 16′ W. from the meridian of Paris. Captain Cook perceived the mouth of this creek May 2d, 1778, but did not anchor there. Its ſhores are covered with trees, of an equal height with thoſe to the ſouthward of Croſs Sound. The ſummits of the hills are ſomewhat covered with ſnow; and they are ſo pointed and numerous, that their appearance is altered by the leaſt change of ſituation. Theſe hills are ſome leagues within the land. Smaller hills lie againſt their ſides, and are connected with a low and undulating baſe, extending as far as the ſea. Before the ſhore lie a great number of iſlands; for to the northward and ſouthward of Cape Enganno the coaſt is bordered with iſlands for the ſpace of 10 leagues. From the extremity of theſe iſlands to the cape, called by Perouſe "Cape Tſchirikow," in honour of the celebrated Ruſſian navigator who landed on this part of America in 1741, are two large bays, appearing to ſtretch far into the land, and called by La Perouſe "Port Necker" and "Port Guibert." Dixon anchored

chored in one of them, which he called "Port Banks." N. lat. 56° 35′. W. long. from Paris 137° 20′. At a ſmall diſtance lies a cluſter of five iſlands, ſeparated from the continent by a channel four or five leagues wide, which neither captain Cook nor the pilot Maurelle has noticed. La Perouſe called them "Iſles de la Croyère," from the celebrated French geographer, Deliſle de la Croyère, who accompanied captain Tſchirikow, and who died during that voyage, and whoſe place of interment was diſcovered by captain Clerke in Kamtſchatka. La Perouſe, during his ſtay at Petropawlowſka, had an opportunity of retaliating this act of kindneſs with ſimilar liberality; for finding that the inſcription on captain Clerke's tomb had been deſtroyed by the Kamtſchadales, he took pains to re-eſtabliſh it, as it occurs in the account of Cook's third voyage, and in order to prolong its duration, he cauſed it to be engraved on copper. Dixon has diſtinguiſhed theſe five iſlands by the name of "Foggy iſlands." La Perouſe has placed them in 55° 50′ N. lat. and 137° 11′ W. long.; Dixon in 55° 50′ N. lat. and 137° 3′ 45″, reduced to the meridian of Paris. La Perouſe, being in 55° 39′ 31″ N. lat. and 137° 5′ 23″ W. long., according to his time-keepers, perceived great openings between conſiderable iſlands, at a diſtance from the continent; which Archipelago commences four leagues to the S.E. of Cape Tſchirikow, and apparently extends as far as Cape Hector. Port Bucarelli of Maurelle is in this part. (See Bucarelli.) La Perouſe ſuggeſts, that from Croſs Sound he had coaſted only along iſlands; and Dixon confirms his opinion. La Perouſe, ſailing along the coaſt at a diſtance of 3 leagues, ſaw the iſles of "San Carlos," the principal of which lies S.E. and N.W., and may be 2 leagues in circumference. A long chain connects it with other little iſlands, ſtretching far out into a channel of conſiderable breadth. The place of the iſland fartheſt from the continent, at the diſtance of half a league, was aſcertained to be 54° 48′ N. lat. and 136° 19′ W. long. Ranging for a conſiderable diſtance along the coaſt, La Perouſe diſcovered a bay, which he called "La Touche bay," N. lat. 52° 39′, W. long. 134° 49′, affording, as he had no doubt, very good anchorage. Advancing farther, he ſaw a cape, which apparently terminated the coaſt of America; and he alſo perceived four or five ſmall iſlands near it, which he named "Iſlots Kerouart," and the point "Cape Hector," the cape "St James" of Dixon; which, according to La Perouſe, is in N. lat. 51° 57′ 20″, and W. long. 133° 37′, and according to Dixon in 51° 46′ N. lat. and 132° 20′ W. long., reduced to the meridian of Paris. The oppoſite coaſt of "La Touche bay" was named by La Perouſe "Cape Buache;" and the breadth of the channel or gulf, from eaſt to weſt, was aſcertained to be 30 leagues between Cape Hector and Cape Fleurieu (Cape Cos of Dixon). The ſituation of this cape is 51° 45′ N. lat. 131° 15′ W. long. according to La Perouſe; and N. lat. 51° 30′, W. long. from Paris 130° 32′, according to Dixon. This cape forms the point of a very high iſland. Along the coaſt lie ſeveral cluſters of iſlands, called by La Perouſe "Iſles Sartine," and by Dixon "the Iſlands of Bereſford;" ſituated, according to the former, in N. lat. 50° 56′, W. long. 131° 38′; and, according to the latter, in N. lat. 50° 52′, and W. long. from Paris 132° 3′. A paſſage may poſſibly lie between theſe iſlands, but it would be dangerous to attempt it. The "Woody Point" of captain Cook, forming a continuation of the coaſt from mount St. Elias to Nootka, is ſituated in N. lat. 50° 4′, W. long. from Paris 130° 25′. For other obſervations of this celebrated navigator on the weſt coaſt of America, we refer to *Port des* Francais, and the account of his voyage; and alſo to Nootka.

Cross-*ſtaff*, a mathematical inſtrument, otherwiſe called the Fore-*ſtaff*.

Cross *tining*, in *Agriculture*, a term applied to a method of harrowing land, in which the harrow is made to paſs up the interval it went down before, and down that which it previouſly paſſed up. See Harrowing.

Cross-*trees*, in a ſhip, croſs-pieces of timber ſet on the head of the maſt, and bolted, and let into one another very ſtrongly. They are four in number, and are generally called croſs-trees, but ſtrictly ſpeaking, only thoſe which go thwart ſhips are called croſs-trees; the other, in the largeſt ſhips, are called treiſſel-trees. Their uſe is to keep and bear the top-maſts up; for the foot of the top-maſt is always faſtened into them, ſo that they bear all the ſtreſs. They alſo bear the tops, and are neceſſary to all maſts which carry any other top, or flag-ſtaff, at the head.

Cross-*tree-yard*, is a yard ſtanding ſquare, juſt under the mizen-top, and to it the mizen-top is faſtened below. See Cross-*jack* and Yard.

Cross-*veins*, in *Mining*, are ſuch mineral veins as branch from or croſs the principal or rake-veins; if ſmall, theſe are in Derbyſhire denominated Strings, or Scrins, which ſee. Theſe croſs-veins, according to Jameſon, the tranſlator of Werner, take place uſually on the over-hanging or upper ſide of the vein, and leſs frequently on the lower or lying ſide.

Cross, *Winter*, in *Botany*. See Erysimum.

Cross-*wort*. See Galium *cruciatum*.

CROSSÆA, in *Ancient Geography*, a country of Europe, which was a part of Thrace, before the kings of Macedon united it to their kingdom. It was in a peninſula between the Thermaic gulf to the weſt, and the gulf of Strymon to the eaſt. It contained the towns of Lipaxos, Combrea, Liſæ, Gigonos, Campſa, Imila, and Œnia. Steph. Byz. and Thucydides call it *Cronſis*, and the former makes it a part of Macedonia.

CROSSANDRA (from κροσσος, *fimbria*, and ανηρ, *vir*, alluding to the fringed anthers), Saliſb. Parad. Lond. 12. (Ruellia infundibuliformis; Roxb. MSS.) Claſs and order, *didynamia angioſpermia*. Nat. Ord. *Acanthi*; Juſſ.

Gen. Char. *Cal.* five-leaved; leaves convolute-imbricated; inner ones gradually ſmaller. *Cor.* monopetalous; tube ſlender, enlarged at the baſe, ſwelling a little at the inſertion of the ſtamens, open at the mouth; border one-lipped, trifid; ſegments emarginate. *Stam.* Anthers four, nearly ſeſſile, fringed at the edges of the valves. *Piſt.* Stigma bifid. *Peric.* with two-ſeeded-cells.

Sp. C. *undulæfolia*. A pretty large upright ſhrub, flowering all the year round. *Stem* cylindrical, jointed; branches oppoſite. *Leaves* oppoſite, ovate-lanceolate, entire, undulated; petioles jointed at the baſe. *Flowers* in a denſe terminal ſpike, of a dull orange colour; bractes three under each flower, ending in a ſharp briſtle; the middle one the largeſt. *Pericarp* ſwelled at the baſe into a round nectary. Common in the pagoda gardens at Bengal.

CROSSE, a name given by the people of Guinea, and ſome other parts of Africa, to a kind of fruit very common among them. It very much reſembles our common hazel-nut, but that the ſhell is not ſo hard. Phil. Tranſ. N° 108.

Crosse, *Iſle a la*, in *Geography*, the name of a *fort* in North America, near Beaver river, ſituated on a low iſthmus, in N. lat. 55° 25′. W. long. 107° 48′.—Alſo, a *lake* into which the Shagoina ſtrait and rapid lead, in which the courſe is S. 20 miles, and S.S.W. 14 miles, to the Point au Sable; oppoſite to which is the direction S. of the Beaver river, bearing S. 6 miles; the lake in the diſtance run does not exceed 12 miles in its greateſt breadth. It now turns W.S.W., the iſle a la Croiſe being on the ſouth, and the main land on the north; and it clears the one and the other in the diſtance of 3 miles, the water preſenting an open horizon to right and left; that on the left formed by a deep narrow bay, about 10 leagues in depth; and that to the right by what is called "la Riviere Creuſe," or Deep-river, being a canal of ſtill water, which is here 4 miles wide.

This *lake* and *fort* take their names from the iſland juſt mentioned, which received its denomination from the game of the croſs, that forms a principal amuſement among the natives. The ſituation of this lake, the abundance of the fineſt fiſh in the world found in its waters, the richneſs of its ſurrounding banks and foreſts, in mooſe and fallow deer, with the vaſt number of ſmaller animals whoſe ſkins are precious, and the numerous flocks of wild fowl that frequent it in the ſpring and fall, make it a moſt deſirable ſpot for the conſtant reſidence of ſome, and the occaſional rendezvous of others, of the inhabitants of the country, particularly of the Kniſteneaux. Who were the original people that were driven from it when conquered by the Kniſteneaux, is not now known, as not a ſingle veſtige remains of them. The latter and the Chepewyans are the only people that have been known here; and the laſt mentioned evidently conſider themſelves as ſtrangers, and ſeldom remain longer than three or four years without viſiting their relations and friends in the barren grounds, which they term their native country. The Kniſteneaux, who for ſome time treated them as enemies, now allow them to hunt to the north of the track from Fort du Traine upwards; but when they occaſionally meet them, they demand contributions, and puniſh reſiſtance with their arms. When the Europeans firſt penetrated into the country, in 1777, the people of both tribes were numerous; but the ſmall-pox was ſo fatal, that there does not exiſt of the one, at preſent, more than 40 reſident families, and the other has been from about 30 to 200 families. Since traders have ſpread themſelves over this country, it is no more the rendezvous of the errant Kniſteneaux, ſome of whom uſed annually to return thither from the country of the Beaver river, which they had explored to its ſource in their hunting and war excurſions, and as far as the Saſkatchwine, where they ſometimes met people of their own nation, who had proſecuted ſimilar conqueſts up that river. From thence they returned in the ſpring to the friends they had left; and met with others, who had penetrated, with the ſame deſigns, into the Athabaſca country. When they met, they occupied their time in feaſting, dancing, and other paſtimes, which were occaſionally ſuſpended for ſacrifice and religious ſolemnity; while the narratives of their travels, and the hiſtory of their wars, amuſed and animated their feſtival. After a ſhort interval ſpent in this manner, they prepared for their annual journey to Churchill, to exchange their furs for ſuch European articles as they wanted. The length of the way, and ſhortneſs of the ſeaſon, demanded diſpatch; and in this buſineſs the moſt active men of their tribes, and ſome young women, engaged; remaining at Churchill factory but a little while for bartering their commodities, and indulging themſelves with ſpirituous liquors.

From iſle a la Croſſe fort it is not more than two miles to a point of land which forms a cheek of that part of the lake called the "Riviere Creuſe," which preſerves the breadth already mentioned for upwards of 20 miles; then contracting to about two, for the diſtance of 10 miles more, it opens to "lake Clear." Mackenzie's Voyages from Montreal, &c. Introduction.

CROSSELET, *little croſs*, a diminutive of croſs, uſed in *Heraldry*, where we frequently ſee the ſhield covered with croſſelets; alſo feſſes, or other honourable ordinaries charged or accompanied with croſſelets.

Croſſes themſelves frequently terminate in croſſelets.

CROSSEN, in Latin *Croſſa*, in *Geography*, a ſmall but handſome town of Pruſſia, in the duchy of Sileſia, on the confluence of the river Bober with the Oder, 36 miles S.E. of Frankfort on the Oder; E. long. 15° 20′. N. lat. 52° 5′. The country about Croſſen is uncommonly fertile, and famous for its orchards and vineyards, the latter of which yield a very good ſort of white wine.—Alſo, a ſmall town of Saxony, in the circle of Naumburg Zeitz, on a ſmall river called the white Elſter. It has about 600 inhabitants, who derive their principal maintenance from agriculture, and excellent fiſh ponds.

CROSSIN, a town of Poland, in the palatinate of Lublin; 24 miles S.W. of Lublin.

CROSSMALINA, a ſmall poſt town of the county of Mayo, Ireland, on the river Deel, near the northern extremity of Lough-Conn. It is on the road from Caſtlebar to Killalla, and is 134 miles N.W. from Dublin, and 15 miles N. from Caſtlebar.

CROSSOPETALUM, in *Botany*, Brown. See MYGINDA *rhacoma*.

CROSSOSTYLIS, (from κροσσος, *fimbria*, and ϛυλις, *columella*, alluding to the fringed ſtyle.) Schreb. 1149. Willd. 1307. Juſſ. 432. Forſt. gen. tab. 44. Claſs and order, *monadelphia polyandria*. Nat. Ord. *Salicariæ?* Juſſ.

Gen. Ch. *Cal.* top-ſhaped, quadrangular, attached by its lower part to the germ, permanent, with four egg-ſhaped ſpreading diviſions. *Cor.* Petals four, elliptical; claws narrow; inſerted into the calyx; nectaries twenty, filiform, ciliated, alternating with the filaments. *Stam.* Filaments twenty, almoſt the length of the calyx, united at the bottom into a ſhort cup; anthers ſmall, roundiſh. *Piſt.* Germ ſuperior, convex; ſtyle the length of the ſtamens, cylindrical; ſtigmas four, ſpreading, laciniated, or fringed. *Peric.* Berry? hemiſpherical, ſtriated, enveloped in its lower part by the calyx, one-celled. *Seeds* numerous, globular, attached to a central column.

Eſſ. Ch. Calyx four-parted. Petals four, inſerted into the calyx. Nectaries twenty, alternating with the ſtamens after they become ſeparate. Stigmas four, fringed.

Sp. C. *biflora*. A native of the Society iſlands.

CROSSWICKS, in *Geography*, a village of America, in the ſtate of Jerſey, and county of Burlington, through which the ſtages paſs from New York to Philadelphia. It has a reſpectable Quaker meeting-houſe; 4 miles S.W. of Allen town, 8 S.E. of Trenton, and 14 S.W. of Burlington.

CROSTIGAL, a ſmall town of Saxony, in the circle of Leipzig, with 284 inhabitants, which is ſo cloſe to the gates of the ancient town of Wurtzen, that it is conſidered as one of its ſuburbs.

CROSTILO, a river of Italy, which runs into the Po, about a mile N.W. from Lazzara, in the duchy of Mantua.

CROTALARIA, in *Botany*, (from Κροταλον, the name of an ancient noiſy brazen inſtrument; alluding, according to Linnæus, to the form of the legume; but, according to others, becauſe the ſeeds in the ripe legumes make a rattling noiſe when ſhaken.) Linn. gen. 862. Schreb. 1172. Willd. 1343. Gært. 859. Juſſ. 354. Vent 3. 390. Claſs and order, *diadelphia decandria*. Nat. Ord. *Papilionaceæ*, Linn. *Leguminoſæ*, Juſſ.

Gen. Ch. *Cal.* often with three deep diviſions; the two upper ones lanceolate, preſſing on the ſtandard, lower one lanceolate, concave, three-cleft, ſupporting the keel; ſometimes with five deep, nearly equal diviſions. *Cor.* papilionaceous; ſtandard generally large, ſomewhat heart-ſhaped, acute, depreſſed on the ſides; wings egg-ſhaped, often about half the length of the ſtandard; keel acuminate, recurved, moſt commonly about the length of the wings. *Stam.* Filaments all united towards the baſe into a membranous ſheath, with a fiſſure at the back; anthers ſimple. *Piſt.* Germ ſuperior, oblong, often hirſute; ſtyle ſimple, bent inwards, aſcending; ſtigma obtuſe. *Peric.* Legume often pedicelled, moſt commonly ſhort and turgid, one-celled. *Seeds* generally few, roundiſh-kidney-ſhaped.

Eſſ. Ch. Legume turgid, inflated; filaments connate, with a dorſal fiſſure.

* *Leaves ſimple.*

Sp. 1. C. *perfoliata.* Linn. Sp. Pl. 2. Mart 2. Lam. 1. Dill. elth. tab. 102. (Rafnia perfoliata; Willd.) “Leaves perfoliate, cordate-egg-ſhaped.” *Stem* apparently ſhrubby, but the branches periſh every year, two feet high or more, branches cylindrical, ſmooth, leafy. *Leaves* alternate, ſmooth, ſtiff, veined. *Flowers* yellow, axillary, ſolitary, on very ſhort peduncles. *Legumes* ſmooth, rather ſhort, inflated. A native of open woods in the back part of Carolina. 2. C. *amplexicaulis.* Linn. Sp. Pl. 3. Mart. 3. Lam. 2. (Rafnia amplexicaulis; Willd. Thunb. Geniſta perfoliata; Seb. thes. 1. tab. 24. fig. 5.) “Leaves all heart-ſhaped, embracing the ſtem, reticularly veined, alternate; floral ones oppoſite, coloured; flowers ſolitary, axillary.” A perfectly ſmooth ſhrub. *Stem* a foot and half high, ſlender, leafy; branches alternate, very ſlender. *Leaves* entire. *Flowers* yellow, almoſt ſeſſile; two upper diviſions of the calyx large, truncated with an oblique point; ſtandard roundiſh, raiſed. A native of the Cape of Good Hope. 3. C. *reniformis.* Lam. 3. “Leaves cordate-kidney-ſhaped, embracing the ſtem, reticulated, ſmooth; floral ones orbicular, legumes compreſſed, ſolitary, nearly ſeſſile.” *Branches* ſmooth, woody. *Leaves* larger and rounder than thoſe of the preceding ſpecies, entire. *Legumes* from nine lines to an inch long, ſmooth. *Calyx* as in the preceding ſpecies. A native of Africa. 4. C. *cuneiformis.* Lam. 4. “Smooth; leaves ovate-wedge-ſhaped; lower ones retuſe; uppermoſt inverſely egg-ſhaped, mucronate; floral ones nearly oppoſite.” *Stems* ſomewhat woody, full of pith, not ſo thick as a gooſe-quill, ſmooth, leafy; branches ſimple, with one or two leaves at the ſummit. *Stem leaves* alternate, almoſt ſeſſile, not reticulated, from eight to ten lines long, and ſeven or eight broad. *Flowers* yellow, axillary, ſolitary; peduncles ſhorter than the leaves; calyx ſmooth, ſhort. A native of Africa. 5. C. *capitata.* Lam. 5. “Villous; leaves lanceolate, ſcattered, crowded, ſeſſile; flowers in heads.” *Stem* woody, cylindrical, leafleſs; marked with ſcattered, ſomewhat callous ſcars; branched near the top; flowers faſcicled, aſcending, leafy their whole length. *Leaves* ſlightly convex above, entire, ſix or ſeven lines long. *Flowers* variegated with purple-violet and white; calyx rather ſhort, with five diviſions, obtuſe at its baſe; ſtamens diadelphous; germ thickly ſet with reddiſh hairs. A native of the Cape of Good Hope. 6. C. *chinenſis.* Linn. Sp. Pl. 5. Mart. 5. Lam. 6. Willd. 4. and 21. “Leaves egg-ſhaped, ſomewhat petioled; ſtipules very minute.” Linn. “Villous-ſilky; leaves ovate, oblong, obtuſe, ſomewhat petioled; ſtipules awl-ſhaped; ſtyle curved and twiſted at the baſe, reflexed.” Lam. *Stems* and branches pubeſcent, cylindrical. *Leaves* rather obtuſe, quite entire, a little hairy on both ſides. *Racemes* few-flowered, rough with hairs; bractes lanceolate, the length of the peduncles; calyxes hairy, the length of the corolla; corolla yellow, with a ſtriated banner; ſtipules awl-ſhaped. Linn. Whole plant cloathed with reddiſh hairs, which are ſilky on the young ſhoots. *Stem* woody, full of pith, with numerous ſimple branches. *Leaves* alternate, numerous; lower ones near two inches long; upper ones very ſmall; ſtipules four or five lines long, commonly ſeveral together in a kind of faſcicle. *Flowers* in ſhort racemes, which form a terminal panicle; bractes lanceolate, three or four lines long. *Legumes* ſcarcely five lines long, ſmall, oval, inflated, villous. A native of China and the iſland of Java. Obſ. La Marck ſtates his plant to be the chinenſis of Linnæus. Willdenow thinks it diſtinct, and has taken it up ſeparately as ſuch, and called it paniculata. Their reſpective deſcriptions do not appear to us to be abſolutely inconſiſtent with each other, though the reſemblance is not ſtriking. The laſt five ſpecies were communicated by Sonnerat to La Marck, who deſcribed them from dried ſpecimens. 7. C. *ſagittalis.* Linn. Sp. Pl. 4. Mart. 4. Lam. 7. Willd. 1. (C. americana, caule alato; Mart. Cent. tab. 43. C. hirſuta minor; Herm. Lugdb. tab. 203. Pluk. Alm. 122. tab. 169. fig. 6. Sagittaria cordialis. Marcg. hiſt. 1. 55. β. C. Sagittalis glabra; Pluk. Alm. 122. tab. 169. fig. 6.) “Leaves lanceolate; ſtipules decurrent, ſolitary, two-toothed.” Linn. *Root* annual. *Stem* about a foot high, herbaceous, erect, ſtiff, pubeſcent, branched. *Leaves* alternate, entire, rounded at the baſe, on ſhort petioles, hoary underneath, and ſomewhat hirſute, but ſometimes ſmooth; ſtipules at the ſides of the petioles, bifid, with two open teeth, ſo as to appear ſagittate. *Flowers* pedicelled from three to five, in ſhort peduncled racemes, at the top of the ſtem and branches; calyx nearly or quite as long as the corolla, cloathed with reddiſh hairs, divided into five ovate-lanceolate ſegments. *Legumes* from twelve to fifteen lines long, almoſt ſeſſile in the calyx, inflated, veſicular, ſmooth. A native of Virginia, the Weſt Indies, and Brazil. 8. C. *parviflora.* Willd. 2. Roth. Cat. 1. 83. and 2. 84. “Leaves lanceolate; upper ſtipules decurrent, very ſlightly two-toothed.” *Root* annual, very ſimilar to the preceding, but ſmaller in all its parts. A native of Virginia and Carolina. 9. C. *rubiginoſa.* Willd. 3. “Leaves lanceolate, villous; upper ſtipules lanceolate, decurrent; calyxes villous.” *Root* annual. A plant the length of a finger, branched, villous. *Stem* and branches, eſpecially the younger ones, beſet with numerous, ſpreading, ferruginous hairs. *Leaves* an inch long, oblong-lanceolate, on ſhort petioles; ſtipules on the upper part of the ſtem towards the flower oblong-lanceolate, decurrent. *Flowers* about four in a raceme, yellow; calyx the length of the corolla or longer, covered with ferruginous hairs. *Legume* turgid, obtuſe, mucronate with the permanent ſtyle. A native of the Eaſt Indies. 10. C. *anthylloides.* Lam. 8. “Leaves linear, acute, villous underneath; corollas and legumes included in the very hirſute ferruginous calyx.” *Stem* a foot high, or a little more, ſimple, cylindrical, rather ſlender, full of pith, naked towards the baſe, leafy, and clothed with reddiſh hairs on the upper part. *Leaves* two or three inches long, alternate, narrow; ſtipules ſmall, narrow, villous. *Flowers* ſeſſile, drooping, in a terminal raceme; calyx oval-campanulate, compleatly concealing both the flower and the legume, with fine erect, obtuſe ſegments. *Legumes* oval, inflated, terminated by a ſtyle ſimilar to that of C. chinenſis. Found by Commerſon in the iſland of Java. 11. C. *glauca.* Willd. 5. “Leaves linear-lanceolate, ſmooth, peduncles axillary, about three-flowered.” *Stem* a foot high, erect, branched from the baſe; branches erect. *Leaves* an inch and half long, nearly ſeſſile, glaucous; ſtipules ſcarcely apparent. *Peduncles* twice the length of the leaves; corolla larger than the calyx. A native of Guinea. 12. C. *fruticoſa.* Mart. 28. Mill. Houſt. MSS. " Leaves linear-lanceolate, hirſute; petioles decurrent; ſtem ſhrubby." *Stem* four feet high, taper, with numerous ſlender branches. *Flowers* ſmall, dirty yellow, alternate, three or four in a looſe ſpike. *Legumes* about an inch long, very turgid, dark blue when ripe. A native of Jamaica; cultivated by Miller. 13. C. *juncea.* Linn. Sp. Pl. 6. Mart. 6. Willd. 6. Hort. Kew. 3. Bot. Mag. 490. (C. benghalenſis; Lam. 9. Pluk. alm. 122. tab. 169. fig. 5.) " Leaves lanceolate, nearly ſeſſile; ſtem ſtriated." Linn. " Stem rod-like, ſimple; leaves lanceolate, nearly ſeſſile; lower lip of the calyx three-parted beyond the middle." Lam. The habit of a ſpartium. *Root* annual. *Stem* three or four feet high, angular, ſtiff, rather ſlender, leafy, branched. *Leaves* alternate, covered in native ſpecimens with ſoft ſilvery hairs, but only ſlightly pubeſcent when cultivated in the European ſtoves. *Flowers* in terminal racemes, large, deep yellow, reſembling thoſe of the Spaniſh broom; calyx villous, almoſt ſilky; ſtandard large; keel much bent, acute, two-leaved, paler than the ſtandard; filaments ſcarcely united at the baſe; five of the anthers erect, long, linear; five ſhort, oval, incumbent; germ ſeſſile, oblong-conical, hairy; ſtyle bent, pubeſcent. A native of the Eaſt Indies. La Marck obſerves that Linnæus has confounded two plants under his juncea, and has reſtored to that now before us the name given it by Plukenet: but as it is known and cultivated in this country under the Linnæan name, we have given a new one to the next ſpecies, to which the other ſynonyms of Linnæus and the deſcription in Richard's edition belong. 14. C. *tridentata.* (C. juncea; Lam. Tandale-cotti; Rheed. Mal. 9. 47. tab. 26. Rai. Hiſt. 3. 464. *n.* 9.) " Stem branched at the baſe; leaves wedge-lance-ſhaped, ſomewhat petioled; lower lip of the calyx three-toothed." Lam. β. C. ſericea; Burm. Ind. 156. tab. 48. fig. 1. *Stems* ſlightly ſtriated, branched. *Leaves* near together, enlarged towards the ſummit, terminated by a ſharp point, ſmooth and dark-green above, pubeſcent and a little ſilky underneath. *Flowers* in ſhort terminal racemes, which are more leafy than thoſe of the preceding ſpecies; germ ſmooth. A native of the Eaſt Indies. La Marck obſerves that it more reſembles C. retuſa than C. juncea. 15. C. *ſericea.* Willd. 7. Retz. Obſ. 5. 26. " Leaves lanceolate, ſilky underneath; legumes ſilky; raceme terminal; ſtem furrowed." *Root* annual. *Leaves* acute; ſtipules ſemi-cordate. *Flowers* much larger than thoſe of Burman's ſericea, which La Marck ſuppoſes a variety of the preceding. A native of the Eaſt Indies. 16. C *linifolia.* Linn. jun. Supp. 322. Mart. 14. Lam. 18. Willd. 8. " Leaves linear, ſilky, obtuſe, mucronate; raceme terminal; legumes ſmooth, ſcarcely longer than the calyx; ſtem ſomewhat ſtriated." Nearly allied to C. juncea. *Stem* varying from half a foot to a foot and half high, erect, filiform, ruſh-like, ſimple, hirſute, hoary. *Leaves* rather ſhort, on ſhort petioles. *Flowers* yellow, drooping, in a long raceme. *Legumes* ſhort, obtuſe. A native of the Eaſt Indies. La Marck ſuſpects that it does not materially differ from Burman's ſericea. 17. C. *retuſa.* Linn. Sp. Pl. 8. Mart. 8. Lam. 11. Willd. 13. Gært. tab. 148. fig. 2. (C. aſiatica folio ſingulari cordiformi; Herm. Lugbd. 200. tab. 201. Tourn. 644. C. major; Rumph. Amb. 5. 278. tab. 96. fig. 1. Dolichos cuneifolius; Forſk. Ægyp. 134. Tandale-cotti; Rheed. Mal. 9. 44. tab. 25. Rai. Supp. 464.) " Leaves oblong, wedge-ſhaped, retuſe." *Root* annual. *Stem* from two to four feet high, ſtriated, leafy, branched. *Leaves* alternate, quite obtuſe, ſmooth on both ſides; ſtipules ſmall, awl-ſhaped. *Flowers* yellow, in a terminal raceme; calyx nearly ſmooth; upper lip with two ovate-lanceolate diviſions; lower one with three acute teeth. *Legume* ſmooth, wider upwards, inflated, turgid at the ſides, depreſſed along the ſeminiferous ſuture, gradually attenuated into the peduncle. *Seeds* from fifteen to twenty. A native of the Eaſt Indies. 18. C. *geniſtoides.* Lam. 12. " Leaves linear-lanceolate, ſmooth, ſcattered, ſeſſile; racemes ſhort, few-flowered; calyxes and legumes hirſute." A ſhrub with the habit of a broom. *Branches* ſlender, cylindrical, ſmooth and ſlightly tubercled towards the baſe, leafy almoſt their whole length, a little villous towards the ſummit. *Leaves* ſcarcely an inch long, mucronate. *Flowers* in axillary racemes; calyx flat or concave at the baſe, with five oval-lanceolate diviſions, particularly villous at the edges; keel much bent. *Legumes* covered with reddiſh hairs. A native of the Cape of Good Hope. 19. C. *imbricata.* Linn. 7. Mart. 7. Willd. 9. (Borbonia axillaris; Lam. Cytiſo affinis; Pluk. Mant. 63. tab. 388. fig. 3.) " Leaves oblong, ſilky, ſhining; flowers axillary, ſeſſile, near the top of the branches." A ſmall ſhrub. *Leaves* acute, ſcattered, ſomewhat imbricated, without ſtipules. *Flowers* purple, ſolitary; calyx clothed with red ſilky down; diviſions very acute. A native of the Cape of Good Hope. 20. C. *villoſa.* Mart. 29. Mill. Linn. Hort. Cliff. 357. Herm. Lugdb. 170. " Leaves egg-ſhaped, villous; petioles entirely ſimple; branches cylindrical." A ſhrub about five feet high, with ſeveral taper ſmooth branches. *Leaves* ſitting cloſe to the branches, roundiſh, hoary, green, ſoft to the touch. *Flowers* fine blue, in looſe racemes. A native of the Cape of Good Hope. 21. C. *parviflora.* Willd. 10. Thunb. Prod. 124. " Leaves egg-ſhaped, acute, tomentous; flowers axillary, nearly ſeſſile; legumes egg-ſhaped." 22. C. *lanata.* Willd. 11. Thunb. 124. " Leaves egg-ſhaped, acute, woolly; flowers axillary, nearly ſeſſile." 23. C. *reflexa.* Willd. 12. Thunb. 125. " Leaves egg-ſhaped, acute, tomentous, reflexed; flowers in heads; branches retroflexed." The laſt three are natives of the Cape of Good Hope. 24. C. *ſeſſiliflora.* Linn. Sp. Pl. 9. Mart. 9. Lam. 13. Willd. 14. " Leaves lanceolate, nearly ſeſſile; flowers ſeſſile, lateral; ſtem equal." *Root* annual. *Stem* ſcarcely a foot high, erect, cylindrical, ſtriate-furrowed, but little branched. *Leaves* ſmooth above, hairy underneath; ſtipules ſcarcely viſible. *Flowers* blue, axillary, with two oblong bractes. A native of China. 24. C. *triflora.* Linn. 10. Mart. 10. Lam. 14. Bot. Mag. 482. (Rafnia triflora; Willd.) " Leaves egg-ſhaped, ſeſſile, ſmooth; branches angular; peduncles growing by threes, lateral, one-flowered." *Root* biennial. Whole plant ſmooth. *Stem* three or four feet high, ſtrong, often unbranched. *Leaves* three inches long, large, numerous, very handſome when young, becoming glaucous as the plant advances. *Flowers* bright yellow; bractes like the leaves, but ſmaller, one to each flower, about the length of the peduncle. *Legumes* generally containing only one ſeed. A native of the Cape of Good Hope; introduced into Kew garden by Maſſon, in 1786. It is a green-houſe plant, readily propagated by ſeeds, which will ripen in the open air in our climate, if the weather be favourable. 25. C. *verrucoſa.* Linn. Sp. Pl. 11. Mart. 11. Willd. 15. (C. anguloſa; Lam. 16. C. aſiatica, folio ſingulari verrucoſo; Herm. Lugdb. 199. Tourn. 644. Rai. Hiſt. 1893. C. cærulea; Jacq. Ic. Rar. tab. 144. C. foliis ſolitariis; Burm. Zeyl. 81. tab. 34. Pee-tandali-cotti; Rheed. Mal. 9. 53. tab. 29.) " Leaves ſomewhat egg-ſhaped; ſtipules creſcent-ſhaped, embracing the ſtem; ſtems quadrangular, furrowed." α. " Leaves egg-ſhaped." *Root* annual. *Stem* a foot and half or two feet high, erect, zig-zag, branched, with four very remarkable acute angles. *Leaves* near two inches long, alternate, ſomewhat petioled, green, almoſt ſmooth, warted, (but La Marck thinks it probable that this is rather accidental than conſtant.) *Flowers* light blue, drooping, in peduncled terminal racemes; ſtandard ſtriated on the outſide; calyx ſmooth, with lanceolate ſegments. *Legumes* an inch long, turgid, almoſt cylindrical, ſeſſile in the calyx, villous only when young. A native of the Eaſt Indies, on the coaſts of Malabar and Coromandel. The natives call it Vatti-quilliquelipé, the plant that rattles, in alluſion to the noiſe which the ripe pods make when ſhaken. β "Leaves haſtate-lanceolate, very acute." Found by Commerſon in the Iſles de France and Bourbon. γ. "Leaves ovate-lanceolate, larger." *Leaves* near five inches long, and two broad. *Flowers* in racemes from ſix to eight inches long, yellow; ſtandard with purple ſtreaks above; keel reddiſh-brown at the point. Found by Commerſon in the iſland of Java. La Marck thinks that theſe three plants, though differing ſo much in their foliage, are nothing more than varieties. 26. C. *ſemperflorens.* Willd. 16. Vent. Pl. Jard. Celſ. Pl. 17. "Leaves oval, emarginate, mucronate; ſtipules creſcent-ſhaped, embracing the ſtem; ſtem ſomewhat ſhrubby, cylindrical, ſtriated." *Root* perennial. *Stipules* narrower than thoſe of the preceding ſpecies. *Flowers* yellow. A native of the Eaſt Indies. 27. C. *hirſuti.* Willd. 17. "Leaves egg-ſhaped, acute; ſtipules awl-ſhaped, reflexed; raceme nearly terminal; legumes hirſute; ſtem hairy. *Root* annual. *Stem* two feet high, erect, nearly cylindrical, branched *Leaves* two inches long, on ſhort petioles, ſmooth above, ſlightly pubeſcent underneath. *Raceme* few-flowered. *Legumes* an inch long. A native of the Eaſt Indies, near Hydrabad. 28. C. *ſcandens.* Mart. 32. Lour. Cochinch. 433. "Leaves oblong; peduncles many-flowered, axillary; ſtem ſhrubby, climbing." A large ſhrub, with long, woody, climbing branches. *Leaves* acuminate, quite entire, alternate, ſmooth, petioled. *Flowers* white; calyx ſmooth; petals nearly equal, ſpreading. *Legume* turgid, acuminate at both ends, containing a few ſeeds. A native of Cochinchina. 29. C. *biflora.* Linn. Mant. 560. 570. Mart. 12. Willd. 18. (C. nana; Burm. Ind. 156. tab. 48. fig. 2. Lam. 15. C. maderaſpatana; Pet. Gaz. tab. 30. f. 10. Aſtragalus biflorus; Mant. Alt. 273.) "Leaves oblong, obtuſe, hairy; ſtems proſtrate, herbaceous; peduncles two or three-flowered, axillary." Willd. *Stem* about three inches high, erect, cylindrical, hairy, terminated by the peduncle; branches, from the baſe of the ſtem, ſeveral, alternate, decumbent, ſimple, much longer than the ſtem. *Leaves* an inch long, alternate, obtuſe, veinleſs, ſlightly hairy, on very ſhort petioles. *Flowers* yellow; peduncles terminal, but on the branches they finally become lateral, by the branch extending itſelf beyond the flower; calyx with lanceolate ſegments; upper one bifid; banner egg-ſhaped, aſcending, the length of the calyx; wings oblong, adpreſſed; keel bellied, beaked, gibbous downwards at the baſe; filaments all connate, alternately ſhorter; anthers five, rather oblong; five round, barren; ſtigma villous. *Legume* didymous-globular, inflated, becoming rather cylindrical in the cultivated plants. Found by Koenig in the iſland of Johanna. La Marck ſuſpects that the biflora of Linnæus, or at leaſt the aſtragalus biflorus, quoted as a ſynonym, is his cicer nummularifolium (ſee Cicer), and altogether diſtinct from Burman's C. nana; but, if the fructification of his nummularifolium be, as he aſſerts, entirely that of cicer, its filaments muſt be diadelphous, and therefore it cannot be the plant now deſcribed. 30. C. *nummularia.* Willd. 19. "Leaves roundiſh-ovate, or lanceolate, hairy underneath; peduncles axillary, one or two-flowered; ſtem procumbent." *Stems* ſeveral, a foot long, hairy, branched. *Leaves*, on moſt of the branches, orbicular, egg-ſhaped, half an inch long; on ſome lanceolate, almoſt an inch long. *Peduncles* four times the length of the leaves, hairy. *Legumes* four lines long, roundiſh-egg-ſhaped, obtuſe, pubeſcent. A native of the Eaſt Indies. 31. C. *bifaria.* Linn. jun. Supp. 322. Mart. 15. Lam. 19. Willd. 20. "Lower leaves roundiſh; upper ones ovate-lanceolate; ſtipules reflexed; peduncle terminal, one-flowered." *Stems* diffuſe, cylindrical, pubeſcent. *Leaves* in two oppoſite rows, on ſhort petioles, widely ſpreading; ſtipules egg-ſhaped, tubular. *Flowers* blueiſh, rather large; peduncles erect, long, filiform; bractes two on the peduncle, near the flower, reſembling the ſtipules. *Legumes* oblong, with a point hiſpid. Obſerved by Koenig in ſhady parts of the garden of the queen of Tanjour. 32. C. *oppoſita.* Linn. jun. Supp. 322. Mart. 13. Lam. 17. (Spartium capenſe; Linn. Sp. Pl. Liparia; Syſt. Veg. ed. 13. Cytiſus capenſis; Berg. cap. 217. Rafnia oppoſita; Willd. 950. Geniſta; Herm. Afr. 11.) "Smooth, without ſtipules; leaves oblong, ſeſſile; peduncles axillary, two-leaved." A ſhrub. *Stems* ſimple, (branched, Berg.) quite ſmooth. *Leaves* obtuſe, erect, (two inches long or more, linear-lanceolate, Berg.) *Flowers* yellow, drooping, axillary towards the top of the ſtem; peduncles long, with two oppoſite bractes near the flower, which reſemble the leaves of the ſtem; ſtamens diadelphous. A native of the Cape of Good Hope. Authors have been much at a loſs what to do with this plant. It has already had ſeveral names; and La Marck preſumes that it cannot be ſuffered to remain long in this genus, where the younger Linnæus has placed it. Willdenow has accordingly removed it to rafnia, taken up from Thunberg; but as we have not yet been able to make up our mind, with reſpect to that new genus, we have let it reſt here for the preſent.

** *Leaves compound.*

33. C. *lotifolia.* Linn. Sp. Pl. 12. (miſprinted latifolia.) Mart. 16. Lam. 20. Willd. 22. Dill. Elth. 121. tab. 102. fig. 121. (C. trifolia fruticoſa; Sloan. Jam. 114. Hiſt. 2. 33. tab. 176. figs. 1, 2.) "Leaves ternate; leaflets inverſely egg-ſhaped, ſmooth; racemes lateral, few-flowered; legumes ſeſſile in the calyx." *Stems* a foot or a foot and half high, ſlender, weak, cylindrical, hard and woody towards the baſe, tender, and herbaceous above; branches numerous. *Leaves* petioled; leaflets ſmooth, egg-ſhaped; ſtipules two at the baſe of each petiole, ſmall, narrow. *Flowers* yellow; ſtandard ſtreaked with purple above; peduncles axillary, commonly ſhorter than the leaves, three or four flowered. *Legumes* inflated, ſlightly hairy. A native of Jamaica and South America. 34. C. *pubera.* Willd. 23. Vahl. Eclog. 2. 55. "Leaves ternate; leaflets oblong, obtuſe, villous underneath; legumes in racemes, villous." *Root* perennial. *Branches* woody, cylindrical. *Leaves* petioled; petioles half an inch long, cylindrical; leaflets on very ſhort petioles, acute at the baſe, without veins or nerves, pale green, mucronate; ſtipules awl-ſhaped, minute, deciduous. *Flowers* ſmall, remote; racemes axillary and terminal, longer than the leaves; bractes minute, briſtle-ſhaped; ſegments of the calyx lanceolate. *Legumes* ſcarcely half an inch long, oblong, pendulous. A native of the iſland of St. Martha. 35. C. *argentea.* Willd. 24. Jacq. Hort. Schoenb. 2. 50. tab. 220. "Leaves ternate; leaflets lanceolate, hoary; peduncles one-flowered, ſolitary; calyxes three parted." A ſhrub, three feet high, with the habit of a coronilla, and zig-zag hoary branches. *Leaves* hoary; leaflets rather obtuſe, ſhorter than the petiole. *Flowers* yellow, oppoſite to the leaves at the tops of the branches; calyx the length of

of the corolla. *Legumes* lanceolate, ſomewhat compreſſed. A native of the Cape of Good Hope. 36. C. *lunaris*. Linn. Sp. Pl. 13. Mart. 17. Lam. 22. Willd. 25. "Leaves ternate; leaflets egg-ſhaped, acute; ſtipules ſemi-cordate, creſcent-ſhaped." *Stem* erect, filiform, branched, woody, zig-zag. *Leaflets* green, and ſmooth above; villous, whitiſh, and ſhining underneath, equal; ſeſſile on the common petiole; ſtipules with the point directed to the leaf. *Flowers* towards the ſummit of the branches; peduncles one-flowered, oppoſite to the leaves, ſolitary; bractes three, awl-ſhaped, ſhorter than the calyx, forming a kind of involucre to each flower. A native of Africa. 37. C. *laburnifolia*. Linn. Sp. Pl. 14. Mart. 18. Lam. 23. Willd. 26. (C. aſiatica fruteſcens; Herm. Lugb. 196. tab. 197. Rai. Hiſt. 1893. C. arboreſcens; Burm. Zeyl. 82. tab. 35. Nella tandale-cotti; Rheed. Mal. 9. 49. tab. 27.) "Leaves ternate; leaflets egg-ſhaped, acuminate, ſmooth; ſtipules none; raceme terminal; legumes pedicelled." A ſhrub, three feet high or more, quite ſmooth, branched; branches ſlender, cylindrical, even-ſurfaced, leafy. *Leaves* on long petioles; leaflets green on both ſides, ſlightly petioled. *Flowers* large, yellow, in long lateral racemes, a little below the ſummit of the branches; calyx rather ſhort, eſpecially the upper lip; keel larger than the other petals, compreſſed, much bent, with a reverſed beak. *Legumes* ſmooth, inflated, hanging out of the calyx, by a pedicel at leaſt an inch long, terminated by the curved ſtyle. A native of the Eaſt Indies. 38. C. *macrophylla*. Willd. 27. "Leaves ternate; leaflets oblong-ovate, pubeſcent underneath; racemes axillary, aggregate, ſhorter than the petiole." *Root* perennial. *Branches* cylindrical. *Leaves* alternate, on petioles two inches long; leaflets four inches long, three-nerved, veined, ſmoothiſh above, pubeſcent underneath; middle one narrowed at the baſe; the others oblique. *Racemes* an inch long, ſomewhat compound, numerous; calyx two-lipped; corolla falcate. *Legumes* half an inch long, oblong, acute, turgid, generally with one ſmall, roundiſh ſeed. A native of the Eaſt Indies. A plant, with the habit of hedyſarum; but the flower and fruit of crotalaria. 39. C. *lævigata*. Lam. 21. Willd. 28. "Shrubby, ſmooth; leaves ternate; leaflets oblong-elliptical, ſmooth; racemes lateral, few-flowered; legumes pedicelled in the calyx." *Branches* woody, ſlender, cylindrical. *Leaves* ſmall, alternate; leaflets only three or four lines broad. *Flowers* yellow, from two to four on an axillary peduncle, a little longer than the leaves, with an awl-ſhaped bracte. *Legumes* half an inch long, oval, inflated, terminated by the twiſted reflexed ſtyle. Found by Commerſon in the iſland of Madagaſcar. 40. C. *trifoliaſtrum*. Willd. 29. "Leaves ternate; leaflets wedge-ſhaped, emarginate, ſhorter than the common petiole; racemes terminal." A plant with the habit of melilot. *Branches* two feet long, ſimple, cylindrical, erect. *Leaflets* an inch long, ſmooth above, cloathed with adpreſſed hairs, when ſeen under a lens underneath; ſtipules briſtle-awl-ſhaped. *Racemes* three or four inches long, terminal; ſometimes with one or two-flowered axillary peduncles. *Flowers* yellow. *Legume* roundiſh, turgid, pubeſcent. A native of the Eaſt Indies. 41. C. *cordata*. Linn. Mant. 266. Mart. 19. Lam. 25. Willd. 30. (Spartium ſophoroides; Berg. cap. 198. Hypocalyptus obcordatus; Thunb. Prod. 124.) "Leaves ternate; leaflets inverſely heart-ſhaped, mucronate; flowers in corymbs; ſtem ſhrubby." A ſhrub eight feet high; branches purple, ſomewhat angular, rugged with truncated ſcars. *Leaves* petioled; leaflets ſmooth, almoſt equal, petioled, nerved, plaited lengthwiſe, purpliſh above, glaucous underneath, the ſize of a finger nail; ſtipules briſtle-ſhaped, minute. *Flowers* purple-violet; corymbs terminal, ſolitary. A native of the Cape of Good Hope. 42. C. *piloſa*. Willd. 31. Thunb. Prod. 125. "Leaves ternate, hairy; leaflets mucronate; flowers terminal." A native of the Cape of Good Hope. 43. C. *ſpicata*. (C. villoſa; Willd. 32. Thunb. 125.) "Leaves ternate, villous; leaflets obtuſe; ſpikes terminal." A native of the Cape of Good Hope. Another plant from the Cape of Good Hope, cultivated by Miller, having been previouſly called C. villoſa. (See *n.* 20.) We have given a new name to the preſent. 44. C. *axillaris*. Willd. 33. Hort. Kew. 3. 20. "Leaves ternate; leaflets ovate-elliptical, hairy underneath; ſtipules awl-ſhaped, minute; peduncles axillary, in pairs, one-flowered." *Root* annual. *Branches* furrowed. *Leaves* alternate; leaflets acute, mucronate; ſtipules hairy. *Flowers* yellow. *Legumes* hairy. A native of Guinea. 45. C. *incaneſcens*. Linn. jun. Supp. 323. Mart. 21. Willd. 34. Hort. Kew. 3. 20. (C. arboreſcens; Lam. 24. C. capenſis; Thunb. 125. Jacq. Hort. 3. 36. tab. 64.) "Leaves ternate; leaflets inverſely egg-ſhaped; ſtipules reſembling the leaves petioled; racemes terminal; legumes pedicelled." A handſome ſhrub, five or ſix feet high, with the habit of a cytiſus. *Stem* arboreſcent, with a greyiſh bark, much branched towards the top; branches ſhort, leafy, cylindrical; covered with a fine, very ſhort, whitiſh down. *Leaves* petioled; leaflets obtuſe, green, on whitiſh petioles; ſtipules two, oppoſite, heart-ſhaped, deciduous, much ſmaller than the leaves. *Flowers* large; ſtandard larger than the keel, recurved towards the peduncle, bright yellow, ſtriped at the baſe, on the inſide; ſpotted with purple brown on the back; wings bright yellow; keel pale, raiſed and greeniſh at the beak; filaments connate, but almoſt diadelphous; anthers oblong, ſaffron-coloured. A native of the Cape of Good Hope, and of the Iſles of France and Bourbon. La Marck obſerves that as it is called in the Iſle of France Baguenaudier, the French name for the bladder ſenna (Colutea) of our Engliſh nurſery-men, the legumes are probably much inflated. 46. C. *incana*. Linn. Sp. Pl. 15. Mart. 20. Lam. 26. Willd. 35. Jacq. Obſ. 44. tab. 82. Swartz. Obſ. 278. Cav. Ic. 4. 11. tab. 322. (Anonis americana, folio latiore ſubrotundo; Tourn. 409. Crotalaria foliis rotundis incanis; Sloan. Jam. Hiſt. 2. 34. tab. 179. fig. 1.) "Leaves ternate, leaflets oval, villous underneath; racemes ſpike-ſhaped; keel tomentous at the edge; legumes ſeſſile, hirſute." *Root* annual. *Stem* from two to five feet high, erect, almoſt ſimple, pubeſcent. *Leaves* petioled; leaflets obtuſe with a ſmall point; petioles pubeſcent; ſtipules briſtle-ſhaped, ſolitary, deciduous. *Flowers* yellow, rather large, pedicelled; bractes filiform; one at the baſe and two at the top of each pedicle under the calyx; calyx pubeſcent, with lanceolate diviſions. *Legumes* inflated, villous, pendant, ſeſſile in the calyx. A native of the Weſt Indies. Dombey ſent from Peru in 1779, what appears to be a variety, with longer leaves, rather larger flowers, and a denſer ſpike. 47. C. *purpuraſcens*. Lam. 27. (C. indigofera; Sonnerat. Herb.) "Villous; leaves ternate; leaflets ovate-wedge-ſhaped, retuſe, terminated with a minute point; ſtandard of the corolla purpliſh above." *Root* annual. *Stem* from one to three feet high, erect, often ſimple, hard, cylindrical, covered with looſe woolly hairs. *Leaves* green, nearly ſmooth on both ſides; petioles villous like the ſtem; partial ones half a line long; ſtipules briſtle-ſhaped, villous. *Flowers* ſmall, yellow, drooping, in looſe lateral racemes juſt below the top of the ſtem; calyx nearly as long as the corolla, villous, with narrow-lanceolate diviſions; ſtandard not reflexed; bractes villous. *Legumes* from twelve to fifteen lines long, inflated, villous, pendant, ſeſſile in the calyx. A native of Madagaſcar and the Iſle of France; cultivated at Paris. 48. C. *coluteoides*.

teoides. Lam. 28. (Geniſtæ ſimilis; Pluk. tab. 185. fig. 3. without the fructification.) "Leaves ternate; leaflets inverſely egg-ſhaped; racemes looſe, terminal; legumes veſiculous, ſmooth, pedicelled, deſtitute of the ſtyle." *Branches* cylindrical, full of pith, ſmooth, leafy. *Leaflets* obtuſe, with a ſcarcely perceptible point, ſmooth above, thinly ſet with hairs underneath; petioles ſhorter than the leaflets. *Flowers* in looſe terminal racemes from one to three inches long; calyx ſhort; upper leaf truncated, bifid; lower one with three ſhort diſtant teeth; filaments connate in a cylinder more than two-thirds of their length. *Legumes* an inch long, ſmooth. Communicated by Sonnerat, it is ſuppoſed, from Africa. Cultivated at Paris. 49. C. *glycinea.* Lam. 29. (C. aſiatica hirſuta; Herm. Lugbd. App. 663. from the herbarium of Juſſieu; Rai. Hiſt. 1893.) "Villous; leaves ternate; leaflets oval, lateral ones gibbous outward." *Root* annual. *Branches* cylindrical. *Leaves* petioled; middle leaflet petioled, nearly inverſely heart-ſhaped, often obtuſe, with a very ſmall point; ſtipules ſmall, oval-acute. *Flowers* apparently red, drooping, in terminal racemes; calyx villous, with narrow-lanceolate diviſions; germ covered with woolly hairs. A native of the Eaſt Indies. 50. C. *uncinella.* Lam. 30. "Leaves ternate; leaflets egg-ſhaped; ſtipules none; legumes ſcrotiform, ſilky, ſcarcely longer than their terminal hooked ſtyle." A very branching ſhrub, about a foot and half high. *Branches* ſlender, cylindrical, pubeſcent. *Leaves* alternate, petioled; leaflets ſmooth above, clothed with fine and cloſe preſſed hairs underneath; middle one as long as the common petiole. *Flowers* ſmall, in lateral and terminal racemes; calyx villous; peduncles almoſt filiform. *Legumes* about the ſize of a pea, cloathed with a fine ruſſet down. A native of the iſland of Bourbon, preſerved in the herbarium of Commerſon. There is a variety in the herbarium of Juſſieu ſmooth in all its parts, with ſmaller leaves and yellow flowers, the ſtandard ſlightly ſtriated behind, the keel bent and terminated by a ſtraight beak as in the next ſpecies. There is another variety from Madagaſcar, preſerved in the herbarium of Commerſon, with much larger ſmooth fruit. And a third in Adanſon's herbarium of Senegal, now poſſeſſed by Juſſieu, with villous ſmaller leaves, and villous ſomewhat larger legumes. 51. C. *medicaginea.* Lam. 31. "Leaves ternate; leaflets cordate-wedge-ſhaped; keel horned; legumes ſcrotiform, ſhorter than their terminal reflexed ſtyle." A plant with the habit of medicago polymorpha. Linn. *Branches* ſomewhat woody at the baſe, very ſlender, cylindrical, compound, cloathed with ſhort hairs, cottony near the ſummit. *Leaves* alternate, very ſmall; leaflets cloathed with ſhort depreſſed hairs underneath, a little longer than the common petiole; ſtipules very ſmall, awl ſhaped. *Flowers* very ſmall, from three to five together; peduncles lateral, filiform, oppoſite to, and longer than the leaves; calyx villous, with five lanceolate diviſions; keel bent nearly at a right angle, terminated by a long, conical, ſtraight horn, a little twiſted at the top; ſtandard ſhorter than the keel, and reſting upon it, pubeſcent and ſtriated on the back. *Legumes* ſcarcely the diameter of a lentil, pubeſcent. A native of the Eaſt Indies, communicated by Sonnerat. 52. C. *pſoraloides.* Lam. 32. "Leaves ternate; leaflets oblong, obtuſe, longer than the petiole; ſpikes axillary, ſlender, elongated." *Stem* apparently a foot and half or two feet high, ſomewhat zig-zag, obtuſely angular, full of pith, tomentous towards the top. *Leaves* alternate, on very ſhort petioles; ſtipules lanceolate, the length of the petioles. *Flowers* ſmall, ſeſſile; bractes briſtle-ſhaped. *Legumes* oval-rhomboidal, ſlightly inflated, villous, terminated by the recurved ſtyle. Found by Commerſon in the iſland of Madagaſcar. 53. C. *pallida.* Mart. 26. Willd. 36. Hort. Kew. 3. 20. "Leaves ternate; leaflets lanceolate, ſmooth; racemes terminal, reſembling ſpikes." *Root* annual. *Flowers* pale-coloured. A native of Africa, found by Bruce. 54. C. *longifolia.* Lam. 33. Willd. 37. (C. guianenſis; Aubl. guian. 2. 761. tab. 305.) "Leaves ternate; leaflets lanceolate, ſmooth; peduncles axillary, aggregate, one-flowered; legumes tetragonal." *Root* perennial. *Stems* a foot high or more, angular, leafy, with ſhort branches. *Leaves* alternate, on very ſhort petioles; leaflets four or five inches long, near an inch broad, nerved, veined, middle one longer, ſlightly petioled; ſtipules, two at the baſe of each common petiole, lanceolate; two at the baſe of each leaflet, rather long, very acute. *Flowers* purple, from two to four together, on very ſhort peduncles; calyx long, enveloped at its baſe by two bracteal ſcales. *Legumes* ſmooth, inflated, oblong, acute. A native of Guiana. 55. C. *anguſtifolia.* Willd. 38. Jacq. Hort. Schoen. 2. 49. tab. 219. (C. elongata; Thunb. prod.?) "Leaves ternate; leaflets lanceolate, hoary, ſilky, ſhorter than the petiole; raceme terminal." *Root* perennial. *Raceme* three inches long. *Flowers* dull white. A native of the Cape of Good Hope. 56. C. *lineata.* Lam. 34. Willd. 39.? Thunb. prod.? "Leaves ternate; leaflets linear-lanceolate, on ſhort petioles, villous, marked with lines; legumes ſhort, hirſute, in racemes." Lam. "Leaves ternate, tomentous underneath; nerved; ſtem decumbent." Thunb. A ſhrub. *Branches* cylindrical, ſtriated, cottony towards the ſummit. *Leaves* alternate; petioles ſcarcely a line long, villous; leaflets from one to two inches long, about four lines broad, villous, with numerous lateral nerves; middle one a little longer, ſomewhat petioled; ſtipules two, lanceolate. *Flowers* from five to nine in a raceme, alternate, ſeſſile. *Legumes* four or five lines long, inflated. Communicated to La Marck by Juſſieu. Thunberg's plant is a native of the Cape of Good Hope. 57. C. *tomentoſa.* (C. geniſtoides; Willd. 40.) "Leaves ternate; leaflets linear-wedge-ſhaped, emarginate; raceme terminal." Whole plant pubeſcent. *Branches* ſomewhat woody, compound. *Leaves* on a very ſhort common peduncle; ſtipules awl-ſhaped. *Flowers* ſmall, yellow. *Legumes* half an inch long, roundiſh egg-ſhaped, acuminate. The habit of a geniſta. A native of the Eaſt Indies. Willdenow ought to have obſerved that the trivial name *geniſtoides* was pre-occupied by La Marck, whoſe work was certainly before him, though he did not chuſe to take up many of its peculiar ſpecies, even ſome which are deſcribed from living plants by ſo eminent a botaniſt. 58. C. *floribunda.* Mart. 24. Hort. Kew. 3. 19. "Leaves ternate; leaflets wedge-ſhaped; branches pubeſcent; legumes pedicelled, ſmooth, wrinkled, keeled." *Root* perennial. A native of the Cape of Good Hope. 59. C. *microphylla.* Willd. 41. Vahl. Symb. 1. 52. "Leaves ternate; leaflets oblong; peduncles lateral, two-flowered; ſtem decumbent." *Stem* a foot long, woody, filiform, cylindrical, ſmooth, branched. *Leaves* petioled, remote; leaflets two lines long, nearly ſeſſile, ſmooth, thickiſh; common petiole the length of the leaves; ſtipules briſtle-ſhaped, ſpreading, half the length of the petiole. *Flowers* pedicelled. *Legume* oblong, ſmooth, on a very ſhort pedicel. A native of Arabia Felix. 60. C. *volubilis.* Willd. 42. Thunb. prod. 125. "Leaves ternate; leaflets ſmooth, inverſely egg-ſhaped, obtuſe; flowers axillary, ſolitary." A native of the Cape of Good Hope. 61. C. *heterophylla.* Linn. jun. Supp. 323. Mart. 22. Lam. 35. Willd. 43. "Leaves ternate; leaflets elliptical, emarginate; lower leaves ſimple." *Root* annual. *Stem* a foot high, erect, ſmooth, a little branched near the top. *Leaves* ſmooth, nerved, on very ſhort channelled petioles; ſtipules ſmall, awl-ſhaped, ſpreading. *Flowers* yellow, ſtriated, in a terminal a terminal raceme, which becomes lateral as the fruit ripens. *Legumes* ſmooth. A native of the Eaſt Indies. 62. C. *aſpalathoides*. Lam. 36. "Leaves ternate, petioled; leaflets wedge-linear, hirſute; ſtipules none; racemes peduncled, terminal." A ſhrub, ſcarcely a foot high." *Stem* woody, twiſted, ſtiff, rugged, branched; ſmaller branches ſlender, cylindrical, leafy, pubeſcent, whitiſh. *Leaves* ſmall, narrow, hairy. *Flowers* pedicelled, from three to ſix in a raceme, on a very ſlender peduncle; calyx villous; keel creſcent-ſhaped; filaments at firſt entirely connate; but afterwards dividing at the top; germ very villous; ſtyle at firſt hooked, afterwards curved and aſcending; ſtigma ſimple. A native of the Cape of Good Hope. 63. C. *quinquefolia*. Linn. Sp. Pl. 17. Mart. 23. Lam. 37. Willd. 44. (C. pentaphylloides; Pluk. alm. 122. Wellia-tandali-cotti; Rheed. Mal. 9. 51. tab. 28. Rai. Supp. 465.) "Leaves digitate-quinate; flowers in racemes." A plant with the habit of a lupin. *Root* annual. *Stem* about two feet high, erect, rather thick, ſtriated, ſlightly villous. *Leaves* alternate, petioled; leaflets five, oblong, obtuſe, rather narrow, the ſide ones the ſhorteſt; upper ſurface ſprinkled with very ſmall black points, cloathed with ſhort fine hairs underneath; ſtipules narrow, nearly awl-ſhaped, reflexed. *Flowers* yellow. *Legumes* two inches long, much inflated, veſiculous, ſmooth, pedicelled in the calyx, terminated by the recurved reflexed ſtyle. A native of the Eaſt Indies, and the Iſle of France, deſcribed by La Marck from ſpecimens gathered by Commerſon. 64. C. *heptaphylla*. Mart. 31. Lour. Cochinch. 443. "Leaves pinnated with ſeven leaflets; ſpikes long; ſtem arboreous." A tree, ten feet high, with diffuſe branches. *Leaflets* ovate-oblong, veined, ſlightly tomentous; petioles ſhort. *Flowers* white, axillary, and terminal, in ſimple ſolitary ſpikes; calyx five-toothed, villous, ſhort; ſtandard emarginate, riſing; rings oblong, half the length of the ſtandard. *Legume* turgid, villous, unequal, pedicelled. *Seeds* few, roundiſh. A native of Cochinchina.

Crotalaria *aſarina;* Berg. See Glycine *monophylla*.

Crotalaria *perforata;* Linn. See Borbonia *perfoliata*.

Crotalaria *zeylanica argentea tota;* Herm. See Sophora *tomentoſa*.

Obſ. From only a curſory ſurvey of the deſcriptions in the above numerous liſt, it is but too evident, not only that ſome of the ſpecies do not correſpond with the genuine character as it now ſtands, even after the very liberal modifications which we have given it; but alſo that it would not be eaſy, perhaps not poſſible, to include them all in any preciſe generic character whatever. Juſſieu has obſerved that this genus wants reviſal, and that ſome of the preſent ſpecies ought to be removed. La Marck has accordingly removed *imbricata* (*n.* 19.), to borbonia, and thinks that *perfoliata, amplexicaulis,* and *reniformis* (*n.* 1, 2, 3.), might with propriety follow it. Willdenow has arranged the three former of theſe, and ſome others, under Thunberg's new genus, raſnia. But were we to admit the propriety of this diſpoſition, ſo much would ſtill remain to be done, that we have been induced to leave the genus as we found it. In the courſe of our labours we often painfully feel the truth of La Marck's obſervation, that thoſe who write general botany in an alphabetical order, cannot have entire natural families before them at once, and that, therefore, they can ſeldom do more than ſuggeſt their doubts, without being able poſitively to determine what ſtation ſhould be aſſigned to a plant which ſeems to be improperly placed. A complete reformation of the genera in all the great univerſally acknowledged natural families, adapted to the multitude of ſpecies, which, within a few years, have poured in upon us from every quarter of the world, is indeed a taſk to which the unremitted attention of a whole life would ſcarcely be equal.

Propagation and Culture.—Moſt of theſe plants are cultivated by ſeeds, ſown in a hot-bed in the ſpring, and afterwards treated in the uſual manner. Thoſe which are natives of the Cape will be ſufficiently protected by the conſervatory or dry ſtove; but ſuch as come from the Eaſt Indies and Weſt Indies, and the hotter parts of Africa, muſt be kept in the bark ſtove. C. laburnifolia (*n.* 37.) is eaſily propagated by cuttings.

Crotalaria, in *Gardening*, comprehends plants of the herbaceous and ſhrubby exotic kinds, of which the ſpecies cultivated are, the channel-ſtalked crotalaria (C. *juncea*), and the laburnum-leaved crotalaria (C. *laburnifolia*.)

Method of Culture.—The firſt kind of theſe plants may be increaſed by ſowing the ſeeds in pots of light mellow freſh mould in the ſpring, plunging them in the hot-bed of the ſtove; and when the plants are of ſufficient growth, removing them into ſeparate pots.

The ſecond ſort may be raiſed either by ſeeds in the above manner, or by planting cuttings of the young branches in the later ſpring months, in pots of the ſame ſort of earth, and plunging them in the bark-beds of the ſtove, giving them water frequently, and removing them when well rooted into ſeparate pots, of proper ſizes.

Theſe plants are capable of being expoſed to the open air during a little of the heat of the ſummer ſeaſon, but at other times ſtand in need of the protection of the hot-houſe or ſtove.

CROTALO, an inſtrument of military muſic. (See Crotalum.) The Turks are the firſt, among the moderns, who introduced the uſe of it for their troops. It is now common in Flanders and Florence, and other territories on the continent. It has only one tone; but its effect in marking time may be diſtinctly heard through the noiſe of forty drums. This is the ſame inſtrument with the ancient *cymbalum*.

CROTALOPHORUS Anguis, in *Zoology*, the name uſed by the generality of authors for the *rattle-ſnake*. See Crotalus.

Crotalophorus *anguis*, is alſo the name of a very remarkable ſpecies of ſerpent, more uſually known by the name of *cobra de capello*.

CROTALUM, an ancient kind of caſtagnetta, or muſical inſtrument, found on medals, in the hands of the prieſts of Cybele.

The crotalum differed from the *ſiſtrum;* though authors frequently confound the two. It conſiſted of two little braſs plates, or rods, which were ſhaken in the hand, and in ſtriking againſt each other made a noiſe.

It was ſometimes alſo made of a reed ſplit lengthwiſe half-way down; one part whereof they ſtruck againſt the other; and as this made a noiſe ſomething like that of a crane's bill, they called that bird *crotaliſtria,* a player on the *crotale*; and Ariſtophanes calls a great talker a *crotalum*.

Clemens Alexandrinus attributes the invention to the Sicilians; and forbids the uſe thereof to the Chriſtians, becauſe of the indecent motions and geſtures that accompany it.

Pauſanias relates, that Hercules did not kill the Stymphalides with his arrows, but that he frightened and drove them away with the noiſe of the crotala, which ſhews, admitting the truth of the relation, that the crotalum muſt have been a very ancient inſtrument. Ovid joins the crotalum with the cymbals.

> "Cymbala cum crotalis prurientiaque arma Priapo
> Ponit, et adducit tympana pulſa manu."

CROTALUS, in *Zoology*, a genus of ſerpents, having plates on the belly, both plates and ſcales under the tail, and the tail itſelf terminated by a rattle.

Theſe are the rattle-ſnakes of the Engliſh, and ſerpens à ſonnettes of the French, or, as ſome writers among the latter call them, *crotalophores*. The whole genus is furniſhed with poiſonous fangs. Their head is large, ſomewhat triangular, rather flat on the upper part, and, like the body, covered with carinated ſcales, but which in general are of a larger ſize; the eyes are very brilliant, and protected by a nictitant membrane; the mouth large, and capable of great diſtenſion; the tongue long, furcated at the extremity, and ſuſceptible of a briſk vibratory motion. The venomous fangs are placed in two longitudinal rows, in the upper part or roof of the mouth: the largeſt of thoſe fangs ſtand foremoſt, from whence they progreſſively become ſmaller as they recede further back in the mouth, and are uſually fourteen in number altogether, ſeven being diſpoſed in each ſeries. Each of thoſe have two ſmall fiſſures, one at the baſe, the other a little above the tip, through which the venom is diſcharged into the wound, by preſſing on the poiſon bags at the baſe of the fangs. This poiſon is of a greeniſh colour, and the larger fangs in rattle-ſnakes of conſiderable ſize about half an inch long.

The rattle is a peculiar inſtrument ordained by nature to announce the approach of this formidable ſerpent to other animals, and warn them of their danger. Till the diſcovery of America, ſuch extraordinary powers in the reptile race were unknown to the inhabitants of our hemiſphere; and from that period to the preſent they have attracted the particular attention of naturaliſts. The rattle is a moveable apparatus of a horny texture, and conſiſting of a greater or ſmaller number of joints, which, as the creature moves, ſends forth a peculiar jarring ſound, not very unlike that of a child's rattle. The number of its joints vary not only in different ſpecies, but in individuals of the ſame ſpecies; and ſeem, if any dependance can be placed on the veracity of travellers, to be governed in a great meaſure by the age and health of the animal. Some believe the age of theſe ſnakes may be conſtantly aſcertained by the number of thoſe joints, one being added annually; and hence they are ſuppoſed to attain to a great age, as rattle-ſnakes have been found with no leſs than forty or even fifty joints in this part. Some of the Indians deny this, and aſſert that the amount of thoſe joints in the rattle determines the number of human beings that have fallen victims to the deadly fangs of thoſe hideous creatures. A particular account of the ſtructure of the poiſonous fangs of the rattle-ſnake is given in the Philoſophical Tranſactions by Dr. Grey; and a copious deſcription of the rattles of different ſpecies has lately appeared by La Cepede.

The noiſe of the rattle-ſnake is ſaid to be rather feeble in general, and of courſe not very diſtinctly heard till the creature approaches pretty near. This we ſuſpect from what we have obſerved of the rattle-ſnakes brought over to Europe. Thoſe, indeed, having endured the want of proper ſubſiſtence for months, and being in a ſtate of captivity, cannot be ſuppoſed to afford any abſolute criterion; but from theſe we may preſume that the noiſe is not ſo loud as ſome travellers repreſent. Once we had an opportunity of hearing the noiſe of three rattle-ſnakes of the ſtriped or duriſſus ſpecies, confined in the ſame cage: it was an inceſſant rattling hum, diſtinct enough in any part of the room, which was moderately large, but not ſo ſtrong or piercing as to be heard at a much greater diſtance.

Almoſt every animal becomes panic ſtruck at the ſight of the rattle-ſnake, and ſeems at once deprived of the power of motion, or the exerciſe of its uſual inſtinct of ſelf-preſervation. Horſes and dogs are momentarily arreſted in their progreſs, and wait, without attempting to move, the nearer approach of the terrific creature, unleſs driven by man with force from the immediate danger. From what cauſe this torpor in animals may ariſe, when the ſerpent advances and threatens deſtruction, is difficult to ſay, except it be the effect of terror. The faſcinating power attributed to ſerpents does not admit of much credit: we ſhould ſuſpect rather that they become ſtupefied with horror at their danger, and are unable through fear to attempt eſcaping till the ſnake inflicts its wound, when eſcape is too late. The ſnake remains quiet till his victim expires, and then proceeds in ſecurity to devour it. That this does not depend on the power of faſcination, as it is expreſſed, in ſnakes may be in ſome meaſure inferred, from conſidering that the moſt ſtupid of all animals are more likely to get out of their power than thoſe whoſe inſtinctive penetration, on other occaſions, might moſt readily enable them to avoid difficulties. Thus we ſee that horſes and dogs fail a prey to the rattle-ſnake, through their acute ſenſe of danger; while the hog, ſtupid and indifferent, and ſcarcely poſſeſſing the inſtinct to turn a few paces aſide to avoid almoſt certain deſtruction, approaches the rattle-ſnake with impunity, or ſeeks him in his covert, attacks him, tramples on him, and devours him.

Man or animals bitten by the rattle-ſnake expire in extreme agony: the tongue ſwells to an enormous ſize; the blood turns black; and all the extremities becoming cold, gangrene enſues, and is ſpeedily ſucceeded by death. The remedies in common uſe are the polygala ſeneca, or ariſtolochia ſerpentaria, employed as a decoction, and applied in fomentation as hot as can be poſſibly borne; or ſometimes ſcarification, or cauteriſing the wound with a burning iron, if immediate in their application, is attended with ſucceſs: and in either caſe, if the ſituation of the wound will allow, it is neceſſary to retard the circulation of the venom through the ſyſtem, by means of ligatures. The rattle-ſnakes have an offenſive ſmell, notwithſtanding which the negroes eat the fleſh like that of other ſerpents; and they have a ſuperſtitious idea, that the rattles, as a *charm*, are of ſovereign efficacy to women in child-birth.

The different kinds of rattle-ſnakes ſeem to have been confounded with each other till of late years. Gmelin makes five diſtinct ſpecies, in which he is followed by the writers of this country. To theſe, however, Latreille adds three more, which he deſcribes from ſpecimens in the National Muſeum at Paris. Theſe are his crotale à loſange, crotale a queue noire, and crotale camard: the two firſt of theſe are natives of America, the other is from the Eaſt Indies. It is believed that two of the above number have been previouſly noticed by Seba, but whoſe deſcription, if it be really ſo, is much leſs explicit than the account rendered from the ſpecimens in the French Muſeum by Latreille.

Species.

Horridus. Fuſcous, with blackiſh tranſverſe bands. Plates of the belly 167, of the tail 23.

This ſpecies is found from three to four or five feet in length, ſome ſay even ſix feet, and the thickneſs of a man's arm. We once ſaw the ſkin of a rattle-ſnake, which, when perfect, meaſured, as it was affirmed, eleven feet ſix inches, and in the girth appeared to be about the thickneſs of a man's thigh; it was, therefore, in dimenſions, equal to ſome of the largeſt boæ. The general colour of the rattle-ſnake is yellowiſh-brown, marked throughout its length with a number of tranſverſe, and ſomewhat irregular, bands of deep brown ; and from the head to ſome diſtance down the neck run two or three longitudinal ſtripes of the ſame colour. The under parts are of a dingy yellowiſh-brown colour, with duſky ſpots and freckles ; the rattle at the end of the tail browniſh.

The largeſt rattle-ſnake which Cateſby ever ſaw (and he travelled over thoſe parts of America in which they moſt abound) was about eight feet in length, and weighed between eight and nine pounds. “ This monſter,” ſays he, “ was ſliding into the houſe of colonel Blake of Carolina, and had certainly taken up his abode there undiſturbed, had not the domeſtic animals alarmed the family with their repeated outcries. The dogs and poultry united in their hatred to him, ſhewing the greateſt conſternation, by erecting their briſtles and feathers, and expreſſing their wrath and indignation, ſurrounded him, but carefully kept their diſtance ; while he, regardleſs of their threats, glided ſlowly along.” “ It is not uncommon,” adds Mr. Cateſby, “ to have come into houſes : a very extraordinary inſtance of which happened to myſelf in the ſame gentleman's houſe, in the month of February, 1723. The ſervant, in making the bed in the ground-room (but few minutes after I left it), on turning down the ſheets, diſcovered a rattle-ſnake coiled between the ſheets in the middle of the bed.” “ They are the moſt inactive and ſlow moving ſnake,” adds this author, “ of all others, and are never the aggreſſors, except in what they prey upon ; for unleſs they are diſturbed, they will not bite ; and when provoked, they give warning by ſhaking their rattles. Theſe are commonly believed to be the moſt deadly ſerpent of any in theſe parts of America. I believe they are ſo, as being generally the largeſt, and making a deeper wound, and injecting a greater quantity of poiſon. The moſt ſucceſsful remedy the Indians ſeem to have is to ſuck the wound, which, in a ſlight bite, has ſometimes a good effect. They have likewiſe ſome roots, which they pretend will effect a cure, particularly a kind of aſarum, commonly called heart-ſnake-root ; a kind of chryſanthemum, called St. Anthony's croſs ; and ſome others : but that which they rely on the moſt, and which moſt of the Virginian and Carolina Indians carry dry in their pockets, is a ſmall tuberous root, which they procure from the remote parts of the country. This they chew, and ſwallow the juice, applying ſome to the wound.” Mr. Cateſby having, by travelling much among the Indians, had frequent opportunities of ſeeing the direful effects of the bite inflicted by theſe ſnakes, ſeems to conſider that the good reſults attributed in common to theſe remedies is owing more to the force of nature, or the ſlightneſs of the bite, than to any other cauſe. He has known perſons bitten to ſurvive, without any aſſiſtance, for many hours : but where a rattle-ſnake with full force penetrates with his deadly fangs into a vein or artery, inevitable death enſues, and that, as he has often ſeen, in leſs than two minutes. The Indians, for this reaſon, know their deſtiny directly they are bit ; and when they perceive it is mortal, apply no remedy, concluding all efforts in vain : if, however, it happens in a fleſhy part, they cut it out to ſtop the current of the poiſon.

The charming, as it is commonly called, or attractive power this ſnake is ſaid to have of drawing to it ſmall animals, and devouring them, Mr. Cateſby ſays, is generally believed in America. He allows that he never witneſſed the fact ; but that a great number of perſons, by whom the circumſtance had been related, agreed exactly in the manner in which the effect is produced. Little birds, and quadrupeds of a ſmall ſize, particularly ſquirrels, (on which theſe ſnakes chiefly prey,) no ſooner perceive their mortal enemy than they ſkip from ſpray to ſpray, hovering and approaching gradually nearer to him, regardleſs of any other danger, and with diſtracted geſtures and outcries deſcend, though from the top of the loftieſt trees, to the mouth of the ſnake, who opens his jaws, takes them in, and in an inſtant ſwallows them. In a memoir on the ſuppoſed faſcinating power of the rattle-ſnake, by Dr. Barton, profeſſor of natural hiſtory in the univerſity of Pennſylvania, it is however contended to be nothing more than the fluttering of old birds in defence of their young, when they perceive the ſnake lying in wait for prey, and which are themſelves caught, as well as their young, by the rattle-ſnake, unleſs they ſave themſelves by a timely retreat.

Rattle-ſnakes are ſaid to ſwarm in the leſs inhabited parts of America, but are now almoſt extirpated in the neighbourhood of populous places. None are found further north than the mountains near lake Champlain, but they infeſt South America even as far as Braſil. They love woods and lofty hills, eſpecially where the ſtrata are rocky or chalky. The paſs near Niagara abounds with them. Being ſlow of motion, they frequent the ſides of rills to ſeize on frogs, or ſuch animals as reſort there to quench their thirſt. During ſummer they are generally found in pairs ; in winter, aſſembled together in multitudes, and lurking under ground, where they remain till the return of fine weather, when they creep out of their hiding-places in a weak and languid ſtate. A perſon has ſeen a piece of ground covered with them, and killed with a long rod between ſixty and ſeventy, till overpowered with the ſtench, which is dreadfully offenſive, he was obliged to retire.

The rattle-ſnake is a viviparous animal ; producing its young in the month of June, generally about twelve in number, and which by September acquire the length of twelve inches. It is ſaid to protect its young in the ſame manner as the common viper, namely, by receiving them into its mouth, and ſwallowing them. This is aſſerted by M. de Beauvois, who ſaw a large rattle-ſnake, which he happened to diſturb in his walks, coil itſelf up, open its jaws, and inſtantly receive five ſmall ones, which were lying by it, and inſtinctively ruſhed into its mouth. M. de Beauvois retired, and watched the ſnake, and in about a quarter of an hour after ſaw her again diſcharge them. He then approached a ſecond time, when the young retired into its mouth with greater celerity than before ; and the ſnake immediately moved off among the graſs, and eſcaped. This happened at a place called Pine-Log, where the writer ſtaid ſome time with the Indians, during an illneſs with which he was ſeized. This circumſtance is related in the American Philoſophical Tranſactions.

From experiments made in Carolina by captain Hall, and related in the Philoſophical Tranſactions, it appears that a rattle-ſnake of about four feet long, being faſtened to a ſtake fixed in the ground, bit three dogs : the firſt of which died in leſs than a quarter of a minute ; the ſecond, which was bitten a ſhort time afterwards, in about two hours, in convulſions : and the third, which was bitten about half an hour afterwards, ſhewed the viſible effects of the poiſon in about three hours, and died likewiſe. Four days after this, another dog was bitten, which died in half a minute ; and then another, which died in four minutes. A cat, which was bitten, was found dead the next day. Eight days after this, a frog was bitten, which died in two minutes ; and a chicken of three months old in three minutes. The experiments having been diſcontinued ſome time, from want of ſubjects, a common black ſnake was procured, which was healthy and vigorous, and about three feet long. It was brought to the rattle-ſnake, when they bit each other ; the black ſnake biting the rattle-ſnake ſo as to make it bleed.

They were then ſeparated, and in leſs than eight minutes the black ſnake died; while the rattle-ſnake, on the contrary, ſhewed no ſigns of indiſpoſition, appearing as well as before. Laſtly, in order to try whether the rattle-ſnake could poiſon itſelf, it was provoked to bite itſelf: the experiment ſucceeded, and the animal expired in leſs than twelve hours. According to the experiments of Voſmaer at the Hague, with a lively young rattle-ſnake, which he received from Surinam, ſmall birds, ſuch as ſparrows, finches, &c. died ſometimes in four, ſometimes ten, and ſometimes twenty minutes after being bitten; and a mouſe in a minute and a half.

The peculiar apparatus, called the rattle, in this kind of ſnake, is minutely deſcribed by Grew; who obſerves, that it conſiſts of hollow, hard, dry, and ſemi-tranſparent bones, nearly of the ſame ſize and figure; reſembling, in ſome degree, the ſhape of the human os ſacrum; for although only the laſt or terminal one ſeems to have a rigid epiphyſis joined to it, yet have every one of them the like, ſo that the tip of every uppermoſt bone runs within two bones below it; by which artifice they have not only a moveable coherence, but alſo make a more multiplied ſound: each bone hitting againſt two others at the ſame time. The rattle is placed with the broad part perpendicular to the body, and not horizontal; and the firſt joint is faſtened to the laſt vertebra of the tail by means of a thick muſcle under it, as well as by the membranes, which unite it to the ſkin. All the remaining joints are ſo many extraneous bodies, as it were, or perfectly unconnected to the tail by any other means than their curious interſections into each other.

Duriſſus. Brown, with yellowiſh rhomboid ſtripes. Abdominal plates 172, ſubcaudal ſcales 21. *Crotalus duriſſus*, Linn.

This ſpecies is diſtinguiſhed from the former by the different diſpoſition of its colours. The lighter colour is pale yellow, marked along the back with a ſeries of large black rhombic ſpots, and on each ſide with another ſeries, ſimilar in ſize and form, but not ſo deep in colour; and moſt of theſe have the diſk white. The lower ſurface is duſky yellowiſh-brown, with numerous ſmall dark ſpots and patches.

The general ſize of this ſnake agrees with that of the ſpecies horridus, with which it has been oftentimes confounded; more eſpecially as it inhabits the ſame parts of America, and much reſembles it in colours, though not in the diſpoſition of its pattern. Its bite is equally fatal with that of the firſt-mentioned kind. Three varieties of this ſnake are mentioned by writers, which differ in the number of abdominal plates and caudal ſcales.

Miliarius. Cinereous, with a triple row of black ſpots, and a red ſpot between each of the dorſal ones. Abdominal plates 132, ſubcaudal ſcales 32. *Crotalus miliarius*, Linn. Small rattle-ſnake, Cateſby.

Deſcribed by Cateſby as a probable variety of the common rattle-ſnake. It is, however, now conſidered as a diſtinct ſpecies. In its general habits it reſembles the preceding kinds, but is the ſmalleſt of the rattle-ſnakes known, rarely exceeding the length of two feet.

Dryinas. Greyiſh variegated with yellow. Abdominal plates 165, ſubcaudal ſcales 30. *Crotalus dryinas*, Linn. *Vipera caudiſona ceilanica*, Seba.

Seba deſcribes this ſpecies as a native of America, but erroneouſly, as it is ſuppoſed; the whole genus appearing to be confined to the American continent. There is a ſpecimen of this in the Pariſian Muſeum.

Mutus. Back with black rhombic concatenate ſpots; tail terminated in a quadruple row of very minute ſharp ſcales. Gmel.

This is a native of Surinam, is very large, and armed with fangs of vaſt ſize. It can ſcarcely be conſidered with propriety as belonging to this genus.

Le Crotale a queue Noire. Tail black. Abdominal plates 116, ſubcaudal ſcales 36.

Deſcribed by Latreille, who obſerves that it meaſures from three to four feet in length. The back is reddiſh-grey, ſpeckled with brown, and marked with brown irregular angular bands; and a ſtreak of fawn colour down the back. The ſpecies is a native of Carolina.

Le Crotale a Losange. Yellowiſh-grey, with two zig-zag lines of reddiſh-brown along the back, forming by their angles a ſeries of lozenge ſpots. Latreille.

A native of America. Deſcribed as a new ſpecies, from a ſpecimen in the Paris Muſeum.

Le Crotale Camard. Head obtuſe; body greyiſh, with numerous black ſpots and lines upon the back and ſides. Latreille.

A ſpecimen of this ſpecies, between two and three feet in length, is preſerved in the Natural Hiſtory Muſeum at Paris.

Crotalus, in *Ancient Geography*, a river of Italy, in the Locride territory, now called *Corace*. M. d'Anville places it in Brutium.

CROTALYSTRIÆ, or Crotaliſtriæ, in *Antiquity*, a kind of morice dancers, admitted to entertainments, in order to divert the company with their dancing, and playing on an inſtrument called crotalum, whence they had their name. By an ancient poem, entitled "Copa," and aſcribed by ſome to Virgil, it appears that thoſe who played with the crotala danced at the ſame time. In theſe dances, performed chiefly by women, they practiſed a variety of wanton geſticulations and indecent attitudes and poſtures, ſo that theſe, as well as cymbals, were baniſhed from the feſtivals of all Chriſtians.

CROTAPHITES Musculus, in *Anatomy*, a name ſometimes applied to the temporal muſcle. See Mastication.

CROTAPHIUM, in *Medical Writers*, is uſed for a pain in the head. See Head-*ach*.

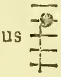
CROTCH, in *Rural Economy*, a term which is often provincially applied to ſignify a ſort of hook.

CROTCHES, Croccia, in *Sea Language*, a name given to thoſe crooked timbers that are placed under the keel, in the fore and hind-parts of a ſhip, upon which the frame of her hull grows narrower below, as it approaches the ſtem afore, and the ſtern-poſt abaft.

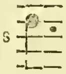
Crotches are alſo certain pieces of wood or iron, whoſe upper parts open in two horns, or arms, like a half-moon. They are fixed in the different parts of a ſhip, according to the uſes for which they may be deſigned, which is uſually to ſupport the ſpare-maſts, yards, &c.

CROTCHET, in *Midwifery*, an inſtrument uſed in extracting or drawing a fœtus through the vagina, when the pelvis in the woman is ſo diſtorted, or ſtraightened, as to make it impoſſible for it to paſs in its entire and perfect ſtate. In theſe caſes, the head of the fœtus is always previouſly opened, and the brain evacuated, to allow the bones of the cranium to collapſe.

The crotchet appears to have been uſed for this purpoſe, from a very early period, as we find it deſcribed under the name of uncus, or a hook, by Hippocrates, and afterwards by Celſus, and by Albucaſis. Originally it conſiſted of a ſtraight piece of iron, one end of which was turned down, forming a hook. The part turned down was made ſharp, and faſhioned like the head of a ſpear; which form it ſtill retains. See *Plate of Midwifery*. In later times a wooden a wooden handle has been added, as more convenient for the operator. About the middle of the laſt century, Monſ. Levrett recommended curving the ſtem of the crotchet, which added much to the power, and to the utility of the inſtrument. He alſo adviſed uſing two blades, one to be applied on each ſide of the head of the child; but this is neither neceſſary, nor often practicable, as in caſes requiring the uſe of the crotchet, the pelvis of the woman is too narrow to admit the introduction of a ſecond blade. The caſes in which the crotchet is employed, and the manner of uſing them, are deſcribed under the article LABORIOUS or DIFFICULT BIRTHS.

CROTCHET, in *Muſic*, one of the notes, or characters of time, marked thus  equal to half a minim, and double a quaver.

It is not eaſy to conceive how this character comes by the name crotchet: the word is apparently borrowed from the French *crochet*, of *croc*, a *crook* or *hook*, uſed by them for what we call the *quaver*, or *half crotchet*; by reaſon of the additional ſtroke at bottom, which gives it an appearance of a crook.

A dot added to the crotchet, thus  increaſes its time by half; that is, makes it equal to a crotchet and a half, or to three quavers.

CROTCHET, in *Printing*, denotes a ſort of line, ſometimes ſtraight, ſometimes waved, but always turned up at each extreme: ſerving to bind or link together ſeveral articles, that are to be read together, before you proceed to the ſubdiviſions, placed aſide of them with ſimilar or ſmaller *crotchets*; much uſed in genealogies, analytical tables, &c. for facilitating the diviſion and ſubdiviſion of any ſubject.

CROTCHETS are alſo uſed for two oppoſite characters, ſerving to incloſe what we call a *parentheſis*, or any other part of a diſcourſe to be diſtinguiſhed from the reſt of the work; ſometimes in this form [], and ſometimes in this ().

CROTENAY, in *Geography*, a town of France, in the department of the Jura, and diſtrict of Poligny; 2 leagues S.E. of Poligny.

CROTENDORF, a ſmall town of Saxony, in the circle of the Erygebirge, with about 1000 inhabitants, famous for its quarries of beautiful white marble, which have furniſhed the marble for the interior ornaments of the king's catholic chapel at Dreſden, for the ſtatue of the king, and for the monument erected to the celebrated Gellert in Wendler's garden at Leipzig. The marble ornaments of the far famed town's hall of Amſterdam, have alſo anciently been furniſhed by the Crotendorf quarries, and it is but about twenty years ago that they have yielded aſtoniſhing large blocks for the monument erected at Zell in Hanover, to the late unfortunate queen Matilda of Denmark, ſiſter to Geo. III. of England. The Crotendorf marble quarries were diſcovered between 1588 and 1593, by Joſeph Maria Noſſeni. They are nearly 20 Engliſh miles in extent.

CROTON, in *Botany*, (κροτων, Dioſc.) Linn. Gen. 1083. Schreb. 462. Willd. 1718. Gært. 624. Juſſ. 389. Vent. 3. 496. (Ricinoides; Tourn. 423.) Claſs and order, *monœcia monadelphia*. Nat. Ord. *Tricoccæ*; Linn. *Euphorbiæ*; Juſſ. *Tithymaloides*; Vent.

Gen. Ch. Monoicous, rarely dioicous, or polygamous. *Male flowers. Cal.* Perianth either one-leafed, five-toothed, or five-cleft; or with five or more leaves. *Cor.* Petals five, ſcarcely larger than the calyx; or none. *Nectary* five ſmall glands, inſerted into the receptacle. *Male-flowers. Stam.* Filaments from about five to fifteen, or more, the length of the flower, moſt commonly connected at the baſe; anthers roundiſh, didymous. *Female flowers. Cal.* Perianth of five leaves or more. *Cor.* Petals five, or more frequently none. *Piſt.* Germ ſuperior, roundiſh; ſtyles three or more, generally bifid; ſtigmas ſimple or cleft. *Peric.* Capſule roundiſh, three-lobed at the ſides, three-celled; cells two-valved. *Seeds* one in each cell.

Eſſ. Ch. Male and female flowers ſeparate. Male. Calyx with at leaſt five leaves or five diviſions. Stamens from five to fifteen, or more. Female. Calyx of five leaves or more. Styles three or more. Capſule three-celled. Seeds ſolitary.

* *Stem woody.*

Sp. 1. C. *variegatum*. Linn. Sp. Pl. 3. Mart. 1. Lam. 1. Willd. 1. (Codiæum chryſoſtichon; Rumph. Amb. 4. 65. tab. 25. Tſjere-maram; Rheed. Mal. 6. 109. tab. 61. β. Rumph. tab. 26. γ. tab. 27.) “Leaves lanceolate, quite entire, ſmooth, variegated, petioled.” A ſhrub, five or ſix feet high, with the habit of nerium oleander. *Branches* cylindrical, ſmooth, leafy towards the ſummit, tubercled towards the baſe. *Leaves* alternate, beautifully variegated with green and golden yellow, generally retuſe. *Flowers* at the ſummit of the branches in ſlender racemes, peduncled; ſmooth, as long or longer than the leaves; bractes one to each flower, oval; calyx of the female about half the length of the germ. A native of the Moluccas and Japan, and of Malicollo and Tanna in the South Seas. It is cultivated for the beauty of its foliage in many parts of the Eaſt Indies, and is employed as an ornament both in times of feſtivity, and at the funerals of unmarried perſons. 2. C. *caſcarilla*. Linn. Sp. Pl. 4. Lam. 2. Willd. 2. (C. lineare; Mart. 2. Ricinoides æliagni folio; Plum. Sp. 20. Burm. amer. tab. 240, fig. 1. Cateſb. Car. 2. 46. tab. 46. Tourn. 656.) “Leaves lanceolate, quite entire, petioled, flat and ſcaly above, ſhining and whitiſh underneath.” Lam. A ſhrub from three to ſix or ſeven feet high. *Stem* ſhort, thickiſh; branches numerous, cylindrical, eaſily broken, leafy, covered with a ſmooth, greyiſh white bark. *Leaves* alternate, reſembling thoſe of the almond, not channelled, as in the next ſpecies; having their upper ſurface ſtudded with orbicular whitiſh ſcales, marked with a ſpot in the middle, as in hippophæ rhamnoides. *Flowers* ſmall, in terminal ſpikes; males uppermoſt, with a five-leaved calyx and five whitiſh petals; females lower, with a very ſmall five-cleft calyx, and without petals. The leaves, the young ſhoots, and eſpecially the bark, have a pleaſant aromatic odour when bruiſed or burnt. Lam. A native of Carolina and South America. The bark of this plant has been generally ſuppoſed to be the caſcarilla of the ſhops. See CASCARILLA. Dr. Woodville, in the earlier part of his medical botany, expreſſed his doubts on the ſubject; and in his appendix to that work, declared himſelf fully convinced that the caſcarilla is obtained ſolely from the cluytia eleuteria of Linnæus, which Swartz and Willdenow have removed to the preſent genus. See CLUYTIA *Eleuteria*. 3. C. *lineare*. Lam. 3. Hort. Kew. p. 374. Jacq. Am. 256. tab. 162. fig. 4. (C. caſcarilla; Woodv. Med. Bot. 41. C. caſcarilla β. Willd. Ricino affinis, roſmarini folio; Sloan. Jam. hiſt. 1. 133. tab. 86. fig. 1.) “Leaves linear, on very ſhort petioles, with two glands at the baſe, channelled and green above, tomentous-white underneath.” La Marck was ſatisfied by well preſerved ſpecimens in the herbarium of Juſſieu, that this plant is ſpecifically diſtinct from the preceding,

ceding, though they have been confounded by Linnæus. The author of Hortus Kewenſis appears to have been of the ſame opinion by his excluding the ſynonyms of Cateſby and Plumier, quoted under C. caſcarilla. A ſhrub, four or five feet high, erect, much branched; branches cylindrical, yellowiſh, ſomewhat tomentous. *Leaves* about an inch and half long, a line and half or two lines broad, exactly linear, retuſe; cloathed underneath with a dull white or yellowiſh down, which, when viewed through a lens, is found to conſiſt of ſtellated hairs, a character which belongs to moſt of the hairy ſpecies of this genus; glands oppoſite, cylindrical, truncated, horizontal. *Flowers* in ſpikes. The whole plant has a pleaſant ſmell. A native of the Weſt Indies. In Jamaica it is called wild roſemary. The plant cultivated by Miller under the name of C. caſcarilla, appears to have been the preſent ſpecies. 4. C. *cochinchinenſe.* Mart. 39. (C. punctatum; Lour. Cochinch. 581.) "Leaves alternate, lanceolate, quite entire, hoary underneath, ſhining, dotted; capſules ſcurfy." A middle ſized tree with ſpreading branches. *Leaves* ſmooth, ſcentleſs. *Flowers* white; in ſimple oblong, terminal racemes; males on the upper part; calyx bell-ſhaped, with five diviſions; petals five, lanceolate-egg-ſhaped, ſpreading; filaments fourteen, longer than the corolla; females below; calyx and petals as in the male; germ trigonous; ſtyles three, ſhort; ſtigmas quadrifid, filiform, inflexed. A native of woods in Cochinchina. 5. C. *compreſſum.* Lam. 20. Willd. 62. "Leaves alternate, entire, tomentous underneath; petioles ſomewhat decurrent; little branches compreſſed." *Branches* hard, ſomewhat woody, angular, a little pubeſcent or mealy towards the top. *Leaves* reſembling thoſe of ſolanum laurifolium, petioled, almoſt ſmooth, and ſprinkled with ſcarcely perceptible dots above, tomentous and greyiſh white underneath. *Flowers* in ſpikes at the extremity and forks of the branches. Found by Commerſon in Brazil. 6. C. *dioicum.* Mart. 42. Willd. 7. Cav. ic. 1. 4. tab. 6. "Leaves ſcattered, lanceolate, narrowed at the baſe, obtuſe, quite entire, tomentous, nearly ſeſſile; flowers dioicous." Whole plant covered with a ſoft nap. *Stem* cylindrical, with divaricating branches. *Leaves* ſilvery underneath, ſomewhat channelled, ſpreading. *Male flowers* in terminal ſpikes, pedicelled, with awl-ſhaped bractes; calyx bell-ſhaped, half-five-cleft; corolla none; nectariferous glands five, yellow, placed in a ring at the bottom of the calyx; filaments twelve or thirteen, not united at the bottom, a little longer than the calyx and attached to it in its lower part, villous, green. *Female* flowers like the male in the calyx and glands, but on a different plant, and on three-flowered terminal peduncles; germ roundiſh; ſtyles three, united at the baſe, half-five-cleft. *Capſule* larger than a pea. *Seeds* egg-ſhaped, ſmooth. A native of Mexico, cultivated at Madrid. 7. C. *polygamum.* Mart. 51. Jacq. Amer. pict. tab. 263. fig. 59. "Leaves alternate, lanceolate, ſerrated, thinly ſet with decumbent hairs." An upright ſhrub, four feet high, but little ſubdivided. *Branches* cylindrical, ſmooth, cinereous. *Leaves* almoſt three inches long, on very ſhort petioles, acute, ſmoothiſh, green on both ſides. *Flowers* uſually appearing before the leaves, whitiſh, ſcentleſs, ſome hermaphrodite, others male and others female on the ſame, or on different plants; hermaphrodites, calyx five-leaved; petals oblong, longer than the calyx; germ three grooved; ſtyle ſemitrifid with bifid ſegments. A native of Carthagena, in New Spain. 8. C. *dichotomum.* Willd. 19. "Leaves lanceolate, ſerrated, hairy, tomentous underneath; ſpikes from the forks of the branches; branches dichotomous, divaricated." *Branches* thick, woody, greyiſh brown. *Leaves* half an inch long, on ſhort petioles. *Spikes* half an inch long. A native of St. Domingo. 9. C. *diſcolor.* Willd. 3. "Leaves elliptical, quite entire, obtuſe, mucronate, petioled, denſely tomentous underneath; flowers dioicous." Nearly allied to C. caſcarilla; *n.* 2. A native of the Iſland of St. Croix in the Eaſt Indies. 10. C. *maritimum.* Willd. 4. Walt. Car. 239. (C. diſjunctiflorum; Mich. amer. bor. 2. 214.?) "Leaves elliptical, quite entire, rather obtuſe, hoary, tomentous underneath, ſpikes terminal, few-flowered." *Leaves* half an inch long, wrinkled on the upper ſurface; petioles long, tomentous. *Female flower* ſolitary at the baſe of the ſpike. 11. C. *lanatum.* Lam. 29. Willd. 60. "Leaves elliptical, quite entire, woolly on both ſides; racemes terminal and from the forks of the branches; ſtamens bearded." Whole plant covered with a ſhort, woolly, browniſh down, giving it a ſombre appearance. A low ſhrub, with looſely ſpreading branches. *Leaves* alternate, often oppoſite at the tops and under the forks of the branches, ſmall, on ſhort petioles. *Flowers* yellowiſh; males with at leaſt ten ſtamens; females with three ſhort, villous ſtyles. A native of South America, near Monte Video. 12. C. *lævigatum.* Mart. 46. Willd. 39. "Leaves elliptical, ſmooth and even on both ſides, with one gland at the baſe, quite entire, or ſerrated, obtuſe; racemes terminal, elongated." Branches cylindrical, proliferous, pulverulent-ſcaly and cinereous near the top. *Leaves* petioled, cluſtered at the ends of the branches, two inches long or more, paler underneath, membranous, either quite entire, or ſlightly and obtuſely ſerrated near the top; ſtipules awl-ſhaped, deciduous. *Common peduncle* about ſeven inches long, erect, ſtriated-angular, covered with farinaceous ſcales, muricated after the fall of the flowers; calyx ſomewhat hirſute; ſtamens numerous. A native of Hainam. 13. C. *reticulatum.* Willd. 41. "Leaves oblong, acuminate, quite entire, ſmooth on both ſides, reticulated underneath; raceme terminal, elongated." *Branches* cylindrical, dark brown; younger ones pubeſcent. *Leaves* three or four inches long; petioles pubeſcent *Raceme* half a foot long. 14. C. *laurinum.* Mart. 35. Willd. 37. "Leaves oblong, acute, quite entire, ſomewhat thick and rigid, ſmooth, dotted underneath; petioles ſcabrous, dotted; racemes axillary, very long, ſpreading; ſtem arboreous." A native of Jamaica. 15. C. *ovalifolium.* Willd. 8. Weſt. Sr. Cruc. 253. "Leaves oblong, obtuſe, attenuated at the baſe, finely ſerrated at the tip, petioled, ſmooth; little branches hairy." *Leaves* an inch long, green on both ſides, thinly ſet with ſtellated hairs; petioles long. *Flowers* in a terminal ſpike; females three or four at the baſe, on long peduncles. A native of the iſlands of St. Crux and St. Thomas. 16. C. *argyranthemum.* Willd. 12. Mich. amer. bor. 2. 215. (C. punctatum; Jacq. ic. rar. 3. tab. 161.) "Leaves oblong, quite entire, tomentous underneath, petioled; peduncles terminal, about two-flowered." Calyxes pedicelled, ſilvery white. A native of dry woods in Georgia and Florida. 17. C. *divaricatum.* Mart. 33. Willd. 28. Swartz. prod. 100. Flor. ind. ſec. 2. 1187. "Leaves oblong, obtuſe, ſerrated, rough with hairs, with two glands at the baſe; racemes terminal, ſolitary; branches dichotomous, divaricated." A native of dry thickets in the Weſt Indies. 18. C. *procumbens.* Mart. 49. Jac. amer. "Leaves wedge-ſhaped, acute, quite entire." A ſhrub, three feet high, ſmooth, ſcentleſs. *Stems* partly erect, partly procumbent. *Leaves* two inches long, alternate, petioled. *Flowers* ſmall, green; peduncles axillary, very ſhort, uſually with four males at the top and two females below, petals of the females twice the length of the calyx. Common at Carthagena in South America. 19. C. *citrifolium.* Lam. 26. Willd. 15. (Ricinoides arbor, folio citri; Plum. Sp. 20, Burm. Amer. tab. 240. fig. 2. Tourn. 656.) "Leaves ovate-lanceolate, entire, covered with a ſhining meal; ſpikes axillary; capſules round, rough with warts, ſilvery." A tree about the ſize of an apple-tree, with a dark red bark. *Leaves* very numerous, alternate, petioled, in ſize and nearly in ſhape reſembling thoſe of the citron, but leſs firm. *Flowers* in ſpikes near a foot long; males at the top; calyx with five diviſions; petals five, white, oval; ſtamens numerous; females below; calyx with five diviſions, powdery. *Capſule* round, a little leſs than a hazel nut, covered with a ſilvery meal. *Seeds* oblong, convex on one ſide, angular on the other. Obſerved by Plumier in the iſland of St. Domingo. 20. C. *balſamiferum.* Linn. Mant. 125. Mart. 15. Lam. 4. Willd. 50. Jacq. Amer. 255. tab. 162. fig. 3. pict. 124. tab. 242. Hort. 3. tab. 46. "Leaves ovate-lanceolate, quite entire, with two glands at the baſe, ſcabrous, tomentous underneath; capſules tomentous." A ſhrub, three or four feet high, ſweet-ſcented, erect, branched, diffuſe, covered all over with a cloſe yellowiſh down. *Leaves* ſcatteringly alternate, from two to three inches long, acute, on rather long petioles. *Flowers* ſmall, in ſpikes both terminal and proceeding from the diviſions of the upper branches; males uppermoſt, with a five-parted calyx and five white petals. It much reſembles C. humile, (*n.* 59.) but its leaves are not heart-ſhaped. A native of the Weſt Indies. The whole plant abounds with a thickiſh, yellowiſh, ſweet-ſcented balſamic juice, which drops from it when it is cut or broken. In Martinico this juice is diſtilled with ſpirits of wine, and a cordial liquor obtained, which is introduced at the table and called Eau de Mante. 21. C. *erioanthemum.* (C. lanatum; Mart. 40. Lour. Cochinch. 581. "Leaves oppoſite, ovate-lanceolate, quite entire, ſmooth; corollas woolly." A large tree with ſpreading branches. *Flowers* white, in ſimple terminal racemes; males at the top; calyx tubular, five-parted, erect; petals five, egg-ſhaped, woolly within, the length of the calyx; filaments fifteen, the length of the corolla; females below; calyx permanent, five-leaved; the leaves ſpreading, egg-ſhaped, acute; corolla none; germ egg-ſhaped; ſtyle none; ſtigmas three, filiform, ſhort, bifid, reflexed. *Capſule* egg-ſhaped, tubercled at the top. A native of woods in Cochinchina. La Marck having called another plant lanatum, (ſee *n.* 11.) we have been under a neceſſity of giving a new name to the preſent. 22. C. *farinoſum.* Lam. 28. Willd. 61. "Leaves oppoſite, ovate-lanceolate, nearly entire, green above, covered with a hoary mealineſs underneath; ſpikes ſlender." A beautiful ſhrub, remarkable for the ſtrong contraſt of colour in the upper and under ſides of the leaves. *Branches* cylindrical, ſlender, ſmooth, greyiſh, looſe, ſeveral times dichotomous. *Leaves* two inches long, in ſhape reſembling thoſe of common ſage, on ſhort petioles. *Spikes* two or three inches long, ſome terminal, others in the forks of the upper branches; female flowers at the baſe of the ſpike, white, mealy, with five acute diviſions; germ roundiſh; ſtyles three, quadrifid, widely expanding. Found by Commerſon in the iſland of Madagaſcar. 23. C. *umbellatum.* Willd. 42. "Leaves ovate-oblong, acuminate, quite entire, ſmooth on both ſides; flowers in terminal umbels." Whole plant quite ſmooth. *Branches* cylindrical, cinereous-brown. *Leaves* three or four inches long, ſimply veined. *Umbel* ſimple, about ſix-flowered, on a capillary peduncle. A native of the Eaſt Indies. 24. C. *ſericeum.* Lam. 25. Willd. 48. (C. matourenſe; Aubl. guian. 879. tab. 338.) "Leaves ovate-oblong, acuminate, ſilky-hoary underneath with two glands at the baſe; female calyxes ciliated." A tree. *Trunk* from eight to ten feet high, about nine inches in diameter, with an even cinereous bark; branches tender. *Leaves* alternate, entire, on rather long petioles. *Flowers* in a long, looſe, villous, cinereous ſpike; calyx of the males with five deep, acute diviſions; petals five, lanceolate, cinereous; filaments eleven, villous at the baſe; calyx of the females with five oval, fringed leaves; ſtyles from twelve to ſixteen, curved inwards; bractes two, ſmall, ſcale-like at the baſe of each pedicel. A native of Cayenne and Guiana. 25. C. *ſubluteum.* Lam. 27. Willd. 25. (C. guianenſe; Aubl. guian. 882. tab. 339.) "Leaves oblong-ovate, acuminate, ſerrated, with two glands at the baſe, ferruginous-tomentous underneath; capſules ſmooth." A ſmaller tree than the preceding, with a trunk not more than ſix inches in diameter. *Leaves* on long petioles. *Flowers* whitiſh, ſmall, in axillary ſpikes near the ends of the branches. A native of Guiana. 26. C. *montanum.* Willd. 46. "Leaves ovate-oblong, acuminate, quite entire, with two glands at the baſe, tomentous and reſinous dotted underneath." *Branches* cylindrical, pubeſcent. *Leaves* four or five inches long, petioled, a little narrowed at the baſe, ſomewhat ſcabrous on the upper ſurface, hoary and ſprinkled with very minute ſcarlet, reſinous dots underneath. *Racemes* axillary and terminal, two inches long. The hairs in this ſpecies are not ſtellated. Found by Klein on mount Kaliſghar, near Velur in the Eaſt Indies. 27. C. *coccineum.* Mart. 45. Willd. 38. Vahl. ſymb. 2 97. "Leaves ſomewhat egg-ſhaped, acuminate, quite entire, ſmooth on both ſides, with two dark brown glands at the baſe, dotted with ſcarlet underneath; racemes terminal." *Branches* cylindrical, pulverulent-villous near the ſummit. *Leaves* two or three inches long, petioled, attenuated in the upper part, rather acute at the baſe, three-nerved, reticularly veined underneath and a little coloured by numerous, very minute, pellucid, ſcarlet dots; petioles an inch and half long, cylindrical. *Flowers* nearly ſeſſile; racemes two inches long, either terminal and ſolitary, or crowded in the upper axils; peduncle yellow-ferruginous, angular; ſtyles reflexed; germ white, dotted with ſcarlet. *Capſules* oblong, ſcarlet. Vahl. 28. C. *inophyllum.* Mart. 27. Willd. 14. Forſt. prod. 355. "Leaves inverſely egg-ſhaped, quite entire; ſtem arboreous." A native of New Caledonia. 29. C. *alnifolium.* Lam. 9. Willd. 13. "Leaves inverſely egg-ſhaped, petioled, nearly entire, dotted with ſcattered ſtellated hairs; racemes elongated, nearly terminal." *Branches* dotted, tomentous towards the ſummit. *Leaves* alternate, more hairy underneath; young ones tomentous, whitiſh. *Flowers* in ſlender, looſe racemes; peduncles and calyxes ſomewhat tomentous; filaments of the males ten, villous or bearded. *Capſules* almoſt ſeſſile, roundiſh-oval, covered with ſmall ſtellated hairs, which fall off here and there, and leave thoſe parts ſmooth. When the capſules fall off, the receptacles of the ſeeds remain on the common peduncle with three teeth at their ſummit, which have the appearance of permanent pedicels. Specimens brought by Dombey from Peru. 30. C. *betulinum.* Mart. 47. Willd. 18. Vahl. ſymb. 2. 98. "Leaves egg-ſhaped, obtuſe, unequally toothed, ſcabrous-dotted above, pubeſcent underneath; racemes axillary, longer than the leaf." The habit of a birch. *Branches* cylindrical, purpliſh; younger ones hoary, covered with ſcales and ſtellated hairs. *Leaves* an inch long, with a minute pedicelled gland at each ſide of the baſe; petiole ſhorter than the leaf. *Flowers* ſmall, a little remote, rough with hairs; calyx of the females with five linear, obtuſe leaves. A native of the iſles of St. Thomas and Domingo. 31. C. *glabellum.* Linn. Sp. Pl. 5. Mart. 5. Lam. 23. Willd. 16. (C. fruticoſum, foliis ſubrotundo-ovatis, ſpicillis axillaribus; Brown. Jam. 348. Mali folio arbor; Sloan. Jam. 139. Hiſt. 2. 30. tab. 174.

figs. 3, 4.) "Leaves egg-ſhaped, rather obtuſe, quite entire, even-ſurfaced; fruit peduncled." Seldom leſs than ſeven or eight feet high. *Leaves* alternate, petioled, glaucous underneath. *Fruit* ſmooth. According to Browne, all the parts of the plant are of an active warm nature, and have an agreeable ſmell. La Marck obſerves that Sloane's figures belong to trees from twenty to thirty feet high; and that in one of them the flowers are in ſimple terminal ſpikes, but in the other form lateral axillary panicles. A native of Jamaica. 32. C. *globoſum.* Mart. 32. Swartz. prod. 100. "Leaves egg-ſhaped, obtuſe, entire; peduncles in pairs; flowers dioicous; fruit globular, echinate-hiſpid." A native of Jamaica. 33. C. *punctatum.* Mart. 25. Willd. 45. Retz. Obſ. 5. 30. "Leaves egg-ſhaped, acute, quite entire, tomentous underneath, dotted." *Flowers* in a ſpike. *Capſules* ſilky-hairy, ſcarlet. Sent from Ceylon by Koenig. 34. C. *ſeſſiliflorum.* Mart. 31. Swartz. prod. 100. "Leaves egg-ſhaped, acuminate, quite entire, ſmooth; flowers ſeſſile, axillary, dioicous, with five ſtamens." A native of Hiſpaniola. 35. C. *origanifolium.* Lam. 6. (Ricino affinis odorifera, teucrii folio; Sloan. Jam. Hiſt. 1. 133. tab. 86. fig 3.) "Leaves egg-ſhaped, acute, nearly entire, with two ſetaceous glands at the baſe, tomentous-hoary underneath." Reſembling C. lineare (*n.* 3.) in the texture and colour of the leaves, but differing in their form. *Branches* very ſlender, cylindrical, diffuſe, divided, villous only at the ſummit. *Leaves* alternate, ſmall, entire or very finely toothed, with a longitudinal furrow above, nerved underneath, on rather long peduncles. A native of St. Domingo. 36. C. *philippenſe.* Lam. 14. "Leaves egg-ſhaped, ſomewhat acuminate, nearly entire, with two glands at the baſe, tomentous and reticulated underneath; capſules covered with a ſcarlet wool." *Branches* cylindrical, ſlightly tomentous at the ſummit. *Leaves* alternate, petioled, even and ſmooth above, nerved. *Flowers* in terminal racemes not longer than the leaves. A native of the Philippine iſlands; found by Sonnerat. 37. C. *lacciferum.* Linn. Sp. Pl. 12. Mart. 14. Lam. 13. Gært. tab. 107. (Aleurites laccifera; Willd. Ricinoides, circeæ folio; Burm. Zeyl. 201. tab. 91. Pluk. alm. 320.) "Leaves egg-ſhaped, ſomewhat acuminate, toothed, on long petioles; calyxes tomentous." A middle-ſized tree. *Branches* few, long, ſpreading, angular, rugged. *Leaves* ſcattered. *Flowers* in ſimple terminal racemes, white, with five-leaved calyxes; males uppermoſt; corolla five-petaled; ſtamens from fifteen to twenty. *Capſules* ſmall, globular, not grooved, encloſed at the baſe by the permanent ſpreading calyx. A native of Ceylon, Cochinchina, and Cambodia. A very fine lac exudes ſpontaneouſly from the tree, appearing like a ſmall pearl or bud within the axils of its branches. It is uſed by the inhabitants of Ceylon to varniſh their lances, the handles of their knives, &c. 38. C. *tiglium.* Linn. Sp. Pl. 10. Mart. 12. Lam. 21. Willd. 36. Gært. tab. 107. (Pinus indica; Bauh. Pin. 492. *n.* 11. Lignum moluccenſe; Bauh. Pin. 393. *n.* 12. Ricinoides indica; Burm. Zeyl. 200. tab. 90. Granum moluccarum; Rumph. Amb. 4. 98. tab. 42. Cade-avenacu; Rheed. Mal. 2. 61. tab. 33. Rai. Hiſt. 167. 1803. 1830. 1855. Supp. 112. 666.) "Leaves egg-ſhaped, acuminate, ſerrated, ſmooth, with two glands at the baſe; petioles ſhorter than the leaves; racemes terminal." A middle-ſized tree. *Trunk* rather ſlender; branches few, ſmooth, ſpreading, leafy on their upper part. *Leaves* alternate-nerved; young ones ſtudded with ſtellated hairs, which give them a dotted appearance. *Flowers* whitiſh, or inclining to yellow; males uppermoſt; calyx five-parted; petals five; ſtamens about ſixteen; females below; calyx ſmall, five-leaved, ſtellated, reflexed under the capſule. *Capſules* almoſt the ſize of a hazel-nut, ſmooth, three-furrowed. *Seeds* oval-oblong, a little ſhining, convex on one ſide, very obtuſely-angular on the other. A native of the Eaſt Indies, where it is cultivated for the ſake of its medicinal, and particularly of its purgative qualities. Both its wood and its ſeeds are in uſe; but on account of their very violent acrid nature, they are little eſteemed in Europe, and have not been admitted into the diſpenſatories either of London or Edinburgh. 39. C. *congeſtum.* Mart. 41. Lour. Coch. 582. "Leaves egg-ſhaped, gaſh ſerrated, ſmooth, veined, flowers cluſtered, naked, axillary." *Stem* ſomewhat ſhrubby, five feet high, with many reclining branches. *Leaves* alternate, unequal. *Flowers* both male and female without petals; ſtamens eighteen. *Capſules* pendulous. A native of China, about Canton. 40. C. *dentatum.* (C. populifolium; Willd. 35. Mart. 38. Swartz. Prod. 101. Flor. Ind. Occ. 1197. Vahl. Symb. 2. 97.) "Leaves broad-egg-ſhaped, acuminate, ſerrate-toothed, with two glands at the baſe (one, Vahl.); petioles the length of the leaves; racemes terminal, erect, ſolitary." *Branches* ſmooth, ſcarred. *Leaves* near together towards the top of the branches, with ſtellated fulvous hairs on both ſides. *Calyx* of the male flowers ſmooth, coloured; of the females, with lanceolate, hairy, tooth-gaſhed leaves, and glandular teeth; germ rough with hairs. A native of Jamaica, and other parts of the Weſt Indies. As both Miller and La Marck have a different populifolium (ſee *n.* 64, 65.) we have given a new trivial name to the plant before us. 41. C. *acuminatum.* Lam. 17. "Leaves egg-ſhaped, acuminate, ſome entire, others thinly and ſlightly toothed, without glands, tomentous underneath; ſpikes axillary and terminal; tomentous-ferruginous." *Branches* ſomewhat tomentous, compreſſed towards the ſummit. *Leaves* large, obliquely nerved, reticularly veined; upper ones often oppoſite; petioles, peduncles, and calyxes ferruginous-tomentous. *Spikes* generally ſimple; filaments thirty or more, not united at the baſe. Found by Commerſon at Port Praſlin in New Britain. It reſembles C. japonicum (*n.* 95.), but differs in being ſhrubby, or perhaps a tree, and in having leaves not entirely ſmooth. 42. C. *rhombifolium.* Willd. 70. "Leaves rhomboid-egg-ſhaped, acuminate, ſometimes repand, ſmooth on both ſides, ſprinkled with pellucid dots; racemes panicled, pubeſcent." *Leaves* ſome repand, others quite entire; younger ones covered with a ſlight pubeſcence. A native of the iſland of Ceylon. Diſtinguiſhed from the preceding by the ſhape and ſmoothneſs of its leaves, and from C. japonicum, by having none of its leaves ſlightly three-lobed, as well as by its ſhrubby ſtem. 43. C. *paniculatum.* Lam. 16. Willd. 29. "Leaves egg-ſhaped, ſomewhat rhomboidal, mucronate, entire or ſlightly toothed, with two glands at the baſe, tomentous underneath; panicle ferruginous-tomentous." *Leaves* a little reſembling thoſe of black poplar, dark-green, and ſmooth above, whitiſh, inclining to ferruginous underneath. *Flowers* very numerous, ſmall, ſeſſile, in a rather large, branched panicle. Found by Commerſon and Sonnerat in the iſland of Java. 44. C. *ſebiferum.* Tallow-tree. Linn. Sp. Pl. 9. Mart. 9. Lam. 22. (Stillingia ſebifera; Willd. Ricinus chinenſis ſebifera; Pet. Gaz. 53. tab. 54. fig. 3. Evonymo affinis; Pluk. Amalth. 76. tab. 390. fig. 2.) "Leaves rhomboidal-egg-ſhaped, acuminate, quite entire, ſmooth, with two very ſmall glands at the baſe." A tree about the height of a pear tree, and in habit reſembling a cherry tree, with a light-grey, ſoft bark; branches long, flexible, ſmooth, leafy from the middle. *Leaves* ſcattered, numerous, becoming ſmaller, and forming tufts at the extremity of the branches, broader than long, reſembling thoſe of the black poplar, but not toothed, green and ſmooth on both ſides, deciduous, turning red before they fall; ſtipules two at the baſe of the young leaves, membranous, linear-lanceolate. *Flowers* in ſpikes two inches long, and reſembling catkins; males numerous, very ſmall, pedicelled; calyx very ſhort, one-leafed, almoſt truncated, or very little divided; ſtamens from three to five, but little longer than the calyx; females few, at the baſe of the ſpikes. *Capſules* oval, pointed, with three convex ſides, ſmooth, hard. *Seeds* almoſt hemiſpherical, convex on one ſide, flattened and furrowed on the other, covered with a delicate ſnow-white ſubſtance. Theſe ſeeds are attached by their upper interior part to three thread-like receptacles, and remain after the ſix valves of the capſule have fallen off, ſo that the ſpike then ſeems compoſed of ſmall racemes with very white berries. A native of China, on the banks of rivulets. The Chineſe obtain a kind of tallow from the ſeeds after they have been well cleared of the white ſubſtance in which they are encloſed, which would otherwiſe conſiderably leſſen the quantity of oil. For this purpoſe they are ſteeped ten or fifteen days in water, after which this covering may be compleatly rubbed off, though not without ſome difficulty. The oil drops from the preſs like thick glutinous lamp oil, and ſoon hardens to the conſiſtence of common tallow. This tallow is alſo obtained by boiling the ſeed, and ſkimming off the oil as it riſes. Candles made of it are very white, but are ſometimes coloured by adding to it a little vermilion; theſe candles, ſays ſir George Staunton, are firmer than thoſe of tallow, as well as free from all offenſive odour; but they are not equal to thoſe of wax or ſpermaceti. 45. C. *nutans.* Mart. 26. Willd. 34. Vahl. Symb. 2. 96. Forſt. Prod. 354. "Leaves rhomboidal-egg-ſhaped, acuminate, undulated, ſmooth; glands marginal." Similar to the preceding; but its leaves are leſs acuminate, and the glands are not on the petiole at the inſertion of the leaf, but on the margin of the leaf itſelf, a little above its baſe. *Spikes* two or three inches long. *Flowers* in two rows. A native of the Society and Friendly iſles, and of the New Hebrides. 46. C. *bracteatum.* Lam. 18. Willd. 33. "Leaves oppoſite, eſpecially the upper ones, acute, entire, with two glands at the baſe, tomentous underneath; racemes long, looſe, bracteate." *Branches* cylindrical, ſeveral times dichotomous, cinereous, tomentous, a little ferruginous near the ſummit. *Leaves* petioled. Petioles, peduncles, calyxes, and germs tomentous and villous. *Raceme* from four to ſix inches long, ſimple, proceeding from the forks of the upper branches; bractes oblong-lanceolate, ſeſſile, caducous. *Flowers* pedicelled, from two to five together in lateral bundles; females large; calyx with five oval-oblong leaves; germ large, trigonous; ſtyles three, multifid, pencil-ſhaped. Found by Commerſon in the iſland of Madagaſcar. 47. C. *lucidum:* Linn. Sp. Pl. 11. Mart. 13. Lam. 24. Willd. 44. Swartz. Flor. Ind. Occ. 2. 1193. (C. pallens; Linn. Mant. 497. Mart. 36. Swartz. Prod. 100. C. ſpicatum; Berg. Tranſ. Roy. Soc. 1768. p. 132. tab. 7. C. erectum, glabrum; Brown. Jam. 347. *n.* 6.) "Leaves oppoſite, egg-ſhaped, acuminate, nearly entire, ſmooth on both ſides; racemes erect, terminal; calyxes larger than the fruit." Calyx of the males ten-leaved, imbricated, hirſute on the inner ſide; corolla none; that of the females five-leaved; germ hirſute. A native of Jamaica. 48. C. *erioſpermum.* Lam. 30. "Leaves oppoſite, egg-ſhaped, acuminate, quite entire; racemes compound; ſeeds involved in a reddiſh wool." *Branches* ſlender, cylindrical, ſmooth, leafy. *Leaves* green and ſmooth above, greeniſh underneath, with a fine down, chiefly on the edges. *Flowers* in axillary and terminal racemes. *Capſules* oval, dotted. *Seeds* ſeveral in each cell. Found by Commerſon in Brazil, near Rio-Janeiro. La Marck's ſpecimens were without flowers, and he very juſtly obſerves, that the polyſpermous cells of the capſule render its true genus dubious. 49. C. *caſſinoides.* Lam. 31. "Leaves oppoſite, egg-ſhaped, toothed, ſmooth on both ſides; petioles ſcabrous, channelled; ſpikes few-flowered." A ſmall ſhrub. *Branches* very ſlender, ſlightly ferruginous-tomentous near the top. *Leaves* leſſened at both ends. *Flowers* in ſhort, ferruginous, terminal ſpikes; calyx and germ with ſhort, ſtellated hairs; ſtyles three, trifid or quadrifid. Found by Commerſon in the iſland of Madagaſcar. 50. C. *flavens.* Linn. Sp Pl. 13. Mart. 20. Lam. 32. Willd. 63. (C. fruticuloſum & villoſum; Brown. Jam. 347. *n.* 3.) "Leaves heart-ſhaped, oblong, acuminate, quite entire, hoary above, tomentous underneath, with two pedicelled glands at the baſe; little branches denſely tomentous." A ſhrub, two or three feet high. Petioles ſhorter than the leaves. Spikes from the forks of the branches. A native of Jamaica. 51. C. *Richardi.* Willd. 64. "Leaves very ſlightly heart-ſhaped, oblong-lanceolate, mucronate, quite entire, ſcabrous, tomentous underneath, with two glands at the baſe." *Leaves* an inch and half or two inches long, obtuſe, with a joint. Little branches and petioles with a yellowiſh down. *Raceme* two inches long, peduncled, terminal, and from the forks of the branches. 52. C. *Aſtroites.* Mart. 24. Willd. 66. Hort. Kew. 3. p. 375.? "Leaves oblong-lanceolate, ſomewhat heart-ſhaped, ſcabrous, tomentous underneath, with two glands at the baſe; little branches more denſely tomentous" Willd. "Leaves oval, ſomewhat heart ſhaped, quite entire, ſtellate-tomentous on both ſides. Little branches more denſely-tomentous." Hort. Kew. *Leaves* two inches long and more, green above, and covered with numerous elevated dots, and ſcattered ſtellated hairs, with two pedicelled glands at the baſe, the pedicels tomentous. *Raceme* terminal, and in the forks of the branches. Willd. A native of the Weſt Indies. The laſt three ſpecies are nearly allied. 53. C. *leproſum.* Willd. 65. "Leaves cordate, lanceolate, quite entire, tomentous underneath; little branches more denſely tomentous; ſpikes axillary." *Leaves* three inches long, green above, and ſet with numerous ſtellated hairs, denſely tomentous, and white underneath. *Spikes* on long peduncles. No glands at the baſe of the leaves. A native of St. Domingo. 54. C. *mucronatum.* Willd. 32. "Leaves heart-ſhaped, roundiſh, elliptical, obtuſe, mucronate, quite entire, tomentous on both ſides." *Branches* and petioles ferruginous-tomentous. *Leaves* reſembling thoſe of meſpilus cotoneaſter, almoſt an inch long, thick. on long petioles. *Spikes* an inch, or an inch and half long, axillary, and terminal. A native of the warmer parts of America. 55. C. *althææfolium.* Mart. 29. (Ricinoides, althææ folio; Plum. Cat. 20.) "Leaves oblong-heart-ſhaped, tomentous; ſtem branched; ſpikes terminal." A ſhrub, ſix or ſeven feet high; branches covered with a yellowiſh down. *Leaves* two inches and a half long, one inch broad, on long petioles, acute, curved on both ſides, with down like that on the branches. *Flowers* in long, looſe ſpikes; males uppermoſt; corollas white, deeply five-cleft; ſtamens five, taper; females below; calyxes large, woolly. *Capſules* round. Sent to Miller from Jamaica by Dr. Houſton. 56. C. *aromaticum.* Linn. Sp. Pl. 14. Mart. 16. Willd. 55. Vahl. Symb. 2. 98. Gært. tab. 107. (C. tiliæfolium, β. Lam. Ricinoides, circeæ foliis, media; Burm. Zeyl. 202. 11.) "Leaves heart-ſhaped, ſcabrous, ſomewhat ſerrated, petioled; ſtem arboreous." Linn. "Leaves cordate egg-ſhaped, ſerrated, ſcabrous, with petioled glands underneath at the baſe, and on the edges; racemes terminal." Vahl. "Leaves oblong, ſomewhat heart-ſhaped, finely ſerrated, ſcabrous, pubeſcent underneath, with two glands at the baſe; loweſt ſerratures with pedicelled glands; raceme terminal." Willd. A middle-ſized tree. *Branches* ſpreading, ſubdivided, cylindrical, rugged, marked with interſperſed minute and larger dots, tomentous towards the end, with ſtellated hairs. *Leaves* large, ſpreading, unequally ſerrated; younger ones acuminate, ſomewhat tomentous, with ſtellated hairs, eſpecially underneath; older ones obtuſe, almoſt naked, only a little hairy on the veins, paler, dotted and rugged underneath; petioles one-third of the length of the leaf, tomentous; ſtipules briſtle-ſhaped, deciduous. *Racemes* two inches long, quite ſimple, rather erect; bracte briſtle-ſhaped at the baſe of each pedicel. *Flowers* numerous, ſcattered, villous; males uppermoſt; leaves of the calyx numerous, egg-ſhaped; ſtamens villous at the baſe. Linn. and Vahl. Calyx of the females ſhort, five-leaved, reflexed under the capſule. *Capſule* egg-ſhaped or globular, ſmooth, coriaceous, thick, brown, marked with ſix paler lines. *Seeds* ovate-oblong, convex on one ſide, angular on the other, rough on all ſides, with obſcure tubercles. Gært. A native of the iſland of Ceylon. Gærtner aſſerts that halecus littorea of Linnæus is erroneouſly quoted by Linnæus as a ſynonym. It appears to have been ſolely on account of this ſynonym that La Marck was induced to make this ſpecies a variety of his tiliæfolium, though he acknowledges that his plant does not in all reſpects correſpond with Rumphius's deſcription, and ſeems almoſt equally inclined to conſider his mauritianum as the true aromaticum of Linnæus. It is certainly very nearly allied, but we think not the ſame; we ſhall therefore keep them diſtinct, and leave it to future obſervers to determine their identity or difference. 57. C. *mauritanium.* Lam. 12. (Halecus terreſtris albus; Rumph. Amb. 3. 198. tab. 127. A.) "Leaves cordate-oblong, acute, finely ſerrated, ſlightly ſcabrous; peduncles and petioles woolly; racemes terminal." A tree; young branches woolly, whitiſh. *Leaves* for the moſt part alternate, acute, green, and almoſt ſmooth above, but a little rough, with ſmall woolly dots; ſlightly woolly and cinereous underneath. *Flowers* white, in woolly terminal racemes; males uppermoſt; calyx tomentous, one-leafed, with five diviſions; petals five, white, woolly; ſtamens from thirty to fifty, ſhort; females pedicelled; calyx and corolla as in the males; germ tomentous; ſtyles at leaſt twelve, ſhort, villous. *Capſules* tomentous. *Seeds* egg-ſhaped, ſhining, with a ſomewhat triangular umbilicus. Found by Commerſon in the Iſle of Bourbon. 58. C. *ſcabrum.* Willd. 56. "Leaves oblong-egg-ſhaped, cordate, acuminate, quite entire, ſcabrous above, hoary-pubeſcent underneath; racemes terminal." A ſhrub, eight feet high; branches cylindrical, hoary. *Leaves* three inches long and more; petioles hoary. *Racemes* an inch and half long, ſimilar to the next ſpecies, but the leaves are much larger, ſomewhat different in form, are ſcabrous above, with dots only, not with ſtellated hairs, and are pubeſcent underneath, but not tomentous. A native of dry rocky ground about Caraccas. 59. C. *humile.* Linn. Sp. Pl. 16. Mart. 17. Willd. 57. (C. ſidæfolium; Lam.? Croton fruticoſum minus; Brown. Jam. 526.) "Leaves heart-ſhaped, quite entire, ſomewhat ciliated, ſcabrous, tomentous underneath." Linn. "Leaves ſomewhat cordate-egg-ſhaped, acute, quite entire, ſcabrous above, tomentous underneath." Willd. "Leaves cordate-oval, entire, ſcabrous, hoary, tomentous underneath; racemes ſmall, terminal." Lam. A ſhrub two feet high, with a ſmooth branching ſtem; branches hoary at the end. *Leaves* alternate, rufous, clammy, ſcabrous, with warts which are terminated by minute white hairs, contiguous at the baſe; petioles ſomewhat hairy. *Flowers* in terminal, erect ſpikes; males uppermoſt, from five to ſeven, ſmaller, whitiſh; calyx with five hoary leaves (with five diviſions; Lam.); petals five, white, equal to the calyx (ſmooth and coloured without, villous at the edges and within; Lam.) filaments from twenty to twenty-four (at leaſt ſix; Lam.) anthers compreſſed, whitiſh; females below, larger, greeniſh; calyx five-leaved (tomentous, with five acute deep diviſions; Lam.) corolla none; germ three-grooved, hirſute (ſlightly tomentous; Lam.) ſtyles three, white, contiguous at the baſe, four-parted to the middle (bifid or trifid; Lam.) ſtigmas firſt white, then rufeſcent. *Capſule* ſomewhat hirſute. *Seeds* roundiſh. The ſmell of the whole herb is ſtrong and balſamic. Swartz. A native of Jamaica. La Marck's plant was from St. Domingo, and does not appear to be materially different from that of Linnæus. 60. C. *niveum.* Mart. 50. Jacq. Amer. pict. tab. 243. Lam. 10? "Leaves heart-ſhaped, acuminate, finely ſerrated; tomentous-ſhining underneath;" Jacq. "Leaves cordate-oblong, acute, entire, undulated at the edges, tomentous-ſilvery underneath." Lam. A ſhrub ten feet high, having in all its parts a pleaſant aromatic ſmell. *Leaves* green above. *Flowers* in cloſe ſpikes an inch long, coming out before the leaves; males very numerous; females few, either ſituated below, or intermingled with the males; calyx tomentous, ſomewhat ferruginous; corolla white; ſtyles three, branched, the length of the germ, reflexed, and embracing it cloſely. The male flowers are in ſuch vaſt abundance that when they fall off, they whiten all the ground. In the ſpecimen from which La Marck formed his ſpecific character, and which he believes to be the preſent plant, the leaves are either entire, or ſlightly undulated at the edges, not toothed or ſerrated. A native of the Weſt Indies. 61. C. *ſalviæfolium.* Mart. 30. Mill. (Ricinus ſalviæ folio; Pet. hort. ſic.) "Leaves heart-ſhaped, acute, tomentous; flowers in terminal and axillary ſpikes." A ſhrub near four feet high, with a ſilvery bark. *Leaves* about three quarters of an inch long, and half as broad at the baſe, tomentous on both ſides, yellowiſh-green above, ſilvery underneath. *Flowers* ſmall, white; calyxes woolly. *Capſules* roundiſh. 62. C. *nitens.* Mart. 34. Willd. 47. Swartz. prod. 100. Flor. ind. occ. 2. 1189. "Leaves ſomewhat cordate-egg-ſhaped, acuminate, entire, ſmooth, ſhining, ſilvery-ſquamous underneath; racemes axillary, erect, ſhorter than the leaves." *Leaves* covered underneath with minute ſcales, in each of which there is a pellucid point. A native of Jamaica. 63. C. *micans.* Willd. 52. Swartz. Flor. ind. occ. 2. 1185. (Ricinus dulcis populnea fronde argentea: Pluk. alm. tab. 220. fig. 5. Breyn. prod. 2.) "Leaves cordate-egg-ſhaped, attenuated, ſomewhat toothed, green and warty-ſquamous above, ſilvery ſhining underneath; racemes terminal, erect." A native of Jamaica. 64. C. *populifolium.* Lam. 7. (Ricinoides foliis populi hirſuti; Plum. Sp. 20. MSS. 4. tab. 123. Tourn. 656.) "Leaves heart-ſhaped, acuminate, ſerrated, villous-tomentous underneath; ſpike terminal." A middle-ſized tree, but little ſpreading. *Branches* cylindrical, cloathed with a ſhort down. *Leaves* alternate petioled, ſometimes a little angular, greeniſh above, whitiſh underneath. Male *flowers* uppermoſt; calyx with five diviſions; petals five, white; ſtamens numerous; females, calyx quinquefid; ſtyles three, bifid. *Seeds* ſprinkled with ſmall black dots. Found by Plumier in the iſland of St. Vincent. 65. C. *Milleri.* (C. populifolium; Mill. dict.) "Leaves heart-ſhaped, acuminate, light green above, woolly underneath; ſpikes ſhort, lateral." A ſhrub, ſeven or eight feet high, covered with an aſh-coloured bark, ſending out many irregular branches. *Leaves* near four inches long, and two broad in their wideſt part, on ſlender petioles.

Flowers whitiſh green. Sent from Jamaica to Miller by Robert Millar. 66. C. *qudriſetoſum.* Lam. 19. "Leaves ſlightly heart-ſhaped, acuminate, finely ſerrated, rough, tomentous, with four briſtles underneath at the baſe." *Branches* tomentous towards the top, with ſeparate hairs which render them ſomewhat hiſpid. *Leaves* petioled, whitiſh green above and rough, with woolly points, very woolly underneath; with four rather long briſtles at the baſe, each terminated by a truncated concave gland. *Flowers* in nearly terminal, woolly racemes, ſix inches long or more; calyx of the males tomentous, five-leaved; petals five, tomentous on the outſide; filaments more than twenty, bearded at the baſe, but not at all united. Found by Dombey in Peru. 67. C. *pungens.* Willd. 52. Jacq. ic. rar. 3. tab. 622. Collect. 4. p. 27. "Leaves deeply heart-ſhaped, very acuminate, finely ſerrated, ſcabrous above, tomentous underneath, with four glands at the baſe." Glands pedicelled, two on each ſide at the baſe of the leaf. A native of the Caraccas. It differs from the preceding in the form of the leaves, but ſeems only a variety. 68. C. *penicillatum.* Willd. 53. Ventenat choix 12. tab. 12. (C. ciliato-glanduloſum; Orteg. dec. 4. 51.) "Leaves heart-ſhaped, acuminate, quite entire, glandular-ciliated, tomentous underneath, with a pencil-ſhaped bundle of pedicelled glands at the baſe, and two others at the baſe of the petiole." A ſhrub; little branches hoary-pubeſcent. *Racemes* two inches long, axillary, near the top of the branches; filaments not united. A native of Cuba. 69. C. *macrophyllum.* Mart. 37. Willd. 54. Swartz. prod. 100. Flor. ind. occ. 2. 1196. "Leaves cordate-roundiſh, acuminate, quite entire, thick, tomentous, nerved underneath." A native of Jamaica. 70. C. *tiliæfolium.* Lam. 11. "Leaves heart-ſhaped, roundiſh, ſcabrous, ſomewhat ſerrated, petioled; racemes axillary." A ſmall tree, with a greyiſh bark. Upper part of the branches, petioles, nerves of the leaves, peduncles and calyxes whitiſh-tomentous. *Leaves* alternate, ſcarcely acute, on very ſhort petioles. Found by Commerſon in the Iſles of France and Bourbon. 71. C. *corylifolium.* Lam. 8. "Leaves heart-ſhaped, roundiſh, acuminate, ſerrated, dotted, nearly ſmooth on both ſides." Small branches, petioles, peduncles, nerves of the leaves and young leaves ſomewhat tomentous and whitiſh. *Leaves* alternate, petioled, ſometimes a little angular. *Racemes* four or five inches long, peduncled, ſolitary, lateral, near the tops of the branches. *Flowers* pedicelled. A native of the Antilles. 72. C. *moluccanum.* Linn. Sp. Pl. 15. Mart. 19. Lam. 15. Willd. 59. (Nux juglans moluccana bifida; Burm. zey. 170. Camirium; Rumph. amb. 2. 180. tab. 58. Camirium cordifolium; Gært. tab. 125. fig. 2. Ambinux ſive bancoulia; Commerſ. MSS. Herb. and fig.) Nuts of Bancoul. "Leaves heart ſhaped, angular, ſcabrous, tomentous underneath." Linn. "Leaves ſomewhat heart-ſhaped, angular, obtuſe, repand, ſcabrous, tomentous underneath." Willd. "Leaves heart-ſhaped, angular, with two glands at the anterior part of the baſe; calyxes of the male flowers two-parted." Lam. A thick low tree, branched like the common walnut tree. *Leaves* alternate or ſcattered, near the ends of the branches, large, with three or five angular lobes, ſmooth on both ſides when completely unfolded, covered with a reddiſh mealy down when young; ſometimes oblong, acute, nearly entire; petioles rather long. *Flowers* in a terminal, much branched panicle; males very numerous, on angular tomentous peduncles, without bractes; calyx tomentous; divided into two oval concave lobes, oppoſite to each other and almoſt equal; petals five, oblong, linear, almoſt twice the length of the calyx; ſtamens about ten, ſcarcely longer than the calyx; females not ſeen by La Marck. Fruit a nut, broader than long, tranverſely oval, with a ſhort point at its ſummit, containing, under a huſk ſomewhat reſembling that of a common walnut, two woody ſhells (noyaux) about the ſize of a cheſnut, rounded at the baſe, pointed at the ſummit, a little compreſſed laterally, with a cavity on the interior ſide, whitiſh, one-celled, encloſing a pleaſant taſted kernel or ſeed. A native of the Moluccas and Ceylon, and according to Commerſon, naturalized in the iſland of Bourbon. We have confined ourſelves to La Marck's deſcription as it is the fulleſt, and taken from ſpecimens recently obtained from Commerſon. Nothing can be more evident than that it cannot belong to this genus; and it is ſurpriſing that La Marck, who is generally ready enough to correct Linnæus, has paſſed it over with ſlightly obſerving that in its fruit it approaches aleurites, a new genus formed for a plant found by Forſter in the iſlands of the South Sea. Juſſieu afterwards obſerved, that it ought to be referred to that genus, which Gærtner has ſince called camirium, the original name in Rumphius, and of which he has given the following corrected generic character from the MS. notes of Dr. Solander. Male and female flowers ſeparate, on the ſame plant. *Males;* calyx one-leafed, unequally two, three or four-cleft; one ſegment larger; corolla with five petals, oblong, narrowed at the baſe, inſerted into the receptacle, longer than the calyx; ſtamens ſeveral, up to ſixteen. *Females;* calyx and corolla as in the males; nectaries; five egg-ſhaped glands within the baſe of the petals; germ ſuperior. *Drupe* dry, two-celled. *Seeds* ſolitary, nucumentaceous. The kernels of the preſent plant yield abundance of oil, which is uſed in the country for candles and other domeſtic purpoſes. 73. C. *goſſypifolium.* Mart. 48. Willd. 73. Vahl. ſymb. 2. 98. tab. 49. "Leaves heart-ſhaped, three-lobed, tomentous, with two glands underneath at the baſe." A tall tree. *Branches* cylindrical, tomentous-hoary at the top. *Leaves* cluſtered towards the ends of the branches, alternate, nine inches long or more, thinly and ſlightly toothed, tomentous on both ſides with ſtellated hairs, whiter underneath, ſoft; lobes egg-ſhaped, acute, middle one elongated; petiole one-third the length of the leaf. *Raceme* about a ſpan long, terminal, erect, tomentous. *Flowers* numerous, ſcattered, males intermixed with females; germ hirſute, hoary. A native of the iſland of Trinidad. 74. C. *capenſe.* Linn. jun. Supp. 422. Mart. 21. Willd. 68. Thunb. prod. 117. "Leaves three-lobed-haſtate, and lanceolate, quite entire. A native of the Cape of Good Hope. 75. C. *ſenegalenſe.* Lam. 33. Willd. 67. "Leaves haſtate-oblong, tomentous underneath; flowers crowded, almoſt ſeſſile; capſules ſcaly-ſhining." *Branches* ſlender, cylindrical, with a brown bark, clothed with ſcattered ſtellated hairs, white and almoſt tomentous near the top. *Leaves* generally alternate, ſcarcely an inch long, on ſhort petioles. *Flowers* near the top of the branches; ſtyles erect, tomentous on the outſide. *Capſules* globular, with three roundiſh lobes; covered with white, ſilvery, orbicular ſcales, which are dotted in the middle. Found by Adanſon in Senegal. 76. C. *trilobatum.* Willd. 72. "Leaves three or five-lobed, ſerrated, pubeſcent underneath; petioles pubeſcent." Exactly ſimilar to C. lobatum (*n.* 96.) except in its woody ſtem, and the pubeſcence of its leaves and petioles; ſtamens ten, not united.

** *Herbaceous.*

77. C. *caſtaneifolium.* Linn. Sp. Pl. 1. Mart. 3. Lam. 36. Willd. 9. (Ricinoides, caſtaneæ folio; Plum. Sp. 20. Tourn. 656. Burm. Amer. tab. 239. fig. 1. Acalypha

auſtralis; Linn.?) About three feet high. *Root* ſpindle-ſhaped, the length and thickneſs of the finger, white, fungous, fibrous. *Stem* cylindrical, appearing woody, but tender and full of pith, greeniſh, rough with ſtiff ſharp hairs; branches ſomewhat zig-zag. *Leaves* alternate, near ſix inches long, ſometimes pointed, nerved. *Spikes* axillary, on hiſpid peduncles; male flowers ſmall, uppermoſt; calyx five-cleft; petals five, white; females below; calyx hiſpid, with ſix ſegments alternately larger and ſmaller. *Fruit* hiſpid, roundiſh, tricapſular. Found by Plumier in St. Domingo. 78. C. *paluſtre.* Linn. Sp. Pl. 2. Mart. 4. Lam. 37. Willd. 11. (Ricinoides paluſtre; Mart. Cent. tab. 38.) "Leaves ovate-lanceolate, plaited, ſerrated, ſcabrous." *Root* annual. *Stem* about a foot high, ſtriated, green, procumbent or erect. *Leaves* two or three inches long, about a quarter of an inch broad, ſmooth on both ſides, ſtriated by ſeveral lateral nerves; petioles half an inch long. *Flowers* in axillary ſpikes two inches long; males four or five, uppermoſt; females three or four. *Capſules* about the ſize of a pea, rough with warts or ſoft little ſpines, ſeſſile. Raiſed by Miller from ſeeds ſent by Dr. Houſton, who diſcovered it near La Vera Cruz. Its appearance is much altered by cultivation. 79. C. *tricuſpidatum.* Lam. 34. (C. lanceolatum; Willd. 6. Cav. ic. 6. 38. tab. 557. fig. 2.) "Leaves oblong-lanceolate, finely toothed, three-nerved; petals tricuſpidate." *Stem* four or five feet high, erect, a little branched, ſlightly hiſpid with a few ſcattered ſtiffiſh hairs; branches ſtriated, filiform. *Leaves* alternate, a little hiſpid at the edges, ſmooth on the ſurface, on ſhort petioles. *Peduncles* axillary, many-flowered, ſhorter than the leaves; calyx of the male flowers with five or ſix lanceolate leaves; petals white, the length of the calyx (half the length; Cav.), with three (ſometimes four; Cav.) points or teeth at the tip; glands five, ſmall, attached to the receptacle of the calyx; filaments five, united at the baſe; females at ſome diſtance from the males; corolla none; germ roundiſh, villous; ſtigmas reflexed. Dombey Herb. and MSS. A native of Chili. 80. C. *microphyllum.* Lam. 35. Willd. 17. "Leaves oval, obtuſe, entire, ſmooth; little branches and petioles rough with hairs; flowers lateral." Scarcely a foot high, much branched, panicled, in its foliage ſomewhat reſembling phyllanthus niruri. *Branches* filiform, rough with ſmall hairs, which are frequently terminated by glands. *Leaves* ſmall, petioled, bright green. *Flowers* in very ſmall, few-flowered, lateral racemes; leaves of the calyx five, lanceolate, expanding, often reflexed; filaments from five to ſeven, united at the baſe; ſtyles ſix, ſimple. *Capſules* ſmall, globular, ſmooth when ripe, with three two-valved cells. Found by Dombey in Peru. 81. C. *glanduloſum.* Linn. Sp. Pl. 7. Mart. 7. Lam. 40. Willd. 26. Jacq. Ic. Rar. 1. tab. 194. (C. ſcordioides; Lam. 45. C. minus trichotomum; Brown. Jam. 346. C. annuum erectum; Mich. Amer. 2. 214.) "Leaves oblong, ſerrated, nearly entire at the baſe, rough with hairs underneath, with two glands at the baſe; ſtem trichotomous; ſpikes lateral." A foot high or more. *Root* annual. *Stem* ſlender, hard, villous. *Leaves* alternate, oppoſite at the diviſion of the branches, petioled. *Flowers* almoſt ſeſſile, cluſtered in very ſhort ſpikes in the forks of the branches and the axils of the upper leaves; males very ſmall, from two to five, with about eight ſtamens; females two or three, very hiſpid; calyx with five ſpatulate diviſions; germ villous, roundiſh. A native of Carolina, Jamaica, and Brazil. 82. C. *acutum.* Mart. 11. Willd. 41. "Leaves egg-ſhaped, ſerrated, acuminate, ſmooth, with two glands." *Root* annual. *Stem* angular, ſimple, ſmooth. *Leaves* alternate, unequally ſerrated, three or four inches long, two inches broad; petioles a finger's length; glands on the edge of the leaf above the baſe. *Flowers* in axillary, looſe, angular, ſmooth racemes; males uppermoſt; calyx with five, lanceolate, ſmooth, ſpreading, deep diviſions; petals white, woolly, the length of the calyx; filaments about twelve; females; corolla none; germ egg-ſhaped, villous; ſtyles five; ſtigmas ſimple, obtuſe. *Capſules* pedicelled, trigonous, obtuſe, villous. Cultivated in Japan. 83. C. *capitatum.* Willd. 30. "Leaves oblong-oval, obtuſe, rounded at the baſe, entire, tomentous on both ſides; female flowers cluſtered in a kind of head at the baſe of the ſpike." Petioles, little branches, calyxes, and capſules tomentous-woolly. *Stem* erect. A native of North America, in the country of the Illinois. 84. C. *argenteum.* Linn. Sp. Pl. 8. Mart. 8. Lam. 41. Willd. 31. "Leaves cordate-egg-ſhaped, entire or ſlightly ſerrated, tomentous underneath; ſtipules ciliated; ſpikes terminal, ſomewhat capitate, bracteate." *Root* annual. *Stem* from eight inches to a foot high, pubeſcent, whitiſh, forked or trichotomous at the ſummit. *Leaves* petioled, alternate on the ſtem, oppoſite at the ends of the branches, ſoft, greeniſh above, with ſhort ſtellated hairs which make them appear finely dotted, tomentous and almoſt ſilvery underneath. *Flowers* white, cluſtered, in ſhort terminal ſpikes; bractes three, oval, hirſute, toothed. A native of South America, about Vera Cruz. 85. C. *hirtum.* Mart. 28. Lam. 38. Willd. 27. Herit. Stirp. 17. tab. 9. "Leaves egg-ſhaped, ſerrated, with glanduliferous hairs at the baſe; ſpikes ſeſſile; ſtem hiſpid." *Root* annual. *Stem* erect, cylindrical, glandular, with ſtellated hairs on each gland, dichotomous or trichotomous at the top. *Leaves* about three inches long, two and a half broad, alternate, except the uppermoſt, ſpreading, unequally ſerrated, acute, with three principal nerves, veined, wrinkled, hiſpid on the nerves, pale green on both ſides, with a few pedicelled glands on the edge at the baſe, not on the petiole; ſtipules two, awl-ſhaped, hairy, permanent, ſurrounded at the baſe by ſeveral ſeſſile glands. *Flowers* of a duſky herbaceous colour, ſeſſile, cluſtered in ſhort ſpikes both terminal and from the forks of the branches; bracte under each flower, the length of the calyx, linear, ciliated on each ſide, with three glandular hairs; males above; calyx five-leaved; corolla five-petalled; filaments ten; females below; calyx five-leaved; corolla none. *Capſule* rugged, rough with hairs. It differs from C. paluſtre in having ſeſſile ſpikes, not axillary; and leaves three-nerved, not plaited, nor the nerves parallel: from C. glanduloſum in having pedicelled glands. A native of Guiana. 86. C. *urticifolium.* Lam. 39. Willd. 49. "Leaves egg-ſhaped, ſomewhat cordate, acute, ſerrated, petioled; ſpikes hairy, terminal; calyxes reflexed." About a foot high. *Stem* cylindrical, tubular, branched and dichotomous in its upper part, clothed with white hairs near the ſummit. *Leaves* ſomewhat reſembling thoſe of urtica dioica, the common ſtinging nettle, or of lamium album, the white dead nettle, alternate, green on both ſides, ſet with ſhort ſtellated hairs chiefly on their nerves and upper ſurface. *Female flowers* pedicelled, ſegments of the calyx five, egg-ſhaped, obtuſe, villous and whitiſh on the outſide, dull red within; germ trigonous, woolly and whitiſh; ſtyles ſix, deeply bifid, coloured. Found by Commerſon in Brazil. 87. C. *morifolium.* Willd. 10. "Leaves roundiſh-egg-ſhaped, acute, finely ſerrated, obſoletely heart-ſhaped, petioled, pubeſcent underneath; ſpikes at the top and in the forks of the branches." *Branches* dichotomous, ſmooth. Calyx of the female *flowers* villous. *Capſule* pedicelled, ſet with ſcattered ſtellated hairs. Found by Humboldt in South America. 88. C. *triquetrum.* Lam. 43. Willd. 24.

" Leaves ovate-oblong, acute, finely ſerrated, tomentous; petioles decurrent with a tomentous-woolly line." A foot or a foot and half high. *Stem* ſlender, herbaceous, but rather hard. *Leaves* three or four inches long, alternate, ſometimes almoſt oppoſite, rouuded at the baſe, with two ſmall glands near the petiole, ſoft, nearly ſmooth and finely dotted above, tomentous and reddiſh-white underneath; petioles woolly and reddiſh. *Spike* terminal, denſe, ſhort, ſeſſile, tomentous, ferruginous; flowers ſeſſile; ſtamens ten or twelve. Found by Commerſon in Brazil. 89. C. *chamædrifolium.* Lam. 44. (Tragia mercurialis β & acalypha indica β; Linn. Acalypha reptans; Willd. Mahihot minima chamædrifolia; Plum. Sp. 20 Burm. Amer. tab. 172. fig. 2. Urtica minor iners ſpicata; Sloan. Jam. Hiſt. 1. 125. tab. 82. fig. 3. Tlaelpatlis; Hern. Mex. 293.) " Leaves ſomewhat heart-ſhaped, ſerrated, ſmooth; ſpikes terminal." *Stems* ſeveral, four or five inches long, ſlender, ſhort, more or leſs erect, branched, leafy. *Leaves* alternate, petioled, bright green. *Flowers* very ſmall; males uppermoſt; calyx purple, with four diviſions; ſtamens numerous, very white; females; calyx with eight diviſions; germ roundiſh, trigonous; ſtyles three, villous. *Fruit* reddiſh, villous, tricapſular. A native of St. Domingo and Jamaica. 90. C. *ricinocarpus.* Linn. Sp. Pl. 17. Mart. 18. Lam. 46. Willd. 58. (Mercurialis androgyna; Vir. Cliſ. 98. Roy. Lugdb. 203. Ricinocarpos americana, flore albo ſpicato; Boerh. Lugdb. 1. 254.) " Leaves ſomewhat heart-ſhaped, crenate; peduncles in racemes oppoſite to the leaves." *Root* annual. *Stem* an inch high; branches alternate. *Leaves* alternate, petioled, ſmooth. *Flowers* in diſtinct cluſters, males and females intermingled; common peduncle longer than the leaves; calyx three-leaved, narrow, white. A native of Surinam. 91. C. *tinctorium.* Linn. Sp. Pl. 6. Mart. 6. Lam. 42. Willd. 20. Gært. tab. 107. (Ricinoides ex qua paratur Tourneſol Gallorum; Tourn. Inſt. 655. Niſſol. Act. 1712. p. 339. tab. 17. Heliotropium; Bauh. Pin. 253. Rai. Hiſt. 165. H. minus tricoccum; Cluſ. Hiſt. 2. 47. H. parvum Dioſcorides; Lob. Ic. 261.) " Leaves ovate-rhomboidal, repand, quite entire at the baſe, hoary on both ſides; racemes terminal; capſules ſquamous-pubeſcent, pendulous." *Root* annual. *Stem* a foot high, cylindrical, branched, ſometimes dichotomous, leafy, tomentous, whitiſh. *Leaves* near two inches long, one inch and a quarter broad, alternate, undulated, often plaited, clothed with ſhort ſtellated hairs; petioles ſlender, near four inches long. *Flowers* in ſhort ſeſſile racemes, at the extremity and in the forks of the branches; males moſt numerous, almoſt ſeſſile; calyx tomentous, five-leaved; petals five, lanceolate; ſtamens eight, monadelphous; females on rather long peduncles. *Capſule* roundiſh, three-furrowed, tricoccous, tubercled. A native of the ſouth of France, Spain, Italy, and Barbary. It is from the juice of this plant, called heliotropium or turnſole by the old botaniſts, that the colouring matter is obtained which is ſold by the druggiſts under the name of turnſole, and not from the helianthus annuus, our common garden ſun-flower, as ſome have erroneouſly ſuppoſed. See Turnsole. 92. C. *plicatum.* Mart. 43. Willd. 21. Vahl. Symb. 1. 73. (C. tinctorium; Burm. Ind. 304. tab. 62. fig. 1. β Lam.) " Leaves egg-ſhaped, obtuſe, plaited, crenate, hirſute, hoary underneath, with two glands at the baſe; racemes few-flowered, terminal." *Root* annual. *Branches* cylindrical, ſomewhat ſcabrous, hoary, hirſute on the upper part, with denſe ſtellated hairs. *Leaves* reſembling thoſe of heliotropium ſupinum, half an inch long or more, wrinkled, rounded at the tip; petiole the length of the leaf, with a purpliſh gland at its top, and two underneath at the baſe of the leaf. Infloreſcence as in the preceding ſpecies. *Capſules* violet purple, pendulous. A native of Arabia Felix and the Eaſt Indies. 93. C. *obliquum.* Mart. 44. Willd. 22. Vahl. Symb. 1. 78. (C. argenteum; Forſk. Ægyp. 75. *n.* 491?) " Leaves ovate-lanceolate, quite entire, tomentous, without glands; ſtem tomentous." Nearly akin to the preceding, but the hairs are leſs diſtinct, ſo that the whole plant appears tomentous; the leaves alſo are narrower and oblique on one ſide at the baſe. A native of Egypt. 94. C. *verbaſcifolium.* Willd. 23. (Ricinoides ex qua paratur Tourneſol Gallorum folio oblongo & villoſa; Tourn. Cor. 45.) " Leaves ovate-oblong, repand, petioled, tomentous on both ſides, ſoft; racemes terminal; capſules ſcaly-pubeſcent, pendulous." *Root* annual. *Stem* dichotomouſly branched, denſely clothed with a white cottony down. *Leaves* two or three inches long. *Flowers* on long peduncles in proportion to the length of the raceme. *Capſules* purple, covered with white ſcales. Perfectly diſtinct from C. tinctorium. A native of Greece and the Eaſt. 95. C. *japonicum.* Linn. jun. Supp. 422. Mart. 10. Willd. 69. Thunb. Jap. 270. tab. 28, 29. " Leaves rhomboid-egg-ſhaped, acuminate, either quite entire, or a little three-lobed, ſmooth, five-nerved; racemes panicled, pubeſcent." *Root* annual. *Stem* a foot high, ſimple, ſomewhat angular, tomentous near the top. *Leaves* alternate, peduncled, reticularly veined. *Racemes* ſometimes ſolitary. A native of Japan. 96. C. *lobatum.* Linn. Sp. Pl. 19. Mart. 22. Lam. 47. Willd. 71. (Ricinoides herbaceum, foliis trifidis ſ. quinquefidis; Mart. cent. tab. 46.) " Leaves unarmed-ſerrated; lower ones five-lobed, upper ones deeply three-lobed." About a foot high. *Root* annual. Upper part of the ſtem, petioles, nerves of the leaves, and peduncles, rough with rather long white hairs. *Stem* leafy, with ſhort alternate branches. *Leaves* generally alternate, ſoft, green above, hairy underneath, but only on the nerves; ſtipules awl-ſhaped. *Flowers* in lateral, ſlender, ſolitary ſpikes, a little ſhorter than the branches, males uppermoſt, ſmall; calyx five-cleft, purple; petals five, very ſmall, purple; females without a corolla; ſtyles purple, fringed at the end, permanent. *Capſule* ſmooth, the ſize of a horſe bean. Found by Houſton about Vera Cruz in South America. 97. C. *ſpinoſum.* Linn. Sp. Pl. 20. Mart. 23. Lam. 48. Willd. 74. (Ricinus maderaſpatanus; Pluk. Alm. 320. tab. 108. fig. 3.) " Leaves palmate, five-lobed and three-lobed, ſpinous-ſerrated; flowers cloſe preſſed to the ſtem, nearly ſeſſile." A native of the Eaſt Indies.

Croton *benzoe;* Linn. Mant. and Mat. Med. Willd. See Styrax *benzoin.*

Croton *eleuteria;* Willd. See Cluytia *eleuteria.*

Croton *foliis cordatis ſerratis;* Gron. See Tragia *mercurialis.*

Croton *foliis ovato-lanceolatis;* Roy. Lugdb. See Tragia *involucrata.*

Croton *haſtatum et urens;* Linn. See Tragia *cannabina.*

Croton *lobatum;* Forſk. See Jatropha *glauca.*

Croton *ſpinoſum;* Forſk. See Jatropha *ſpinoſa.*

Croton *variegatum;* Forſk. See Jatropha *variegata.*

Croton *villoſum;* Forſk. See Jatropha *glanduloſa.*

Obſ. La Marck juſtly obſerves, that the generic diſtinctions of croton, tragia, and acalypha, are purely artificial, and that they ſometimes ſeparate plants which, on a general compariſon of their natural characters, will be found cloſely allied. He adds, that he ſees no good reaſon why jatropha goſſypifolia, ſ. curcas, and ſome others are not placed among the crotons. It is evident, from the enumeration of ſpecies given above, that, as far as croton is concerned, theſe artificial diſtinctions have by no means been carefully obſerved in practice; and that the whole natural order muſt be more accurately inveſtigated, before its really diſtinct genera and their true generic differences can be determined.

Propagation and Culture.—C. tinctorium, (*n.* 91.) is the only plant of this genus which grows naturally in Europe, but being peculiar to the ſouthern part, cannot be raiſed in our climate without ſome care and attention. The ſeeds ſhould be ſown in the autumn, ſoon after they are ripe, in a ſmall pot filled with light earth, and plunged into an old tan bed in a frame. In the ſpring the pot ſhould be put into a freſh hot-bed, and when the plants are fit to remove, which will be in about a month, they ſhould be ſet ſeparately in ſmall pots, plunged into another freſh hot-bed, and ſcreened from the ſun till they have taken root. The air may then be daily admitted to them, according to the warmth of the ſeaſon, with only a ſmall allowance of water. By this treatment, and by this alone, Mr. Miller was able to procure perfect ſeeds. All the other ſpecies, being natives of warmer countries, require a greater degree of artificial heat. The ſhrubby kinds muſt always be removed into the bark-ſtove in the autumn, and muſt be kept in a good temperature through the winter, when, as their leaves are not deciduous, they make a pleaſing variety among other plants. Moſt of them may be increaſed by layers or cuttings, or both.

CROTON, or *Cotrona*, *Cotrone*, in *Ancient Geography*, a town of Italy, in the moſt eaſtern part of the Brutian territory, ſituated on a ſmall gulf north-weſt of the promontory Lacinium. The Phœnicians, who firſt travelled this coaſt, are ſaid to have been the firſt founders of the city. But Strabo, Dionyſius Halicarnaſſenſis, and others, trace it to a Greek origin; and aſcribe its foundation to Myſcellus, chief of the Achaians in the third year of the 17th Olympiad, B. C. 710. This Myſcellus, it is ſaid, being come to Delphos to conſult the oracle of Apollo, about the ſpot on which he ſhould build his city, met Archias the Corinthian there, who was arrived upon the ſame account. The god gave him a favourable audience, and after having fixed the purpoſe of each with regard to the place that would beſt ſuit their new ſettlements, he propoſed different advantages to them, and left them, among other particulars, the choice of riches or health. The offer of riches intereſted Archias, but Myſcellus preferred health; and if we may credit hiſtory, Apollo faithfully performed his promiſe to both. Archias founded Syracuſe, which ſoon became the moſt opulent city of Greece. Myſcellus laid the foundation of Croton, which acquired ſuch reputation for the long life and innate ſtrength of its inhabitants, that its name was uſed proverbially to ſignify a very healthy ſpot, the air of which was extremely pure. The people ſignalized themſelves by a great number of victories in the Grecian games; and Strabo relates, (l. vi.) that in the ſame Olympiad, ſeven Crotonians were crowned in the Olympic games, and carried off all the prizes of the ſtadium. Crotona was alſo famous for its military atchievements, and its ſchools of philoſophy. In a conteſt with the Sybarites, 100,000 Crotonians, headed by the famous champion Milo, over whoſe ſhoulders a lion's ſkin was thrown, and himſelf armed with a club, like another Hercules, gained a complete victory over 300,000 Sybarites, ſo that few eſcaped, and their city was depopulated. It was a proverb among the ancients, "that the laſt of the Crotonians was the firſt of the Greeks," and it was alſo ſaid, "that in compariſon with Crotona, other cities were little worthy of choice." In proceſs of time, however, its glory declined; and 130,000 Crotonians were defeated by the Locrians at the battle of Sagra. It never recovered itſelf from this loſs. Pyrrhus, having ravaged Crotona, and the city being too ſpacious for its inhabitants, it was reduced almoſt one-half its extent: and the river Æſarus, which traverſed it before, only waſhed its walls. The Romans having purſued Hannibal from this coaſt, reduced Crotona under their dominion: and under the conſulate of P. Cornelius Scipio and T. Sempronius Longus, in 559, it became a Roman colony.

CROTON *river*, in *Geography*, a north-eaſtern water of Hudſon's river, in North America, which riſes in the town of Fairfield in Connecticut, and running through Dutcheſs county, diſcharges itſelf into Tappaw bay. Croton bridge croſſes this river three miles from its mouth, in the high road to Albany. This bridge is 1400 feet long, ſupported by 16 ſtone pillars. Croton-falls preſent from this bridge an intereſting object; the water precipitating itſelf 60 and 70 feet perpendicularly, with high ſlate banks, in ſome places 100 feet; and the river ſpreading itſelf into three ſtreams, as it enters the Hudſon.

CROTONA, in *Ancient Geography*, a town of Italy, in the Tyrrhenian territory, according to Steph. Byz.; Ptolemy calls it *Cortona*, and places it in the interior of Etruria.

CROTONA, in *Geography*, a town of Naples, in the province of Calabria Ultra; 12 miles eaſt-ſouth-eaſt of St. Severina.

CROTONOPSIS, in *Botany*, (ſo called from its reſemblance to Croton.) Willd. 1672. Seratone; Poir. Enc. Mich. Amer. Claſs and order, *monœcia pentandria*.

Gen. Ch. *Male flowers* ſituated above the females. *Cal.* deeply five-cleft; ſegments egg-ſhaped, obtuſe, a little concave. *Cor.* Petals five, ſhorter than the calyx, and alternating with its diviſions, linear, oblong. *Stam.* Filaments five, the length of the calyx; anthers two-celled. *Females* below in the ſame ſpike. *Cal.* as in the male, but with awl-ſhaped ſegments. *Cor.* none. *Piſt.* Germ egg-ſhaped; ſtigmas three, almoſt ſeſſile, very ſhort, bifid. *Peric.* Capſule ſhort, ſmall, roundiſh-oval, one-celled, not dehiſcent. *Seed* ſolitary, almoſt globular, adhering to the upper part of the capſule; embryo reverſed, like the ſeed, encloſed in a very thick, fleſhy, oily ſubſtance.

Eſſ. Ch. *Male*, Calyx five-cleft; petals five. *Female*, Capſule with one ſeed, not dehiſcent.

Sp. C. *linearis*. Willd. 1. Poir. Michaux Amer. 2. 186. tab. 46. "Leaves linear-lanceolate." A weak herbaceous plant, covered in all its parts with white ſhining ſcales like thoſe of Hippophæ rhamnoides. *Stems* erect, ſlender, filiform, dichotomous. *Root* annual. *Leaves* about an inch long, alternate, nearly ſeſſile, diſtant, narrow, quite entire, obtuſe, or very ſlightly acute at the ſummit, green above, ſet with minute ſtellated hairs. *Flowers* in ſmall, ſimple, ſlender ſpikes at the extremity of the branches; ſome of them axillary, on very ſhort pedicels, alternate, ſmall, with a very ſhort bracte at the baſe. A native of Carolina, and the country of the Illinois. 2. C. *elliptica*. Willd. 2. "Leaves elliptical, obtuſe both at the top and the bottom." Reſembling the preceding, but the ſpines are ſhorter, and the leaves only half the length, and three times the breadth, rounded above and below. A native of Carolina.

CROTOPHAGA, in *Ornithology*, a genus of *Picæ*, having the bill compreſſed, ſemi-ovate, arched, and carinated on the back, upper mandible angular at each edge; noſtrils pervious; tongue compreſſed, and ſubulate at the tip; feet, in general, formed for climbing.

Species.

Ani. Blackiſh-violet; feet climbers. *Crotophaga ani*, Linn. *Pſittaco congener ani*, Raii. *Le Bout de Petun*, Briſſ. *L'ani des Savanes*, Buff. Razor-billed blackbird, Cateſby. Great Blackbird, Sloan. Leſſer ani, Latham.

The length of this bird is thirteen inches and a half; its colour throughout black, partially gloſſed with purple, and about the neck faintly tinged with green on the margins. The baſe of the bill is beſet with black briſtles, which turn forwards, and the eye-lids are furniſhed with long hairs reſembling eye-laſhes. The tail is ſix inches long, of a very cuneated form, and like the reſt of the ani tribe, compoſed of ten feathers; the legs are black, and have the toes placed two before and two behind. This curious ſpecies is found in Jamaica, St. Domingo, and other iſlands in the Weſt Indies, and alſo in Cayenne, and other parts of South America. Contrary to all other birds they live in ſocieties, a number of them occupying a ſingle neſt in the conſtruction of which they labour in concert, and make it ſufficiently ſpacious for the reception of the whole company. After laying their eggs they ſit on them cloſe to each other in order to hatch them, each unanimouſly endeavouring to do their beſt for the good of the community, and when the young are hatched, the old birds attend mutually to the wants of the whole flock. Thoſe birds have generally two broods in a year, and ſometimes even three. The eggs are about the ſize of thoſe of a pigeon, and of a ſea-green colour, ſpotted at the ends. The food of theſe birds conſiſts of worms, inſects, fruits, and grain, in queſt of which they are uſually ſeen in flocks of twenty or thirty together. Like the common jay, they make a chattering noiſe, and are in no eſteem as an article of food.

Major. Blackiſh-violet; feathers edged with green; quill feathers duſky-green; feet formed for climbing. *Crotophaga major*, Briſſ. *Ani des Paletuviers*, Buff. *Grand Bout de Petun*, Buff. pl. enl. Greater ani, Lath.

This ſpecies exceeds the laſt in point of ſize, being as large as the jay, and meaſuring eighteen inches in length. The bill is of a more lengthened form, and riſes higher on the top; the colour of its plumage correſponds with the other, except in having ſome of the feathers edged with green. It is affirmed that theſe two birds never aſſociate with each other, though the manners of both are very nearly the ſame. Their haunts are different, the ſmaller ani frequenting the open ſavannas, and the larger only the ſalt marſhes near the ſea-coaſts. They are of a docile diſpoſition, eaſily tamed, and may be taught to ſpeak like the parrot. The male and female are alike in the colour of their plumage.

Varia. Variegated with rufous and black; feet formed for climbing. *Crotophagus varius indicus*, Ger. Orn. Varied Ani.

Length 11 inches; bill black, and curved: head, throat, and breaſt black; larger and middle wing-coverts, and alſo the tail black, the latter long; the reſt of the body tawny-rufous; legs tawny-fuſcous.

Ambulatoria. Feet formed for walking. *Crotophaga ambulatoria*, Linn. Walking ani. Lath.

This appears to be a very ambiguous ſpecies; it is deſcribed on the authority of Linnæus, who informs us that it agrees with the two firſt mentioned ſpecies, except in the ſituation of the toes, which are placed three before, and one behind. The bird, according to Linnæus, is found in Surinam.

Crotophaga, a name given by Forſkal (Faun. Arab) to the tock of Buffon, the black-billed hornbill of Latham, and the *Buceros naſutus* of Gmelin.

CROTORF, a town of Germany, in the circle of Weſtphalia, and duchy of Berg; 11 miles eaſt-ſouth-eaſt of Homberg.

CROTOY, Le, a ſmall town of France, in the department of the Somme, not far from the mouth of that river; 15 miles north-weſt of Abbeville.

CROTTENDORF, a village of Saxony, in the circle of Leipzig, at a very little diſtance from Leipzig, which, together with *Anger* and *Reudnitz*, two other villages, goes by the general name of the *Kohl gärten*, (cabbage gardens), and conſtitutes one of the favourite walks of the inhabitants of Leipzig, and of the numerous ſtrangers who viſit that city at the time of its fairs. The fields of theſe villages are particularly devoted to horticulture, and are ſuppoſed to yield above twenty pounds ſterling an acre annually.

CROTZKA, a town of Hungary, on the ſouth ſide of the Danube, where a ſevere and deſtructive battle was fought in the year 1739, between the Imperialiſts and the Turks; it is 15 miles ſouth-eaſt of Belgrade.

CROU. See Crould.

CROUCHE, a river of England, in the county of Eſſex, which runs into the ſea; 10 miles north-eaſt of Rochford, celebrated for its oyſter-beds.

CROUCH-HILL Station, near Banbury, in Oxfordſhire. In the centre of the flat on the top of this noted hill, a ſtation was choſen in 1799 for the government trigonometrical ſurvey, and its ſituation was determined by an obſervation from Brill, diſtant 102,608 feet, bearing 39° 20′ 49″ ſouth eaſt from the parallel to the meridian of Dunmoſe, and another from Epwell diſtant 29,669 feet; whence is deduced its latitude 52° 2′ 59″.6 N., and longitude 1° 21′ 11″.6, or 5^{m} $24^{s}.7$ W. of Greenwich. This ſtation was uſed with Epwell for determining the following places, *viz.* Adderbury ſpire, Aynhoe, Bloxham, Deddington, and Farthinghoe churches.

Crouch *river*, in Eſſex, is navigable from the Thames, near its mouth at Foulneſs point, to Hull-bridge. See Canal.

CROUGH-NA-MALLEN, mountains in the northern part of the county of Mayo, Ireland.

CROULD, or Crou, La, a ſmall river of France, in the department of the Seine, which has its ſource near Tillay, and falls into the river Seine near St. Denys, ſix miles north of Paris.

CROUP, in *Medicine*, a diſeaſe of children, characteriſed by difficult breathing, with a peculiar ringing or croaking ſound of the voice in ſpeaking and coughing.

It may ſeem extraordinary, that a diſeaſe, ſo diſtinctly marked, ſhould not have been accurately deſcribed before the middle of the 18th century. Authors, indeed, had noticed a dangerous angina, in which no tumour was to be ſeen in the neck or throat; but the peculiar ſymptoms of croup were not obſerved. Dr. Home of Edinburgh was, perhaps, the firſt to give a diſtinct account of the diſeaſe, in his treatiſe on the *ſuffocatio ſtridula*, or croup, in 1765. Michaelis, however, who afterwards publiſhed a work on this ſubject, calling the diſeaſe *angina polypoſa ſive membranacea*, Argentorato, 1778, ſays, that Martin Ghiſi, an Italian phyſician, publiſhed the firſt regular hiſtory of croup, in his "Lettere Mediche," Cremona, 1749. The diſeaſe is now well known in this country, eſpecially on ſome parts of the ſea-coaſt; but the inland counties are by no means free from it.

Croup ſeldom attacks infants before they are weaned; but after being weaned, the younger they are the more they are liable to it. As children advance in age, they are leſs ſubject to its attacks, and are rarely affected with it after the age of twelve years. But Dr. Cheyne ſaw the croup in a child of three months old at the breaſt; (Eſſay I. on the Diſeaſes of Children, Edin. 1801.) and Mr. Rumſey obſerved it in a boy of thirteen, and in a girl of fourteen years of age. (Tranſactions of a Society for the Improvement of Medical and Chirurgical Knowledge, vol. ii. p. 25.) Although it often attacks ſeveral children in the ſame family, it does not appear to be contagious. Mr. Rumſey remarks, in the excellent paper juſt quoted, that only one child in the workhouſe at Cheſham had the diſeaſe, when it was epidemic in that part of Buckinghamſhire, although there were between twenty and thirty in the houſe; and ſimilar exemptions occurred in families, where no pains were taken to prevent the intercourſe between the ſick and the healthy.

The croup generally begins with a ſhort dry cough, wheezing, and other catarrhal ſymptoms, the general health not appearing to ſuffer. Soon, however, the wheezing becomes more obſervable, the cough more troubleſome, and marked by a peculiar ſhrill ſound, the reſpiration is performed with a wheezing or croaking noiſe, and at length grows very diſtreſſing and laborious. "At the beginning, or in ſlighter caſes," ſays Mr. Rumſey, "the ſound of inſpiration reſembled the paſſing of air through a piece of muſlin; afterwards it was as if the noiſe came from a brazen tube. The cough was attended with a peculiar ſhrill ſound, even at an early period of the diſeaſe, as well as the voice, where there was not a perfect hoarſeneſs. Dr. Home deſcribes it "vox inſtar cantus galli." I have heard thoſe about the ſick compare it to the noiſe which a fowl makes when caught in the hand. This peculiarity, however, is not eaſily expreſſed by words, but a knowledge of it is readily acquired by obſervation. I have known the ſound of the cough alone greatly ſhock an unfortunate parent, who had already loſt one child with the complaint."

By the end of the ſecond, or on the third day, ſometimes ſooner, ſymptoms of affection of the ſyſtem take place, as white tongue, thirſt, increaſed heat, and frequent pulſe; and the diſeaſe advances rapidly, not merely from violent general affection, but from the influence which it has upon the organs of reſpiration; the difficulty of breathing becoming now very diſtreſſing, the countenance being often fluſhed, and great inquietude and a continual inclination to change from place to place ſupervening. The child at the ſame time eagerly puts its fingers into its mouth, as if to pull away ſomething which ſticks in the paſſage.

All the ſymptoms are increaſed during the night, throughout the diſeaſe.

The cough is at firſt dry; but by the third day or ſooner, the paſſage of the air is obſtructed by viſcid matter in the trachea, ſome of which is occaſionally thrown up by coughing or retching. Occaſionally alſo, portions of a film or membrane, of a whitiſh colour, are thrown up by violent coughing or retching; and the efforts made to diſlodge it are often ſo diſtreſſing, that the child appears to be almoſt in a ſtate of ſtrangulation. This is ſucceeded by an abatement of all the ſymptoms, until a freſh quantity of the ſame ſubſtance is formed, when the diſtreſs recurs as before.

In many caſes, the difficulty of breathing and appearance of ſuffocation are increaſed by paroxyſms, ſo as to occaſion extreme anxiety and inquietude, and ſuggeſting the idea of ſpaſm. And in other caſes the diſeaſe, after continuing ſome time, appears ſuddenly alleviated; the breathing is free, cheerfulneſs, appetite, and a diſpoſition to amuſement, take place. But a change, for the worſe, comes on as ſuddenly, and death enſues; the livid and ſwelled face, and convulſive ſtruggles, giving the little patient every appearance of one actually ſtrangled.

When the internal fauces are viewed, as Dr. Cullen has obſerved, they are ſometimes without any appearance of inflammation, but frequently a redneſs and ſwelling appear. But Mr. Rumſey remarks, that moſt of the caſes which occurred in the winter were attended with inflammation and ſwelling of the tonſils, uvula, and velum pendulum palati; and frequently large films of a white ſubſtance were formed on the tonſils. The ſwallowing, however, was uſually leſs impeded than might have been expected.

It is important to obſerve, that the danger in this diſeaſe is not to be eſtimated by the general ſtate of the body; for there may be imminent danger, although hardly any ſymptoms of general diſeaſe have been noted. Thoſe who expect to meet with a conſiderable affection of the ſyſtem, will not be aware that ſo formidable a diſeaſe has begun its progreſs; ſince, for the firſt day or two, the child has only a ſlight cough and hoarſeneſs, is in good ſpirits, perhaps even running about the room, and enjoying its amuſements. The ſkin is often hot and dry, as the diſeaſe increaſes; but ſometimes it is moiſt and relaxed throughout. Several inſtances of croup, terminating fatally in twenty-four hours, are recorded: more frequently, however, the child does not die before the third or fourth day, ſometimes much later. When it terminates favourably, generally after having arrived at its height, a moiſture is poured out on the ſkin, the fever declines, and the *croupineſs*; and, laſtly, the cough gradually wears away, after an expectoration of films and matter from the wind-pipe.

The croup, as has been invariably evinced by diſſection, conſiſts in an inflammation of the internal membrane of the wind-pipe; in conſequence of which, a white pus-like matter is poured out, which ultimately is converted into a ſort of membrane, of conſiderable tenacity. This impedes reſpiration, and finally ſuffocates the patient. This membranous lining appears to ariſe a little under the larynx, and is ſometimes prolonged into the diviſion of the trachea; and generally a quantity of a white fluid, like that brought up by the cough, is ſeen gurgling up on diſſection. The attachment of the membrane is ſlight; and it is often found lying in a great meaſure looſe in the trachea. This laſt is commonly found free from any eroſion or ulceration; but it frequently ſhews the veſtiges of inflammation, and is covered with the white matter before mentioned.

As the diſeaſe is hence conſidered to be a peculiar inflammation of the trachea or wind-pipe, the uſual remedies of inflammation have been generally adopted, and, when early employed, have often proved effectual. Bleeding, both general and topical, has often given immediate relief; and, by being repeated, has entirely cured the diſeaſe. The application of bliſters to the external fauces has likewiſe been found beneficial. Vomiting, after blood-letting, ſeems to have been of frequent advantage, and ſometimes ſuddenly relieves the diſeaſe, by promoting the diſcharge of the matter exuding from the lining of the trachea, or of the membrane, if already formed. The warm bath; fomentation, and the inhalation of the vapour of hot water, have been alſo uſed with occaſional benefit.

All theſe expedients, however, too often fail of arreſting the progreſs of this fatal diſeaſe. In addition to theſe, Mr. Rumſey adminiſtered cicuta; and alſo ether, in ſmall and repeated doſes, where the heat did not forbid it, and when ſome ſpaſmodic affection appeared to accompany the other ſymptoms. But theſe were equally ineffectual. Dr. Cullen, indeed, had already obſerved, that although he ſuppoſed that a ſpaſm of the glottis is often fatal in croup, he had not found antiſpaſmodic medicines of any uſe. Children are very averſe to expectorate, and emetics afford the only means of diſlodging the matter which collects in the trachea; the relief, thus obtained, is, however, commonly temporary only. After loſing ſeveral patients, under theſe modes of treatment, Mr. Rumſey had recourſe to the uſe of calomel, in the doſe of from half a grain, to a grain or more, every four hours, accompanying it, in ſome caſes, with mercurial friction. Under this management, he ſucceeded in carrying the diſeaſe to a ſafe termination in a number of inſtances. The caſes are related at length. (loc. citat.) He concludes, however, with theſe candid and philoſophical obſervations. “More extenſive experience than I have yet had is requiſite to determine whether, in mercury, we ſhall find a certain remedy for the diſeaſe. With regard to the above caſes, it ſhould be obſerved, that ſome recovered when mercury was not adminiſtered, or in ſuch quantity as not to produce any effect; and in two patients, under the care of my brother, it was given unſucceſsfully. Moreover, the diſeaſe was leſs ſevere towards the end of the epidemic conſtitution, which was the period when we adopted this plan: ſo that, admitting that all thoſe patients, who recovered under ſuch treatment, were *cured by mercury*, it does not follow that the ſame effects would have been produced, had it been given in the early caſes; yet it ſurely merits farther trial, the ordinary mode of treatment being ſo unſucceſsful.” See Tranſ. of a Soc. for the Improvement of Med. and Chir. Knowledge, vol. ii. Cullen, Firſt Lines, § 318. Home on the Croup. Michaëlis de Angina Polypoſa.

CROUP *of a horſe*, in the *Manege*, the extremity of the reins above the hips. It ſhould be large and round, ſo that the tops of the two haunch bones be not within view of each other. It ſhould have its compaſs from the haunch bones to the very dock, or onſet, of the tail; and ſhould be divided in two by a channel, or hollow, all along to the neck. A rocking croup is when a horſe's fore-quarters go right, but his croup ſwings from ſide to ſide; when ſuch a horſe trots, one of the haunch bones will fall, and the other riſe like the beams of a balance; a ſign that he will not be very vigorous.

CROUPADE, a leap in which the horſe draws up his hinder legs, as if he meant to ſhorten and truſs them up under his belly. See BALLOTÆDE.

CROUPER, or CRUPPER. See CRUPPER.

CROUPIERE, in *Geography*, a ſmall town of France, in the department of Puy-de-Dôme, on the river Dore; 24 miles E. of Clermont.

CROUSAZ, JOHN, PETER DE, in *Biography*, a Swiſs divine, was born at Lauſanne in the year 1669. He was intended, by his father, for the military line, and was accordingly inſtructed in all thoſe branches of knowledge that are neceſſary to that profeſſion. His attachment to literature and ſcience was ſoon conſpicuous, and he was allowed to follow the bent of his inclination, under very able profeſſors at Geneva and Lauſanne. Here he ſtudied very diligently mathematics, philoſophy, and theology, and in 1682 he ſought farther improvement at Leyden, and from thence he went to the univerſity at Paris, where he became acquainted with father Mallebranche, and other eminent characters. Two years afterwards he was ordained miniſter, and appointed profeſſor. During 14 years he continued paſtor of the church of Lauſanne, and was exemplary and indefatigable in every undertaking. At this place he obtained other preferments, and in 1724 he was appointed mathematical and philoſophical profeſſor at the univerſity of Groningen, and ſhortly after was elected a foreign member of the royal academy of ſciences at Paris. He was next appointed tutor to prince Frederic of Heſſe Caſſel, an office which he filled with great reputation till the year 1732, when, on account of his excellent character, he was nominated counſellor of embaſſies to the king of Sweden, uncle to his pupil, attended with a ſuitable ſalary. In 1737 he was elected profeſſor of philoſophy and mathematics in the academy of Lauſanne, with the power of appointing a ſubſtitute, when either his health or increaſing years ſhould render ſuch aſſiſtance neceſſary. He died in the year 1748, leaving behind him a high reputation as a ſcholar and a Chriſtian. His works are very numerous, and on various branches of literature; but he is chiefly diſtinguiſhed for his treatiſes on Logic, of which the principal is entitled, “A Syſtem of Reflections that may contribute to the Illuſtration and Extenſion of Knowledge, or a new Eſſay on Logic.” This was firſt publiſhed in two vols. 8vo. and afterwards enlarged, and appeared in the duodecimo form in ſix volumes. He was an able defender of the Chriſtian religion, and engaged in the well-known controverſy with Anthony Collins. We have treatiſes likewiſe from the pen of Crouſaz on geometry, algebra, and on ſeveral branches of metaphyſics and polite literature. Moreri.

CROUTE, SOUR-CROUTE, or *Kroute*. As this preparation of cabbage has been found of ſovereign efficacy as a preſervative in long voyages from the ſea-ſcurvy, it may not be unacceptable to give a conciſe account of the proceſs for making it, according to the information communicated by an ingenious German gentleman.

The ſoundeſt and moſt ſolid cabbages are ſelected for this uſe, and cut very ſmall, commonly with an inſtrument made for this purpoſe; not unlike the plain which is uſed in this country for ſlicing cucumbers. A knife is uſed, when the preparation is made with greater nicety. The cabbage thus minced is put into a barrel in layers, hand high, and over each is ſtrewed a handful of ſalt and carraway ſeeds; in this manner it is rammed down with a rammer, ſtratum ſuper ſtratum, till the barrel be full; when a cover is put over it, and preſſed down with a heavy weight. After ſtanding ſome time in this ſtate, it begins to ferment; and it is not till the fermentation has entirely ſubſided, that the head is fitted to it, and the barrel is finally ſhut up, and preſerved for uſe. There is not a drop of vinegar employed in this preparation. The Germans write this preparation in the following manner: Sauer kraut, or ſaurer kohl, that is, in their language, ſour herb, or ſour cabbage. See BRASSICA.

CROUTILLE, in *Geography*, a town of France, in the department of the Vienne, and diſtrict of Poitiers; 1½ league S.W. of Poitiers.

CROUY, in Latin *Croziacum*, a ſmall town of France, in the department of Seine and Marne, near La Ferté Milon; 12 miles N.E. of Meaux.

CROUZILLE, a ſmall town of France, in the department of the Upper Vienne; nine miles S.E. of Limoges.

CROW, in *Agriculture*, the name of an iron bar, which is conſtructed with a claw at one end, and a ſharp tapering point at the other, by which means it is capable of being employed as a lever, as well as a tool for forming holes in the ground for the reception of ſtakes, truncheons, &c. in making hedge fences.

CROW, *Cornix*, in *Ornithology*. See CORVUS. Virgil ſays that the croaking of the crow foreboded rain:

> “Tum *cornix* plena pluviam vocat improba voce.”

And it was thought to be a bird of bad omen, when ſeen on the left hand:

> “ Sæpe ſiniſtra cava prædixit ab illice *cornix*.”

England formerly abounded with crows: and in the reign of Henry VIII. an act was paſſed for their deſtruction. The crow is a bird which is partly injurious and partly beneficial to the farmer. See Rook.

Crow, in *Mechanics*, an iron lever, furniſhed with a ſharp point at one end, and two claws at the other. It has various uſes, in heaving or purchaſing great weights.

The name *crow*, or *raven*, *corvus*, was anciently given to ſeveral machines of war, uſed in the defence of places: one invented by Diades; another by the Tyrians, mentioned by Q. Curtius; another by Cn. Ovilius. Vitruvius calls the firſt the *demoliſhing crow*, *corvus demolitor*, and alſo *deprædator*: others call it the *crane*, *grus*. Polybius deſcribes another invented by C. Duillius uſed againſt the Carthaginian fleet. They were all a kind of grappling-hooks; ſerving to drag things towards the engineer. That deſcribed by Q. Curtius was thrown out of a baliſta. See Corbeau and Corvus.

Crow-*bar*, a name often provincially applied to an iron crow or lever. See Crow.

Crow-*berry*, in *Botany*. See Empetrum *nigrum*.

Crow's-*bill*, an inſtrument uſed by ſurgeons, in their operations; eſpecially for drawing bullets and other foreign bodies out of wounds. It has its name from its figure.

Crow *creek*, in *Geography*, a creek of America, which falls into the Tenneſſee, from the north-weſt, oppoſite the Crow town, 15 miles below Nickajack town.

Crow's-*feet*, in the *Military Art*. See Caltrop.

Crows-*feet*, in a *Ship*, are ſmall ropes, or lines, ſometimes ſix, eight, or ten, reeved through the dead man's eye. They are uſed to ſuſpend the awnings; or to keep the top-ſails from fretting againſt the edges of the tops.

Crow-*foot*, in *Botany*. See Ranunculus.

Crow-*foot-Crane's-bill*, in *Agriculture*, the common name of a plant of the perennial weed kind, *(Geranium pratenſe,)* which is frequent in moiſt meadows and paſtures. It has the ſtalk or ſtem, from two to three feet in height, of a reddiſh tinge, and forked or divided into two branches. The leaves are much divided, and the flowers large, flat, and of a blue colour. It has the denomination of crane's-bill probably from the bill-like form of the ſeed veſſel.

Crow-*foot*, a name given to different plants which are met with in meadows, fields, and paſtures, by farmers, as the common pilewort *(ranunculus ficaria)*; the leſſer ſpearwort *(ranunculus flammula)*; the narrow leaved crow-foot *(ranunculus reptans)*; the round or celery-leaved crow-foot *(ranunculus ſceleratus)*; the butter-flower or butter-cups *(ranunculus acris)*; the ſmall-flowered crow-foot *(ranunculus parvi-florus)*; the gold-cup or bulbous crow-foot *(ranunculus bulboſus)*; the creeping crow-foot *(ranunculus repens)*; and the corn crow-foot *(ranunculus arvenſis)*. The firſt, according to the author of the Glouceſterſhire Report, has the roots knotty, riſing little above the ground, and bloſſoming early in the ſpring, being principally found in ſuch meadows as are rather moiſt, and eaten only by ſheep. Withering remarks that the young leaves of this ſpecies may be eaten in the vernal months with other pot-herbs. It is aſſerted that goats and ſheep eat it; while cows and horſes reject it. Alſo, that the *curculio dorſalis* is found upon it.

The ſecond ſpecies is an inhabitant of meadows of the boggy kind, and the borders of ſmall rivers. It is a plant which is extremely acrid in its quality, ſo as when applied externally to inflame and bliſter the ſkin. The water diſtilled from it produces the moſt ſpeedy vomiting, even more ſo than white vitriol, ſo as to be a proper remedy in caſes of poiſon. According to Withering, horſes eat it; while cows, ſheep, goats, and ſwine refuſe it.

The third ſort is found on the ſtony borders of ſome extenſive plats of water, and ſometimes in fields ſomewhat inclined to moiſture.

The fourth ſpecies is likewiſe found in watery ſituations. Every part of it is of a corroſive quality. It is eaten by goats; but cows, horſes, and ſheep refuſe it, according to the author of the “ Syſtematic Arrangement of Britiſh Plants.”

The fifth kind is very commonly met with in paſtures and meadow lands. It is alſo very acrid, readily producing veſications on the ſkin. Linnæus ſtates that ſheep and goats eat it; but that cows, horſes, and ſwine reject it; the two former leaving it untouched even under the moſt bare ſtate of the paſture, in the opinion of Withering.

The ſixth ſpecies is common both in meadows and corn fields, where the ſoil is of the gravelly kind. In the latter it is ſometimes very troubleſome.

The ſeventh ſort is very common in meadows and paſtures: and,

The eighth kind is found in theſe places, as well as in garden grounds where the ſituation is moiſt.

It is remarked by Mr. Pitt, in an excellent paper in the fifth volume of “ Communications to the Board of Agriculture,” that theſe two laſt, with the fifth ſort, are all common in the meadows and paſtures in every part of the iſland that he is acquainted, ſo much ſo as to give a yellow tinge to the whole ſurface in the month of June; very abundant in the hay grounds about London, and indeed every where elſe: theſe plants are ſo prevalent in our meadows and paſtures, and their good qualities have been ſo often queſtioned, that it ſeems highly proper that their effects ſhould be preciſely aſcertained.” And that theſe three different ſpecies are all occaſionally found wild with double flowers. In this ſtate we frequently ſee the *bulboſus* and *acris* cultivated in the flower garden, eſpecially the latter; but we ſhould, ſays the above writer, derive more ſatisfaction from informing the farmer how he might effectually root them out of his paſtures, than how he might cultivate them ſucceſsfully in his garden, for they propagate themſelves with great facility, and occupy a conſiderable ſpace in good meadows. He is however diſpoſed to think more favourably of theſe plants; for he has never known a practical farmer mention them as the leaſt injurious; and it is certain of the *repens*, that cattle eat the foliage greedily with other herbage, and that if they refuſe the other ſorts in bare paſtures, it is probably becauſe they have been deprived of moſt of their foliage with the adjoining herbage, and the remaining part of the plant is too acrid to be eaten alone; and indeed cattle refuſe the flowering ſtems even of graſſes, when deprived of their leaves: theſe plants may therefore, it is ſuppoſed, be conſidered as ſeaſoners and correctors, being ſuited to uſes in the animal economy ſimilar to that of ſalt, muſtard, pepper, and vinegar at our tables, to correct the flatulent or putrid qualities of the more palatable and luxuriant diſhes of the great table of nature; and though not eaten alone, are an agreeable and uſeful ſtimulant with other more ſimple food. If theſe plants have any noxious qualities, they have, he conceives, hitherto eſcaped the notice of farmers, all of whom could not be ſuppoſed, with any ſort of reaſon, devoid of proper and neceſſary attention.

Mr. Rudge, in his " Survey of the Agriculture of Glouceſterſhire," however, conſiders them, eſpecially the creeping ſort, as uſeleſs weeds, having little to recommend them to notice but their gaudy appearance. And further, that the *acris, bulboſus* and *repens*, are acrid and biting to the taſte, and therefore rejected by cattle nearly alike, though it is aſſerted that the laſt is more mild and palatable to ſome cattle ; he, however, ſuſpects that cattle eat it rather from neceſſity than choice, as from its creeping and ſpreading along the ſurface, it becomes ſo matted with the herbage that it muſt in ſome meaſure be taken up with it. It is added, that the ſtems or ſtalks of the two other ſpecies are left ſtanding when the ground is quite bare around them ; yet that, when made with the hay, their pungent quality is ſaid to be loſt, and the brightneſs of the bloſſom in the rick is a good ſign of the crop having been well harveſted.

The laſt ſpecies is a common weed in corn fields, and it has been aſſerted that in Italy, cows, horſes, and ſheep, eat it with greedineſs, though it is ſo acrid as to prove poiſonous to the latter. A dog is ſaid to have been deſtroyed by three ounces of the juice in four minutes. And it is ſuggeſted that its being almoſt ſolely confined to tillage lands, where cattle are excluded, is probably the reaſon why miſchief has not been met with from it here.

Crow-*garlick*. See Allium *vineale*.

Crow-*gold*, in *Mineralogy*, is the name in Bedfordſhire, and ſome other diſtricts bordering on the chalk ſtrata, for the hematites or radiated nodules of golden pyrites, which are found in the beds of chalk : when expoſed to the air in the face of a chalk-pit, or on the ſurface, crow-golds ſoon decompoſe and turn to an ochry dirt, which ultimately falls out and leaves a ſtained hole in the chalk. The Totternhoe or fire-ſtone beneath the chalk, is apt to contain theſe decompoſing nodules, which very much disfigure buildings where ſuch are uſed.

Crow *Head*, a cape of the county of Cork, Ireland, forming the N. weſtern extremity of Bantry bay. Long. 10° 2′ W. Greenwich. Lat. 51° 32′ N.

Crow's *Meadows*, a river of America, in the north-weſt territory, which runs north-weſtward into Illinois river, oppoſite to which are fine meadows. Its mouth is 20 yards wide, and 240 miles from the Miſſiſſippi. It is navigable between 15 and 18 miles.

Crow-*Net*, in *Rural Economy*, the name of an invention for catching and ſecuring various kinds of wild-fowl in the winter-ſeaſon, and which is capable of being made uſe of in the day-time. It is conſtructed of good ſtrong double thread or packthread of a fine kind ; the meſhes ſhould be two inches wide, the length about ten yards, and the depth three ; it muſt be verged on the ſide with good ſtrong cord, and ſtretched out very ſtiff; on long poles prepared for that purpoſe. When you come to the place where you would ſpread the net, open it, and lay it out at its full length and breadth ; then faſten the lower end of the net all along the ground, ſo as only to move it up and down ; the upper end of the net muſt ſtand extended on the long cord ; the further end being firſt ſtaked or tied to the earth by a ſtrong cord, about five yards diſtant from the net. Place this cord in an even line with the lower edge of the net. The other end muſt be at leaſt twenty-five yards diſtant, to reach into ſome natural or artificial ſhelter, by the means of which you may lie concealed from the fowl, otherwiſe no good ſucceſs can be expected. The net muſt be placed in ſuch exact order, that it may give way to play on the fowl on the leaſt pull of the cord, which muſt be done ſmartly, leſt the fowl ſhould prove too quick for you. This net may alſo be uſed for pigeons, crows, or other birds on corn fields newly ſown; as alſo on ſtubble fields, provided the ſtubble conceals the net from the birds.

In this laſt intention, it may often be found of conſiderable advantage to the farmer, in preventing the ſeed from being too much devoured by theſe voracious birds.

Crow, *ſcare*, in *Ornithology*, a ſpecies of the Larus ; which ſee.

Crow-*ſtaves*, in *Agriculture*, a name given to a part of a plough, ſignifying two upright pieces ſtanding perpendicularly, inſerted into the box of the plough, near the wheels, and each pierced with two rows of holes ; by means of which they ſupport a tranſverſe piece, called the pillow of the plough, running acroſs them, and ſerving to raiſe or ſink the beam, by being pinned higher or lower, according as the ground is to be ploughed deeper or ſhallower. See Plough.

Crow-*ſtone*, in *Mineralogy*, is the name of a fine-grained whitiſh, ſilicious ſtone, found under the third coal-ſtrata, reckoning from the mineral or mountain lime-ſtone upwards, much uſed in the neighbourhood of Swanwick, Shirland, Stretton, Wingerworth, Brampton, Dronfield, and other places in Derbyſhire, and in other diſtricts on the weſtern border of the great run of coals, for the repair of the roads. Crow-ſtone has attracted the notice of moſt Engliſh naturaliſts, from the numerous and large vegetable impreſſions which it contains, one in particular of two to four inches or more in diameter, and ſeveral feet in length, ſomething like a kind of reed, only that a pith or middle part of the plant is viſible ; but the ſame ſeldom occupies the centre of the trunk, but is ſometimes ſeen cloſe to, and even on the outſide of the ſtem, the ſurface of which is ſtudded over with ſmall holes, from the bottom of which ſmall papillæ ariſe. One of theſe curious extraneous foſſils has been figured by Mr. Parkinſon, Organic Remains, *Plate* III. *fig.* 1; who juſtly concludes (p. 436.), the ſame to belong to the *foſſilia incognita* ; and we are ſatisfied, that a further and more minute ſearch into the carboniferous ſtrata, will place all the vegetable remains that are imbedded therein, among the ſame numerous claſs of organized ſubſtances. See our articles Coal and Colliery.

Crow-*ſtones*, in *Natural Hiſtory*, is a name in ſome places of the anomia gryphus of Linnæus, and perhaps of other ſpecies of foſſil ſhells. Mr. Wallcott, in his " Petrifactions found near Bath," has figured one of theſe (*fig.* 34.), found in the quarries of free-ſtone near Bath : ſimilar ſhells, but probably of different ſpecies, occur in great numbers in other ſtrata. The Clunch clay ſtratum (ſee Clunch), produces plenty of crow-ſtones ; theſe in ſome parts are found in the gravel-pits and on ploughed lands, ſingle, and ſomewhat rounded, and theſe the ignorant and ſuperſtitious of ſome places denominate the devil's toe-nails ! Scotchmen of the ſame claſs in the Hebrides, according to Pennant (p. 232.), wear theſe ſhells about them as an amulet, for curing pains in the joints.

Crow-*Taing*, in *Geography*, a cape of Scotland, on the north-weſt of the iſland of Ronaldſhay.

CROWBOROUGH Station, in the pariſh of that name, in Suſſex, is ſituated on the ridge of very diſlocated and elevated ſtrata, mentioned under Coal, as extending from near Haſtings to near Guildford; which, notwithſtanding its preſent great elevation, is upon a ſtratum many hundred feet below that of the chalk ſtrata ; which, with thoſe of the whole diſtrict called the wealds of Suſſex and Kent, and a ſimilar part of Surrey, ſeem to owe their expoſure on their ſurface to an enormous abraſion or denudation of this diſtrict when elevated, as it muſt have been, before the removal of all the upper ſtrata in the Britiſh ſeries. See De-

NUDATION and ELEVATION of *ſtrata.* This ſtation is about 600 feet ſouth of the ſite of the old Beacon, and was occupied by the trigonometrical ſurveyors in the year 1793. Its ſituation was determined by an obſervation from Botley hill, diſtant 89,492.5 feet, and bearing 23° 3′ 39″. N.W. from the parallel to the meridian of Greenwich, and another from Leith hill, diſtant 128,332 feet; whence is deduced its latitude, 51° 3′ 9″.4 N., and its longitude, 0° 9′ 9″.5, or 36.″6 E. of Greenwich. This ſtation was uſed with Botley hill for fixing the place of Beſtbeach, Crowborough chapel, Eaſt Grinſtead, Fairdean, Goditone, Mayfield, Rotherfield, and Tatesfield; with Brightling ſtation for Dallington, Nailſham, and Homechurch; with Ditchling ſtation for Brightling church, Chittingly, Ditchling church, Firle, Newin, Little Horſtead, Plumpton, Spittal, and Waldron churches; with Fairlight ſtation for Willington, and with Leith hill ſtation for Ditchling ſtation, and for Hoathly church. From Leith hill ſtation the ground at Crowborough ſtation appeared depreſſed in an angle of 13′ 48″; at Brightling ſtation it gave an elevation of 3′ 54″; and at Crowborough ſtation, Leith hill appeared depreſſed 4′ 8″, Botley hill 3′ 5″, and Brightling windmill 12′ 21″; whence was deduced the height of the ground at this ſtation above the level of the ſea, 804 feet; the calculated mean refraction with Leith hill being $\frac{1}{13}$th of the contained arc, and with Brightling $\frac{1}{14}$th. (See Phil. Tranſ. 1795, p. 583.) The ſituation of the Old Beacon on Crowborough hill had been determined in 1788, by an obſervation from Botley hill, diſtant 88,975 feet, and another from Frant ſteeple, diſtant 30,949 feet; and its elevated and commanding view towards the coaſt of France, induced general Roy to point this out (Phil. Tranſ. 1790, p. 266.), as a proper ſpot for an Engliſh aſtronomer, with a well regulated clock and inſtruments, to be ſtationed, for making correſponding obſervations, with a French aſtronomer, ſtationed 100 miles, or more diſtant, on the Chalk hill, near Helfaut in France, on the inſtantaneous exploſions of lights to be repeatedly fired, near Folkeſtone turnpike in England, and at Montlambert or at Fienne windmill in France, for the purpoſe of determining the difference of longitude of theſe Engliſh and French obſervatories, as a check on that deduced from angular meaſurements, or the CONVERGENCY *of Meridians;* which ſee.

CROWD, in *Agriculture,* a term frequently uſed provincially to ſignify the wheeling any thing in a barrow. Thus "to crowd," implies to wheel in a barrow.

CROWD, *to,* in *Sea Language,* is to carry an extraordinary force of ſail on a ſhip, in order to accelerate her courſe on ſome important occaſion.

CROWDING-BARROW, a name ſometimes applied to a wheel-barrow.

CROWEA, in *Botany,* a genus of New Holland plants, (named in honour of James Crowe, eſq. F.L.S., of Lakenham, near Norwich, who died Jan. 26, 1807, aged 56. This gentleman was extremely well verſed in the botany of Britain, more eſpecially in the genus *Salix,* to which he had paid particular attention, having collected and cultivated all the ſpecies he could poſſibly procure. Many of his remarks have appeared in Dr. Smith's *Flora Britannica,* and *Engliſh Botany,* tending to the economical as well as botanical illuſtration of this difficult and important genus, of which about four times more Britiſh ſpecies are now known than have appeared in any preceding writer upon them. The ſpecific name of the original ſpecies, *Crowea Saligna,* alludes to Mr. Crowe's merits in this department. His botanical knowledge was applied no leſs happily to agricultural purpoſes on many occaſions, and he excelled alſo in the ſtudy of Moſſes, Lichens, and Fungi. *Sm. Tr. of Linn. Soc.* v. 4. 222. Claſs and order, *decandria monogynia.* Nat. Ord. *Rutaceæ,* Juſſ. Vent.

Gen. Ch. *Cal.* of 5 leaves, cohering by their tapering baſes round a ſtalk which elevates the reſt of the flower, according to M. Ventenat's remark. *Cor.* Petals 5, regular, equal, ovate, ſpreading, inſerted under a glandular nectary, which ſurrounds the baſe of the germen. *Stam.* Filaments 10, about half as long as the petals, awl-ſhaped, flat, fringed with denſe hairs, by which they are matted together, by their lower half, into a tube; 5 alternate ones are rather ſhorter than the reſt; anthers ſeſſile about the middle of each filament, on the inſide, oblong, of 2 cells, burſting longitudinally, and deſtitute of any creſt gland, or appendage. *Piſt.* Germen of 5 lobes, ſmooth, ſomewhat depreſſed; ſtyle central, from the baſe of the germen: ſtigma capitate. *Peric.* Capſules 5, connected by their baſe, oval, ſlightly compreſſed, coriaceous, of 2 valves, encloſing an elaſtic, cartilaginous, bivalve arillus. *Seeds* ſolitary, kidney-ſhaped, brown.

Eſſ. Ch. Calyx of 5 leaves. Petals 5, ſeſſile. Stamens flat, awl-ſhaped, connected by entangled hairs. Anthers fixed longitudinally to the inſide of each filament. Style from the baſe of the germen. Capſules 5, combined. Seeds encloſed in an arillus. M. Ventenat, who firſt detected the ſingular ſtructure and inſertion of the baſe of the calyx-leaves, wiſhes to found the generic character on that circumſtance, but the analogy of this natural order proves the anthers to afford the moſt eſſential difference. See CORRÆA, which belongs to the ſame order; alſo BORONIA, *Sm. Tracts on Nat. Hiſt. t.* 4—7.

Sp. 1. C. *ſaligna.* Willow-leaved Crowea. *Andr. Repos. t.* 79. *Vent. Jard. de la Malmaiſon, t.* 7. Leaves lanceolate, entire. Angles of the branches ſmooth. This beautiful ſhrub is about 3 feet high, branched; the branches angular, leafy, ſmooth. *Leaves* alternate, ſeſſile, lanceolate, entire, tipped with a ſmall point, ſmooth on both ſides, and marked with a longitudinal rib. *Stipulas* none. *Flowers* axillary, ſolitary, on ſhort ſimple ſmooth ſtalks, with two or three minute bracteas. Their colour is a fine pink, and the woolly tips of the ſtamens form an elegant pale tuft in the centre. A native of New South Wales, near Port Jackſon, from whence it was firſt ſent by John White, M.D. It thrives in a greenhouſe, in light peat earth, flowering in autumn, but is rather tender, and will not bear much wet. The whole plant is aromatic when bruiſed, but leſs ſtrongly ſcented than many of its natural order. It is propagated either by ſeeds or cuttings.

2. C. *anguſtifolia.* Narrow-leaved Crowea. Leaves linear, minutely toothed. Angles of the branches rough. More ſlender than the laſt, and diſtinguiſhed by the rough or denticulated angles of the branches. *Leaves* very narrow, linear, obtuſe, moſt diſtinctly toothed towards their extremity, pale-coloured beneath. *Flowers* about half the ſize of the foregoing, with the extremities of their filaments paler, and leſs woolly. *Style* hairy, about as long as the ſtamens. Found by Mr. Menzies, near King George's Sound, on the weſt coaſt of New Holland. It is as yet a ſtranger to our gardens.

It muſt be obſerved that the ſpecific characters of C. *ſaligna* to be ſeen in the writers above quoted, were made without any knowledge of this ſecond ſpecies. Such characters can by accident only have any meaning, a ſpecific difference for a ſolitary ſpecies being evidently a moſt glaring abſurdity. S.

CROWLAND, or CROYLAND, in *Geography,* an ancient town in Lincolnſhire, England, is ſituated on an iſland, in a great fen, or level, watered by the Welland, the Waſhes, the Nyne, and the Shire drain. The wet ſoil of the neighbourhood formerly rendered the town almoſt inacceſſible, and for a long time the only approach was on the N.E. ſide. Such were the difficulties and delays attending the paſſage of this dangerous road, that it produced the adage of "All the carts that come to Crowland are ſhod with ſilver." The inhabitants have ſince made a good cauſeway, a turnpike road, and numerous drains, which have converted many of their fens into corn-fields, and greatly improved the ſtate of the air. The houſes of the three ſtreets are built on piles, the water-courſes that ſeparate them are adorned on each ſide by willows, and the communication is preſerved by a moſt ſingular triangular bridge, the three ſides of which, after an aſcent too ſteep for carriages, meet, and form a curious pointed arch. Carriages, &c. paſs under this bridge, where the Nyne, Welland, and Cattwater join, and form one ſtream, flowing hence through Spalding to the ſea. This half uſeleſs ſtructure ſtands on the ſite of one mentioned in a charter granted by king Edred to the monks of Crowland, in 943; the date of the preſent bridge is not noticed by hiſtorians, but the outline is a convincing proof that the original bridge has long ſince periſhed; on the angle which communicates with the London road, is a ſtatue ſaid to be of Ethelbald king of Mercia, in a crown fleury, and with a globe in his right hand. Ethelbald is ſaid to have founded the magnificent abbey at Crowland about the year 716, in conſequence of a vow made before he aſcended the throne. It was dedicated to the Virgin Mary, St. Bartholomew, and Guthlake, his confeſſor, and endowed with the iſle of Crowland, releaſed for ever from all ſecular payments; the charter granted to the abbot and brethren on this occaſion, was exhibited to the Society of Antiquaries in 1734, by Robert Hunter, eſq. then poſſeſſor of the ſite of the monaſtery. The Danes burnt the abbey in 870, and the monks were reduced by misfortunes to five, in 941, when Turketyl, brother to Edred, and chancellor in the reign of king Edmund, reſtored them to their priſtine ſtate, and Edred rebuilt the abbey in 948. A ſecond conflagration, which occurred during the abbacy of Ingulphus, in the year 1091, deprived the monks of 700 volumes, containing the moſt valuable literature of the preceding time; after this event the monaſtery gradually recovered from its diſaſters, and flouriſhed with great ſplendour till the diſſolution, when the revenues amounted to 1083*l.* 15*s.* 10*d.* The inhabitants of Crowland paid a conſiderable ſum annually to the abbots for the right of fiſhing in their neighbourhood; but their principal profits have for a very long time originated from their ſuperior dexterity in decoying, and taking wild ducks in aſtoniſhing numbers. (See DUCK.) The ruins of the abbey are extremely intereſting at preſent; they are richly adorned with ſculpture; the foundations reſt on piles, and ſome part of the remains is fitted up as the pariſh church. Crowland has a ſmall weekly market on Saturday, and is 93 miles north of London. Howlet's Views in Lincolnſhire, 4to.

CROWLE, a town of England, in the county of Lincoln, with a weekly market on Saturday; 36 miles N. of Lincoln, and 169 N. of London.

CROWN, *Corona*, a mark of regal dignity; being an ornament worn on the head by kings and ſovereigns, as a ſymbol of their authority.

Gallet derives the word *corona*, whence *crown*, from the Latin *cornu, horn;* becauſe the ancient crowns were pointed in manner of horns; which were anciently, both by Jews and Gentiles, eſteemed as marks of power, ſtrength, authority, and empire. Hence, in the holy ſcripture, horns are uſed for the regal dignity; and accordingly *horn* and *crown*, in the Hebrew, are expreſſed by the ſame word.

In the remoteſt antiquity, the crown was only given to gods. Pliny ſays, that Bacchus was the firſt who uſed it. Pherecydes, cited by Tertullian, De Corona, ſays Saturn. Diodorus aſcribes it to Jupiter after his victory over the Titans. Q. Fabius Pictor attributes the invention to Janus, adding, that it was an ornament he uſed in ſacrificing. Leo the Egyptian ſays, it was Iſis who firſt wore a crown; and that it conſiſted of ears of corn, the uſe whereof ſhe firſt taught men.

In this moſt authors agree, that the crown originally was rather a religious than a civil ornament; rather one of the pontificalia, than the regalia; that it only became common to kings, as the ancient kings were prieſts as well as princes; and that the modern princes are entitled to it, in their eccleſiaſtical capacity rather than their temporal. See KING, &c.

The firſt crowns were no more than a bandelet, or head-band, drawn round the head, and tied behind, as we ſtill ſee it repreſented on medals, around the heads of Jupiter, the Ptolemies, and the kings of Syria.

Afterwards they conſiſted of two bandelets; by degrees they took branches of trees of divers kinds; at length they added flowers; inſomuch that Tertullian, De Corona, aſſures us, (from Claudius Saturninus, who had written expreſsly on the ſubject,) there was not any plant whereof crowns had not been made.

The woods and groves were ſearched, to find different crowns for the ſeveral deities; thus on medals, we find Jupiter's crown of flowers, more frequently of laurel; Juno's of the vine; that of Bacchus, the vine with grapes, vine-leaves, and branches of ivy, with flowers and berries: thoſe of Caſtor, Pollux, and the river-gods, of bulruſhes; that of Apollo, ſometimes of laurel, ſometimes of ruſhes; that of Saturn, new figs; that of Hercules, poplar; that of Pan, pine or alder; that of Lucina, dittany; that of Horæ, the fruits proper to each ſeaſon; that of the Graces, olive-branches, as well as that of Minerva; that of Venus, roſes; of Ceres, ears of corn, as well as that of Iſis; that of the Lares, myrtle or roſemary, &c.

Crowns were not only uſed on the ſtatues and images of the gods, by the prieſts in ſacrificing, and by kings and emperors, but alſo on altars, temples, doors of houſes, ſacred veſſels, victims, ſhips, &c.

The *agonothetæ* crowned thoſe who were victors in the ſolemn games, warriors, &c.

Among the Romans there were various kinds of crowns, diſtributed as rewards of military atchievements. The *oval* crown was the firſt, made of myrtle, and was beſtowed on generals who had been victorious over ſlaves, or enemies unworthy of the Roman valour, and who were entitled to the honours of the leſſer triumph, called *ovation*.

The ſecond was the *naval* or *roſtral* crown, conſiſting of a circle of gold richly chaſed: having on the edge four maſts of ſhips, and as many heads of ſhips placed alternately; given to the captain who firſt grappled, or the ſoldier who firſt jumped aboard an enemy's ſhip.

> "—— Cui belli inſigne ſuperbum
> Tempora navali fulgent roſtrata corona."
> Virg. Æn. viii. v. 684.

Lipſius ſuppoſes the *navalis* and *roſtrata* to have been two diſtinct ſpecies of crowns; but it is generally believed that they were the ſame kind of crown.

The third, called *vallaris*, or *caſtrenſis*, was alſo a circle of gold, raiſed with pointed piles or paliſades; given to him who firſt leaped into the enemy's camp, or forced the paliſades or entrenchments.

The fourth, called *mural* crown, was a circle of gold, indented or embattled, thus bearing ſome alluſion to the figure of a wall; given to him who firſt mounted the wall of a place beſieged, and there lodged a ſtandard; this crown we alſo find given, on medals, to the particular genii and guardians of provinces and places.

The fifth, the *civic* crown, made of a branch of green oak; given to him who had ſaved the life of a citizen in a battle or aſſault. This was conferred on Cicero for detecting Cataline's conſpiracy, and afterwards on Auguſtus Cæſar himſelf.

This was reckoned more honourable than any other crown, though compoſed of no better materials than oaken boughs. Virgil (Æn. vi. v. 772.) calls it "*civilis quercus*:"

> "Atque umbrata gerunt civili tempora quercu."

Plutarch (in Coriolan.) ſuggeſts the reaſon why the branches of this tree ſhould be made uſe of in preference to all others. For the oaken wreath, ſays he, being otherwiſe ſacred to Jupiter, the great guardian of their city, the Romans might, therefore, think it the moſt proper ornament for him who had preſerved a citizen. Beſides, the oak may very well claim the preference in this caſe, becauſe, in the primitive times, that tree alone was thought almoſt ſufficient for the preſervation of a man's life; its acorns were the principal diet of mankind in the more early ages, and the honey, which was commonly found there, preſented them with a very pleaſant liquor. It was a particular honour conferred on the perſons who had merited this crown, that, when they came to any of the public ſhews, the whole company, as well ſenate as people, ſhould ſignify their reſpect, by riſing up when they ſaw them enter; and that on theſe occaſions they ſhould take their ſeats among the ſenators, being alſo excuſed from all troubleſome duties and ſervices, in their own perſons, and procuring the ſame immunity for their father, and grandfather by his ſide. (Plin. l. xvi. c. 4.)

The ſixth was the *triumphal* crown, made of branches of laurel, or bay-tree, given to a general who had gained a battle, or conquered a province, and who was worthy of the honour of a triumph. This was afterwards made of gold; and not reſtrained only to thoſe who actually triumphed, but preſented on ſeveral other accounts, as commonly by the foreign ſtates and princes to their patrons and benefactors.

The ſeventh, the *corona obſidionalis*, or graminea, made of graſs or herbs found on the ground in the place beſieged; given by common conſent of the ſoldiers to generals who had delivered a Roman army beſieged by the enemy, and obliged him to decamp. Beſides theſe, we meet with the *coronæ aureæ*, often beſtowed on ſoldiers without any other additional term. Dion Caſſius mentions a particular ſort of coronet made with olive-boughs, and beſtowed, like the reſt, in conſideration of ſome ſignal act of valour. Lipſius is of opinion that theſe ſucceeded the golden crowns when the latter were laid aſide.

The eighth was alſo a crown of laurel, given by the Greeks to their athletæ; and by the Romans to thoſe who had negociated, or confirmed a peace with an enemy; this was the leaſt eſteemed. Beſides theſe, in antiquity, we meet with *radial* crowns, given to princes at their tranſlation among the gods, whether before or after their death. Caſaubon ſays, this ſort of crown was peculiar to deities; yet it is certain Nero took it in his lifetime.

Athletic crowns were deſtined to crown victors at the public games.

Of theſe the *Olympic chaplet*, or *crown*, compoſed of the branches of a wild olive, and conferred on the conquerors in the Olympic games, merits particular notice. In order to enhance the value of theſe olive chaplets, and to render them in ſome degree worthy of theſe games, which by way of eminence were ſtyled *holy*, the Eleans pretended that the tree, from which they were always taken, was originally brought to Olympia by Hercules, from the country of the Hyperboreans; a people, whoſe ſituation no geographer, ancient or modern, has yet been able to determine. Pindar aſcribes the honour of this exploit to Hercules, the ſon of Alcmena, though others, as Pauſanias informs us, gave it to the Idæan Hercules, who was earlier by ſome generations. The Eleans farther pretended that this particular tree was ſelected and indicated to them, among many others of the ſame kind, by the Delphic oracle. For this purpoſe, as the fact is related in a fragment of Phlegon, they ſent Iphitus, their king, after he had reſtored theſe games (for during the firſt five Olympiads, as this writer ſays, no one was crowned) to Delphi, to whom the god gave this anſwer, as we have it in Weſt's Diſſertation:

> "To the ſwift victor be no more aſſign'd
> The bleating offspring of the fleecy kind.
> But from the olive, which ſpontaneous grows
> In Piſa's vale, a verdant crown compoſe;
> That olive, round whoſe venerable head
> Her ſubtle textures hath Arachne ſpread."

Iphitus, upon his return to Olympia, having diſcovered, among the many wild olives that grew in the ſacred grove, one which was covered with cob-webs, encloſed it with a wall; and from this tree was a chaplet or crown taken, and given to the conquerors. The firſt who was crowned was Daicles of Meſſene, who, in the ſeventh Olympiad, gained the victory in the ſtadium, or ſimple foot-race.

From this account we alſo learn, that the prize originally beſtowed upon the Olympic conquerors was a lamb. Some have ſuggeſted, but erroneouſly, in Mr. Weſt's opinion, that in ſome periods of theſe games, the crowns given to the victors were of gold. The Eleans, it is conjectured, ſubſtituted the cheaper one of an olive crown; and in order to ſanction this change, and to give a luſtre to their olive chaplet, they had recourſe to fables, and to the authority of a Delphic oracle. With the ſame view they not only encompaſſed this ſacred olive with a wall, and diſtinguiſhed it by the name of "Calliſtephanos," *i. e.* the tree of the crowns of glory; but put it alſo under the protection of certain nymphs or inferior deities, whom from their office they called "Calliſtephani," and to whom they erected an altar near that conſecrated plant. Theſe crowns, for the purpoſe of exciting the emulation of competitors, were placed in their view, upon a tripod, or table, which, during the games, was placed in the middle of the ſtadium, or of the hippodrome, as the reſpective exerciſes required. In the interval of the games, they were kept, the former in the temple of Jupiter, the latter in the temple of Juno, at Olympia. The tripod was of braſs, and ſeems to have been entirely laid aſide after the table was made, which was compoſed of gold and ivory, the workmanſhip of Colotes of Paros, a diſciple of Paſiteles. Branches of palm were exhibited on the ſame table, and conferred on the victors, with the crowns; theſe palm branches they carried in their hands, as emblems, ſays Plutarch, of the unſuppreſſive vigour of their minds and bodies, manifeſted in gaining the victory over their antagoniſts. The conquerors were ſummoned by proclamation to receive theſe tokens of victory: and accordingly they marched in order to the tribunal of the Hellanodics, where a herald, taking the crown of olive from the table, placed one upon the head of each of the conquerors; and giving into their hands branches of palm, led them in that equipage along the ſtadium, preceded by trumpets, proclaiming at the ſame time with a loud voice, their names, the name of their fathers, and their countries;

tries; and ſpecifying the particular exerciſe in which each of them had gained the victory. Mr. Weſt conjectures, that although the Olympic crowns were all compoſed of the branches of the ſacred olive, they were diſtinguiſhed from each other, either by the difference of their form, or the addition of ſome emblematic ornament peculiar to the ſeveral exerciſes. The racer's crown was different from the wreſtler's, and ſo of all the reſt. This conjecture, he conceives, is countenanced by a paſſage of Plutarch (De Tranquil. Animi), who ſeems to diſtinguiſh between theſe two laſt-mentioned crowns. This ingenious writer further ſuggeſts, that, beſides the chaplet peculiar to the games, the conquerors in general received another compoſed of wings or plumes. That different degrees of merit were rewarded with different degrees of honour, and conſequently with different crowns, Mr. Weſt infers from the words of St. Baſil (Ap. Fab. Agon. l. iii. c. 1.); "No preſident of the game," ſays he, "is ſo devoid of judgment, as to think a man, who, for want of an adverſary, hath not contended, deſerves the ſame crown (ἰσων ϛεφανων) as one, who hath contended and overcome." Although he received a crown, yet it was different from that which he would have received if he had contended and vanquiſhed. Before the victors at the Olympic games were put in poſſeſſion of their crowns, they were ſaluted by the acclamations and applauſes of the numerous aſſembly; by the warm congratulations of their friends, and even the faint and extorted greetings of their maligners and oppoſers. As they paſſed along the ſtadium, after having received their crowns from the Hellanodics, they were again ſaluted with the acclamations of the ſpectators, accompanied with a ſhower of herbs and flowers, poured on them from every ſide. It was alſo cuſtomary for the friends of the conquerors to expreſs their particular reſpect to them, by accoſting them and preſenting them with chaplets of herbs, &c. binding their heads with fillets, ribbons, &c. Weſt's Diſſertation on the Olympic Games. See OLYMPIC *Games*.

The cuſtom of *crowning* perſons who had diſtinguiſhed themſelves in poetry and muſic, which was almoſt as ancient as the arts themſelves, ſubſiſted till the reign of Theodoſius, when the CAPITOLINE *games*, being regarded as remnants of Pagan ſuperſtition, were utterly aboliſhed. About the time of Petrarch, however, poetry recovered its ancient luſtre and importance, or was inveſted with its former prerogatives. In the year 1340, Petrarch had the honour of receiving on the ſame day two letters, one from the ſenate of Rome and another from the univerſity of Paris, inviting him to accept the laurel crown; and in the following year he was magnificently crowned at Rome. "The crown," ſaid the ſenator who placed it on his head, "is the meed of virtue." Being conducted in great pomp, after the ceremony, to the church of St. Peter, he returned thanks to God for the honour that had been beſtowed upon him, and then laid down his crown, that it might be placed among the offerings that were ſuſpended to the roof of the temple. See PETRARCH and LAUREAT.

From ſome paſſages in Euſebius Cæſarienſis, ſome authors conclude, that biſhops had likewiſe anciently their crowns.

The Roman emperors had four kinds of crowns, ſtill ſeen on medals, *viz.* a crown of laurel, a radiating crown, a crown adorned with pearls and precious ſtones, and the fourth a kind of bonnet, or cap, ſomething like the mortier.

The firſt was ordinarily that uſed from the time of Julius Cæſar: the right of bearing it was granted him by the ſenate; ſome ſay on account of his baldneſs; and afterwards continued to his ſucceſſors. Juſtinian was the firſt who took that of the bonnet-kind.

The *papal crown* is compoſed of a cap or tiara, encloſed by three marquiſes coronets, having two pendants, like the biſhops' mitres; and on its top a mound of gold; theſe three crowns repreſent the pretended triple capacity of the pope, *viz.* as high-prieſt, ſupreme judge, and ſole legiſlator of the Chriſtians.

Royal crowns were anciently open, but are now more or leſs cloſed at their tops with arches, and are called "imperial crowns."

The *imperial crown* is a bonnet or tiara, voided at the top like a creſcent, with a circle of gold, adorned with precious ſtones and pearls, heightened with fleurs-de-lis, ſupporting a globe, with a croſs at the top.

The *Engliſh crown* is adorned with four croſſes, in the manner of thoſe of Malta; between which are fleurs-de-lis. It is covered with four diadems, which meet at a little globe ſupporting a croſs.

According to Selden, the kings of the Saxon race in England had a crown, like that of other nations, which at that time was only a plain fillet of gold; but king Egbert firſt fixed on the circle or fillet, with points or rays, reſembling the crown worn by the emperors of the Eaſt; and king Edward, ſurnamed Ironſide, topped the points with pearl. William the Conqueror is ſaid to have had his circle flowery; but Sandford ſays, the coronet had on the circle points and leaves, the points being much higher than the leaves, and each of them topped with three pearls, and the cap or tiara topped with a croſs patteé, as appears on the ſeal of that monarch. The crown worn by his ſon, William Rufus, was only enriched with points, pearled at their tops, and not accompanied with flowers. The crown of Henry I. is adorned with fleurs-de-lis only, a little raiſed, as is ſeen on his great ſeal and coin. Maud, queen of England, had her crown enriched with leaves and points, the leaves or flowers being higher than the points; and their ſucceſſors to king Edward III. had their crowns variouſly enriched with points and fleurs-de-lis placed alternately, ſometimes the one higher than the other. King Edward III. enriched his crowns with fleurs-de-lis and croſſes patteé. Edward IV. had a cloſe or arched crown, heightened with fleurs-de-lis and croſſes patteé, and arched with four bars. Edward V. and Richard III. bore the ſame as king Edward IV. Henry VII. and VIII. had their crowns compoſed of fleurs-de-lis and croſſes patteé, with two arches, embelliſhed with pearls, &c.; and this form has been ſince continued. The *crown of England*, with which the kings of England are crowned, is called "St. Edward's Crown," made in imitation of the ancient crown ſaid to be worn by that monarch, kept in the abbey church of Weſtminſter till the beginning of the civil wars in England, when, with the reſt of the regalia, it was ſtolen and ſold in 1642. This very rich imperial crown of gold was made againſt the coronation of Charles II., and is embelliſhed with pearls and precious ſtones, as diamonds, rubies, emeralds, and ſapphires, and has a mound of gold on the top, enriched with a fillet of gold, embelliſhed alſo with precious ſtones. Upon the mound is a croſs of gold, embelliſhed with precious ſtones, and three very large oval pearls, one fixed on the top, and two others pendant at the ends of the croſs. It is compoſed, as all the imperial crowns of England are, of four croſſes patteé, and as many fleurs-de-lis of gold, placed on a rim or circlet of gold, all embelliſhed with precious ſtones. From theſe croſſes ariſe four circular bars or arches, which meet at the top in form of a croſs; having at their interſection

tion a pedeſtal, on which is fixed the mound already mentioned. The cap within this crown is of purple velvet, lined with white taffeta, and turned up with ermine. This continues invariably the ſame for the purpoſe of coronation; but the jewels and precious ſtones are taken out of the crown of ſtate, fixed in collets, and pinned into this crown; and when the coronation is over, they are taken out, and in their room are ſubſtituted mock ſtones to repreſent the real ones. The *crown of ſtate*, ſo called becauſe it is worn by the king whenever he comes in ſtate to the parliament, was made inſtead of another, which was ſold and deſtroyed in 1642, againſt the coronation of king Charles II., and worn only by that king in his return from the abbey to Weſtminſter-hall. Since that time there is a very rich crown, embelliſhed with diamonds, made for every ſucceeding king or ſovereign queen, to wear for that day only at the coronation dinner in Weſtminſter-hall. This is very rich, being embelliſhed with ſeveral large diamonds, and a great quantity of pearl; but it is moſt diſtinguiſhed by a very large ruby, ſet in the middle of one of the four croſſes, and eſtimated at the value of 10,000*l.*, and alſo by the mound's being one entire ſtone of a ſea-water green colour, known by the name of an "agmarine." The cap is of purple velvet, lined and turned up like the former. The *queen's circlet of gold*, worn by her majeſty in proceeding to her coronation, is richly adorned with large diamonds, with a ſtring of pearl round its upper edge. The cap is purple velvet, lined with white taffeta, and turned up with ermine richly powdered.

The *queen's crown*, with which every queen conſort is crowned, was made for Catharine, queen of king Charles II., and originally called "St. Egitha's crown," in commemoration of Egitha, queen conſort of king Edward the Confeſſor. It is a rich imperial crown of gold, ſet with very valuable diamonds, intermixed with other precious ſtones and pearls. It is compoſed of croſſes and fleurs-de-lis, with bars or arches, and a mound and croſs on the top of the arches, like the crown of St. Edward, only ſmaller and lighter. The cap is of purple velvet, lined with rich white taffeta, and turned up with ermine, or meniver pure, richly powdered. The crown of St. Edward is ſolely appropriated to the coronation of a ſovereign queen; being never uſed for crowning a queen-conſort.

The *imperial crown* of Scotland was, at the time of the union between England and Scotland, depoſited in the crown-room within the caſtle of Edinburgh, A. D. 1707. 6 Anne.

The *French crown* was a circle of gold, enamelled, of eight fleurs-de-lis, encompaſſed with eight arched diadems: bearing a-top a double fleur-de-lis, which is the creſt of France.

The *Spaniſh crown* was a circle of gold, adorned with jewels and precious ſtones, and ornamented with eight leaves, but not cloſed with arches until the marriage of Philip II. of Spain with queen Mary of England: ſince that time it hath continued arched, with this difference, that it hath two more arches than the crown of England. Thoſe of Bohemia, Poland, Denmark, and Sweden, are of the ſame form, ornamented with eight leaves, and cloſed like that of Spain.

The crowns of moſt other kings are circles of gold, adorned with precious ſtones, and heightened up with large trefoils, and cloſed by four, ſix, or eight diadems, ſupporting a mound, ſurmounted with a croſs. The crowns of France, Spain, and other foreign kingdoms, have no caps within them; neither have they any ermine, like the crowns of England. The *crown* of the grand duke of Tuſcany ſtill remains open, and differs in its form from all others. It was placed on the head of Coſmus de Medicis by pope Pius V., when he honoured him with the title of grand duke of Tuſcany in 1570.

The *crown* of Hungary is the ſame with that of France, Spain, &c.; but over it is another crown, compoſed of 16 plates of gold, from which ariſe two arches, having in their centre a croſs, the ends of which are ornamented with large pearls: the plates are enamelled with buſts of Jeſus Chriſt and his apoſtles, as is alſo the flat part of the arches, and enriched with pearls, jewels, and precious ſtones. A fabulous tradition ſays, that this crown dropped from heaven, for the crowning of Stephen the firſt king of Hungary, in the year 1000.

The great Turk bears over his arms a turband, enriched with pearls and diamonds, under two coronets, the firſt of which is made of pyramidal points, heightened up with large pearls, and the uppermoſt is ſurrounded with creſcents.

The *electoral crown*, or *coronet*, or *crown* of *Charlemagne*, is a ſcarlet cap, turned up with ermine, and cloſed with a ſemi-circle of gold, all covered with pearls. On the top of it there is a globe with a croſs thereon. It is borne by his majeſty the king of England, on an eſcutcheon, in the fourth quarter of the royal atchievement, as arch-treaſurer of the ſacred Roman empire.

CROWNS, or *Coronets, of Britiſh princes of the blood royal.* 1. The *crown* of the prince of Wales is a circle of gold, ſet round with four croſſes-patteé, and as many fleurs-de-lis alternately; from the two centre croſſes-patteé is an arch, adorned with pearls; in the middle of which is a ball and croſs; and within the coronet is a crimſon cap, lined with white ſarſenet, and turned up with ermine. Beſides this, the prince of Wales has another diſtinguiſhing mark of honour, *viz.* a plume of three oſtrich feathers, with an ancient coronet of a prince of Wales, with this motto, *Ich dien*, i. e. *I ſerve.* This device was at firſt taken by Edward prince of Wales, commonly called the Black Prince, after the battle of Creſſy, A. D. 1346, where, having killed John king of Bohemia, he took from his head ſuch a plume, and put it on his own. 2. The *coronet* of the princes of the blood royal is compoſed of a circle of gold, richly chaſed; on the rim or edge two croſſes patteé, two ſtrawberry leaves, and four fleurs-de-lis: within the coronet is a crimſon velvet cap, lined with ſarſenet, and turned up with ermine: on the top of the cap, a rich taſſel of gold and ſpangles.

CROWNS, or *Coronets, of the Britiſh nobility.* 1. That of a duke is a circle of gold richly chaſed; having on the edge eight ſtrawberry leaves of equal height: a crimſon velvet cap topped by a taſſel of gold, and turned up with ermine of one row. 2. That of a marquis is a circle of gold, ſet round with four ſtrawberry-leaves, and as many pearls, on pyramidal points of equal height, alternately: the cap, &c. as before. 3. An earl's has eight pyramidal points, with as many large pearls on the tops of them, placed alternately, with as many ſtrawberry-leaves, lower than the pearls: the cap and taſſel as before. Coronets were firſt aſſigned to earls in the reign of Henry III. 4. The viſcount has only pearls, without any limited number, placed on the circle itſelf, all round: cap, &c. as before. Coronets were firſt aſſigned to viſcounts in the reign of king James I. 5. A baron has only ſix pearls, ſet at equal diſtance, on the golden border of ermine; not raiſed, to diſtinguiſh him from the earl; and limited, to ſhew that he is inferior to the viſcount.

The barons originally wore only a crimſon cap turned up with white fur; but by a grant, dated Auguſt 7, in the 13th year of Charles II., they obtained the privilege of wearing coronets according to their reſpective dignities: and in 1665, king Charles II. granted his royal warrants to the officers of arms in Scotland and Ireland, for the peers of each of theſe kingdoms to wear the ſame faſhioned coronets with thoſe of England, according to their ſeveral degrees. Theſe coronets conſiſt of a circlet of gold, with ſix pearls only on the rim, a cap, taſſel, &c. No peer or peereſs, under the dignity of princes and princeſſes of the blood royal, ought to have the circle or rim of their coronet enriched with either precious ſtones or jewels, or embelliſhed with any pearls, except thoſe mentioned to encompaſs the coronet of the baron, viſcount, earl, and marquis; but this rule is now ſo little regarded by herald painters, that the coronets on the carriages of many of the peers and peereſſes are repreſented as having their arms ſtudded, and ornamented with pearls, precious ſtones, &c. The balls on the Engliſh coronets are commonly called pearls; but they are always made of ſilver.

The eldeſt ſons of peers, above the degree of a baron, uſe the coronet appertaining to the father's ſecond title; and none of the younger ſons uſe coronets.

The *coronet* of the kings of arms is a plain circle of gold, bearing ſixteen leaves, eight of which are higher than the others; on the bands are engraved the following words, "Miſerere mei Deus."

The arms of the archbiſhopric of Canterbury are borne by the preſent archbiſhop, as they have likewiſe been borne by ſome of his predeceſſors, timbered with a *mitre affronté*, encircled by a *ducal coronet*, and with two labels or pendants fixed to it, hanging waved and folded on each ſide of the ſhield. As for the coronets belonging to the late titled dignities of France, it is now needleſs to recount them. See the *Plates* of crowns and coronets under the title *Heraldry*.

Ch. Paſchal has wrote expreſsly de Coronis. Baudelot, in his Hiſtory of Ptolemy Auletes, has a number of curious obſervations on the ſame ſubject, that had eſcaped Paſchal. Du-Cange gives us a curious diſſertation on crowns; and Schmeizell, a German, a treatiſe of royal crowns, both ancient and modern.

Crown, in *Architecture*, denotes the uppermoſt member of the corniche; called alſo *corona* and *larmier*.

Crown, in *Aſtronomy*, is a name given to two conſtellations; the one called *ſeptentrionalis*, and the other *meridionalis*. See Corona.

Crown *of an Arch*, among *Bricklayers*, ſignifies the top or part denominated the key-ſtones among ſtone-maſons. See Haunch and Spandril.

Crown, in *Commerce*, is a general name for coins both foreign and domeſtic, of or near the value of five ſhillings ſterling.

In its limited ſenſe, crown is only applicable to that popular Engliſh coin which bears the name, and which is equivalent to five ſhillings, or ſixty Engliſh pence; or to ſix livres French money. According to the ſtatute, theſe conſiſt of 111 parts of ſilver and 9 of copper in 120, or $\frac{111}{120}$ the fine, as the aſſayers term it: the weight is $\frac{1}{12.4}$ of a pound troy = 464.5161 Engliſh grains = .066359 *lb.* avoirdupoiſe. But, in its extenſive ſenſe, it takes in ſeveral other coins; as the French ecu, which we call the French crown, ſtruck in 1641 for ſixty ſols, or three livres; alſo the patagon, dollar, ducatoon, rix-dollar, and piaſtre, or piece of eight.

Crown, in an *Eccleſiaſtical Senſe*, is uſed for the clerical tonſure; which is the mark or character of the Romiſh eccleſiaſtics.

This is a little circle of hair, ſhaved off from the crown of the head; more or leſs broad, according to the quality of the orders received. That of a mere clerk is the ſmalleſt; that of prieſts and monks the largeſt.

The *clerical crown* was anciently a round liſt of hair, ſhaved off around the head, repreſenting a real crown: this is eaſily obſervable in ſeveral ancient ſtatues, &c. The religious of St. Dominic and St. Francis ſtill retain it.

Crown *of the Virgin*. See Rosary.

Crown, in *Geometry*, a plane ring included between two parallel or concentric peripheries, of unequal circles; generated by the motion of ſome part of a right line round a centre, the moving part not being contiguous to the centre.

The area of this is had, by multiplying its breadth by the length of a middle periphery, which is a mean proportional between the two peripheries that bound it.

Let D be the middle point of the breadth A B (*Plate* II. *Analyſis*, *fig.* 23.); let $CB = a$, and $CA = r$. Let the circumference of the outer circle be c, and its area will be $\frac{ca}{2}$, and the area of the inner circle will be $\frac{cr^2}{2a}$, this quantity being a fourth proportional to a^2, r^2, and $\frac{ca}{2}$; then the difference of theſe two areas, or the area of the crown, will be $\frac{ca}{2} - \frac{cr^2}{2a} = \overline{a-r} \times \frac{c}{2} \times \frac{a+r}{a}$: but $a-r$ is equal to A B, the breadth of the crown, and $\frac{c}{2} \times \frac{a+r}{a}$ is the circumference of the circle, whoſe radius is C D; becauſe C D is an arithmetic mean between C A and C B, and therefore equal to $\frac{r+a}{2}$, and the circumferences of circles are as their radii, or $a : c :: \frac{r+a}{2} : \frac{c}{a} \times \frac{a+r}{2}$.

Crown, or *Coronet*, in *Heraldry*, is uſed for the repreſentation of that ornament, in the mantling of an armoury; to expreſs the dignity of the perſon who bears it.

The crown here is of more antiquity even than the helmet; and it was uſed as a ſymbol of victory and triumph. See Crown *ſupra*.

Crown, among *Jewellers*, the upper work of the roſe diamond, which all centres in the point at the top, and is bounded by the horizontal ribs.

Crowns, *pearled*, or *flowered*, thoſe with pearls, or leaves of ſmallage, parſley, &c. Such were anciently almoſt all crowns, even thoſe of ſovereign princes: though they were not uſed in their armours, till about two hundred years ago. See Crown *ſupra*.

Crowns, *radiated*, or *pointed*, are thoſe of the ancient emperors, which had twelve points; repreſenting, as ſome will have it, the twelve months of the year.

Crown *Royal, Order of*, an order of knighthood, which, ſome ſay, was inſtituted in 802; the knights of which bore a crown embroidered with gold, on a white robe. Others deny the exiſtence of ſuch an order.

Crown *of Colours*, in *Meteorology*, certain coloured rings, which, like halos, appear about the body of the ſun and moon, but of the colours of the rainbow; and at a leſs diſtance than the common halos. Theſe crowns Sir Iſaac

Newton ſhews to be made by the ſun's ſhining in a fair day, or the moon in a clear night, through a thin cloud of globules of water or hail, all of the ſame bigneſs; and according as theſe globules are bigger or leſs, the diameter of theſe crowns will be larger or ſmaller; and the more equal theſe globules are to each other, the more crowns of colours will appear; and the colours will be the more lively. See Corona and Halo.

Crown *of the Cable*, in *Sea Language*, denotes the bights which are formed by its ſeveral turns.

Crown, in *Muſic*, a reſt marked by a reverſed C, with a point in the middle of it, thus 𝄐

Crown, *Clerk of the*. See Clerk.

Crown, *Pleas of the*. See Plea.

Crown, *Officers of the*. See Officer.

Crowns, *Thundering*, in *Military Language*. Theſe are two, three, or four circles tied together with a thread of wire, round which they faſten grenades, piſtol barrels, charges, &c. They cover the whole with hards of hemp or tow, and combuſtible materials. Setting fire to theſe circles, they roll them upon the works of the beſiegers. They are alſo made uſe of for repelling attempts to mount the breaches, when they are peculiarly called thundering crowns. In other caſes, they are commonly called *circles a feux*.

Crown-*Glaſs*, denotes the fineſt ſort of window-glaſs. See Glass.

Crown-*Grafting*. See Engrafting.

Crown *Imperial*, in *Botany*. See Fritillaria *Imperialis*.

Crown *Imperial*, in *Gardening*, is a well-known plant of the flowering kind, of which different ſpecies are cultivated in flower-gardens for their great elegance when in blow: and there are likewiſe, annually, a great number of varieties produced from the ſeeds of each of theſe diſtinct ſpecies, which, when intermixed in the different compartments, afford not only an extremely pleaſing but intereſting appearance, to thoſe who are curious in flowers. The modes of culture and management will be deſcribed under the proper head. See Fritillaria.

Crown *Imperial Shell*, in *Conchyliology*. See Voluta.

Crown-*Office*, a court or office under the king's-bench, of which the king's coroner or attorney there is commonly maſter; ſo called, becauſe the crown is more immediately concerned in what is therein tranſacted. See Court *of King's-bench*. Though none of the officers under the lord chief-juſtice of the king's-bench are employed in ſummoning a parliament; yet many of them have buſineſs in other matters, during the ſitting of the parliament: as in caſes of error, &c. but more eſpecially on trials of peers; wherein the clerk of the crown is chief manager. He has likewiſe, out of parliament, all indictments in the crown, informations, recognizances; and a multitude of other buſineſs runs through his hands, as the writings of all pleadings, declarations, and other proceedings upon records: but the executive part is left to his ſecondary or deputy. See Information.

Crown-*Poſt*, in *Architecture*, a poſt which in ſome buildings ſtands upright in the middle, between two principal rafters; and from which there go ſtruts or braces to the middle of each rafter. It is otherwiſe called a *king's-piece*, or *joggle-piece*. See Post.

Crown-*Scab*, in *Farriery*, a diſeaſe in horſes, conſiſting in an humour that breaks out round the coronet, of a ſharp itching nature, and attended with ſcurfineſs. The beſt remedy for this diſorder is a mixture of equal parts of marſhmallow ointment, and yellow baſilicon, ſpread on tow, and laid round the coronet.

Crown *Iſland*, in *Geography*, an iſland in the Eaſtern Sea, near the N.E. coaſt of New Guinea. S. lat. 5° 18′. E. long. 146° 50′.

Crown-*Point*, a townſhip of North America, the moſt ſoutherly of Clinton county in the ſtate of New York; ſo called from the celebrated fortreſs which was in it, and which was garriſoned by Britiſh troops from the time of its reduction by general Amherſt, in 1759, till the time of the American revolution. The point upon which it was erected by the French, in 1731, extends towards the north, into lake Champlain. After it was repaired by the Britiſh, it was the moſt regular and expenſive of any conſtructed by them in America. The adjoining barracks, formed of ſtone, are capable of containing 2000 troops. It had alſo ſeveral outworks: but it is altogether in ruins, the walls of the barracks excepted, and the ditches on the ſouth ſide, which were wide and deep, cut through immenſe rocks of limeſtone, and are ſtill perfect. Before it was given up by the Britiſh, the powder magazine blew up, by which accident a great part of the works was deſtroyed; and ſince its evacuation, other parts have been demoliſhed and ranſacked in ſearching for bricks, lead, and iron ſhot. The view from this fort of old buildings overgrown with ivy, of the lakes, and of the diſtant mountains beyond it, is very fine. The fort, and 700 acres of good cleared land adjoining to it, are the property of the ſtate of New York, and are leaſed out at the rate of about 33*l.* 10*s.* a-year, which is appropriated for the uſe of a college. Crown-Point is the moſt advantageous ſpot on the ſhores of lake Champlain for a military poſt, as it is not commanded by any riſing grounds in the neighbourhood, which is the caſe with Ticonderago, the old fort and barracks of which are in ruins; and as the lake is ſo narrow here, owing to another point running out on the oppoſite ſide, that it would be abſolutely impoſſible for a veſſel to paſs, without being expoſed to the fire of the fort. The point oppoſite to Crown-Point is called Chimney-Point, on which are a few houſes. The townſhip of Crown-Point has no rivers; a few ſtreams, however, iſſue from the mountains, which ſerve for mills and common uſes. The mountains, which extend along the whole length of lake George, and part of lake Champlain, abound with mooſe deer, and the other inhabitants of the foreſt. In 1790, this townſhip contained 203 inhabitants; and by the ſtate cenſus in 1796, it appears that there are 126 electors. The fortreſs lies in N. lat. 44° 20′. W. long. 73° 36′.

Crown, *Right of*, *Jus Coronæ*, in *Britiſh Hiſtory*, denotes the right of ſucceſſion to the throne in theſe kingdoms. In this ſenſe the crown, according to judge Blackſtone, is by common law, and conſtitutional cuſtom, hereditary, in a manner peculiar to itſelf; ſo that the right of inheritance may from time to time be changed, or limited, by act of parliament. The ſucceſſion is ſuch, that the next heir of the crown takes poſſeſſion on the death or demiſe of the laſt proprietor; not by any *jure divino* title, but that kind of hereditary right which owes its origin ſolely to the founders of our conſtitution. The ſucceſſion likewiſe reſembles that of the heirs to landed eſtates, under particular exceptions: thus, the crown deſcends lineally to the iſſue of the reigning monarch, as from king John to Richard II., and to the firſt born of the male iſſue, as in the caſe of Edward V., who was preferred to Richard his younger brother, and Elizabeth his elder ſiſter; but on failure of the male line, it deſcends to the female iſſue: thus Mary I. ſucceeded Edward VI., and the line of Margaret queen of Scots, the daughter of Henry VII., inherited on failure of the deſcendants of Henry VIII. Among the females, the crown deſcends to the eldeſt daughter and her iſſue, and not, like common inheritances, to all the daughters at once: thus queen Mary, on her brother's death, was the ſole ſucceſſor, though her ſiſter Elizabeth was living. Moreover, the lineal deſcendants of any perſon deceaſed claim, as their anceſtor would have done, if he had been ſtill living. Thus, Richard II. ſucceeded his grandfather Edward III., in right of his father the Black Prince, to the excluſion of all his uncles. On failure of lineal deſcendants, the crown is veſted in the next collateral relations of the late king, if they are lineally deſcended from the blood royal, as in the caſe of Henry I. who ſucceeded to William II., John to Richard I., and James I. to Elizabeth, being all derived from the Conqueror, who was then the only regal ſtock: nor is there any exception, as in common deſcents, to collateral relations of the *half-blood.* Thus Mary I. inherited after Edward VI., and Elizabeth after Mary, though born of Henry VIII. by different mothers.

However, this hereditary right is by no means indefeaſible; becauſe the immediate heir has been, and may be, excluded by the ſupreme legiſlative authority of this kingdom; to which it belongs to defeat this hereditary right, and by particular entails, limitations, and proviſions, to exclude the immediate heir, and veſt the inheritance in any one elſe. Under this controul, the crown naturally deſcends either to the *hæres natus*, if the courſe of deſcent is unimpeached, or to the *hæres factus*, in conſequence of a particular ſettlement: becauſe the king never dies, and there can be no *interregnum.*

Egbert, in the beginning of the ninth century, was the ſole monarch of this kingdom; poſſeſſing the throne of the Weſt Saxons by a long and undiſturbed deſcent from his anceſtors of above 300 years; and acquiring the other kingdoms of the heptarchy, ſome by conqueſt, but moſt of them by a voluntary ſubmiſſion. From Egbert, to the death of Edmund Ironſide, through a ſucceſſion of fifteen princes, the crown deſcended regularly, with very little deviation. In the three ſucceeding reigns, the ſucceſſion was ſuſpended by force; at length, upon the death of Hardicanute, the Saxon line was reſtored in Edward the Confeſſor, who indeed was not the next heir, becauſe his brother Edmund Ironſide had a ſon living, then an outlaw in Hungary. On his deceaſe, without iſſue, Harold II. uſurped the throne, though the right remained in Edgar Atheling, ſon of Edward the outlaw. At this time William the Norman invaded England, pretending a right to the crown from a grant of Edward the Confeſſor; and his conqueſt transferred the ſucceſſion of the crown to a new family. (See CONQUEST.) From the Conqueror, as from a new ſtock, the race of Saxon kings being dropped for the preſent, it deſcended to his ſons William II. and Henry I., the eldeſt ſon Robert being kept out of poſſeſſion by his brethren. Henry was ſucceeded by Stephen of Blois, grandſon of William I. by his daughter Adelicia, his elder brother Theobald waving his claim, and Matilda or Maud, the daughter of Henry I. and the grand-daughter of Edward the outlaw, to whom the ſucceſſion properly belonged, being excluded by force. However, her ſon Henry II., as heir to the Conqueror, ſucceeded Stephen, though the proper heirs in the Saxon line were the ſons of Malcolm king of Scotland, by Margaret, the daughter of Edward the outlaw. From Henry II. the crown deſcended to his eldeſt ſon Richard I., and on his death was ſeized by his brother John, the youngeſt ſon of Henry, the right being veſted in his nephew Arthur. On the death of Arthur, and his ſiſter Eleanor, without iſſue, the crown properly deſcended to Henry III. the ſon of John, and from him, in an hereditary line of ſix generations, to Richard II., and this right of ſucceſſion was declared in parliament by ſtat. 25 Edw. III. ſt. 2. When Richard reſigned the crown, as he had no children, the right reſulted to the iſſue of his grandfather Edward III. and particularly to the poſterity of Lionel, duke of Clarence; but Henry duke of Lancaſter uſurped the crown under the title of Henry IV., pretending to be a ſucceſſor by right line of the blood royal. Parliament, by ſtat. 7 Henry IV. c. 2. ſettled the inheritance of the crown and kingdom in him and his heirs. He was regularly ſucceeded by his ſon and grandſon, Henry V. and VI. In the laſt of theſe reigns the houſe of York began to aſſert their dormant title, and eſtabliſhed it in the perſon of Edward IV. At his acceſſion, the diſtinction of a king *de jure*, and a king *de facto*, firſt occurs; and by ſtat. 1 Ed. IV. c. 1. the three Henries are ſtyled kings *in dede, and not of ryght.* This king was ſucceeded by his eldeſt ſon Edward V., who was depoſed by his unnatural uncle Richard III. under a pretence of baſtardy. During the tyrannical reign of Richard, Henry VII., earl of Richmond, aſſumed the regal dignity, and his poſſeſſion was eſtabliſhed by parliament in the firſt year of his reign. He afterwards married Elizabeth of York, the undoubted heireſs of the Conqueror, in whom the right of the crown was veſted. Henry VIII. ſucceeded by indiſputable hereditary right, and tranſmitted the crown to his three children in ſucceſſive order; and ſtat. 25 Hen. VIII. cap. 12. provides for the regular ſucceſſion in his deſcendants. This ſtatute was repealed by 28 Hen. VIII. c. 7., by which Elizabeth and Mary were baſtardized, after the king's divorce from Anne Boleyn. They were again legitimated, and the ſucceſſion reſtored by 35 Henry VIII. c. 1. The right both of Mary and Elizabeth is again expreſsly recognized by parliament, after their reſpective acceſſion; and parliament explicitly aſſerts its right of directing the ſucceſſion of the crown, by ſtat. 13 Eliz. c. 1. On the death of queen Elizabeth, without iſſue, ſo that the line of Henry VIII. became extinct, James VI. of Scotland, and I. of England, was the lineal deſcendant, from the alliance of Margaret, eldeſt daughter of Henry VII., by Elizabeth of York with James IV. of Scotland; and in him were united not only the claims of different competitors ſince the Conqueſt, but likewiſe the right of the Saxon monarchs, becauſe he was the direct lineal heir of Malcolm, who married Margaret, grand-daughter of Edmund Ironſide. Several inſtances have occurred, in this abſtract of the hiſtory of the deſcent of the crown, in which parliament has interpoſed to fix, direct, and limit the ſucceſſion; particularly, under Henry IV. Henry VII. Henry VIII. queen Mary, and queen Elizabeth; to which we may alſo add the ſtat. 1 Jac. I. c. 1, which recognizes the ſucceſſion as lawfully deſcending to king James. King James had little reaſon to value himſelf, as he did in his firſt ſpeech to the parliament, March 19, 1603, on his hereditary right and lineal deſcent. However, parliament, after hearing this ſpeech, was ſo complaiſant as to echo back, not merely in an addreſs, but in an act of the legiſlature, his words and ſentiments on this ſubject. This act is intitled a "moſt joyful and juſt recognition of the immediate, lawful, and undoubted ſucceſſion, deſcent, and right of the crown," and expreſsly declares and enacts "that immediately upon the diſſolution and deceaſe of Elizabeth, late queen of England, the imperial crown of the realm of England, and of all the kingdoms, dominions, and rights belonging to the ſame, did by *inherent birth-right*, and lawful and undoubted ſucceſſion, deſcend and come unto to his moſt excellent majeſty, as being lineally, juſtly, and lawfully next and ſole heir of the blood royal of this realm." This hereditary right to the crown, of which king James here boaſted, was a mere chimera, contradicted by the general tenor of cuſtom from the Norman invaſion to his time; by the declared ſenſe of his immediate predeceſſors; by many ſolemn proceedings of parliament; and by the expreſs terms of law. Our kings of the Norman race were ſo far from ſucceeding as next heirs to one another, and in a regular courſe of deſcent, that no inſtance can be produced of the next heir's ſucceeding, which is not preceded and followed by inſtances of the next heir's being ſet aſide. Thus, Edward I. ſucceeded his father Henry III., but his father Henry III. and his grandfather John, had both been raiſed to the throne in plain defiance of hereditary right; the right of Arthur, nephew to John, and the right of Arthur's ſiſter, couſin-german to Henry. Edward II. ſucceeded his father Edward I.; but Edward III. depoſed Edward II.; the parliament renounced all allegiance to him, and Edward III. held the crown by a parliamentary title, as much as William III. The Britiſh race began in Henry VII., and from him alone king James derived that right, which he aſſerted in ſuch pompous terms: and if any prince ever came to the crown without the leaſt colour of hereditary right, it was Henry VII. He had no pretence to it, even as heir to the houſe of Lancaſter. His wife, indeed, might have ſome as heir of the houſe of York; but the title of his wife was not regarded either by him or the parliament, in making this new ſettlement. He gained the crown by the good will of the people. He kept it by the confirmation of parliament, and by his own ability. The national union of the two roſes was a much better expedient for quiet than a foundation of right. It took place in Henry VIII.; it was continued in his ſucceſſors, and the nation was willing that it ſhould be perpetuated in James and his family. But neither Henry VIII., nor his ſon Edward VI., who might have done ſo with much better grace, laid the ſame ſtreſs on hereditary right, as king James did. One of them had recourſe to parliament on every occaſion, where the ſucceſſion to the crown was concerned; and the other made no ſcruple of giving the crown by will to his couſin, in prejudice of his ſiſter's right. This right, however, ſuch as it was, prevailed: but the authority of parliament was called in aid by Mary, to remove the objection of illegitimacy, which lay againſt it. Elizabeth had ſo little concern about hereditary right, that ſhe neither held, nor deſired to hold, her crown, by any other tenure than the ſtatute of the 35th year of her father's reign. In the 13th year of her own reign, ſhe declared it by law high treaſon, during her life, and a præmunire, after her deceaſe, to deny the power of parliament, in limiting and binding the deſcent and inheritance of the crown, or the claims to it.

The attempt to obtain a bill of *excluſion* in the latter end of the reign of Charles II. evidently ſuppoſed that the crown was hereditary, and at the ſame time liable to the controul of parliament. This attempt proved ineffectual, and James II. ſucceeded.

However, in conſequence of his abdication in 1688, and the declared vacancy of the throne, the lords and commons, repreſenting all eſtates of the people of the realm, invited over William prince of Orange, and the princeſs Mary, eldeſt daughter of king James II., and declared them king and queen, during their lives, and the life of the ſurvivor of them; and ſettled the crown on the iſſue of queen Mary; and on failure of ſuch iſſue, on the princeſs Anne of Denmark, and her iſſue. Stat. 1 W. and M. c. 2. On failure of that to the iſſue of king William, who was the grandſon of Charles I., and nephew as well as ſon-in-law of king James II., being the ſon of Mary, his eldeſt ſiſter. This ſettlement included all the proteſtant poſterity of king Charles I., except ſuch other iſſue as king James might at any time have, which was totally omitted through fear of a popiſh ſucceſſion. Theſe three perſons, king William, queen Mary, and queen Anne, did not take the crown by hereditary right or *deſcent*, but by way of donation or *purchaſe*, as the lawyers call it; by which they mean any method of acquiring an eſtate otherwiſe than by deſcent.

By ſtat. 12 and 13 W. III. c. 2. the princeſs Sophia, youngeſt daughter of Elizabeth, queen of Bohemia, who was the daughter of James I., the neareſt of the ancient blood royal, and not incapacitated by profeſſing the popiſh religion, and the heirs of her body, being proteſtants, and married to none but proteſtants, were declared next in ſucceſſion after king William, the princeſs Anne, and their iſſue; and it is enacted that they ſhould join in communion with the church of England, as by law eſtabliſhed. This is the laſt limitation of the crown that has been made by parliament; and theſe ſeveral actual limitations, from the time of Henry IV. to the preſent, clearly prove the power of the king and parliament to new-model or alter the ſucceſſion. It is, indeed, now again made highly penal to diſpute it; for by the ſtatute 6 Anne c. 7. it is enacted, that if any perſon maliciouſly, adviſedly, and directly, ſhall maintain by writing or printing, that the kings of this realm, with the authority of parliament, are not able to make laws to bind the crown, or the deſcent thereof, he ſhall be guilty of high treaſon; or if he maintain the ſame by only preaching, teaching, or adviſed ſpeaking, he ſhall incur the penalties of a præmunire. After the death of queen Anne, the crown deſcended to George I. eldeſt ſon of the princeſs Sophia; from him to George II. and laſt of all to our preſent gracious ſovereign George III. Hence it is eaſy to collect that the title to the crown is at preſent hereditary, though not quite ſo abſolutely hereditary as formerly: and the common ſtock or anceſtor, from whom the deſcent muſt be derived, is alſo different. Formerly, the common ſtock was king Egbert; then William the Conqueror; afterward in the time of James I. the two common ſtocks united, and ſo continued till the vacancy of the throne in 1688: now it is the princeſs Sophia, in whom the inheritance was veſted by the new king and parliament. Formerly the deſcent was abſolute, and the crown went to the next heir without any reſtriction; but now, upon the new ſettlement, the inheritance is conditional, being limited to ſuch heirs only, of the body of the princeſs Sophia, as are proteſtant members of the church of England, and are married to none but proteſtants. Blackſtone's Commentaries, vol. i. chap. 3. See KING and PARLIAMENT.

CROWN-*bird* from Mexico, in *Ornithology*, the *Touraco* of Edwards, Buffon, and Latham, and the CUCULUS *Perſa* of Gmelin; which ſee.

CROWN-*wheel of a watch*, is the upper wheel next the balance, or that which drives the balance.

CROWN *work*, in *Fortification*, is a kind of work not unlike a crown. It has two fronts and two branches, and is ſometimes made with three whole baſtions and two branches, but generally with one whole baſtion, two demi-baſtions, and two wings or branches. It is uſually erected before a curtain or a baſtion, and commonly ſerves to encloſe ſome buildings that cannot be brought within the body of the place, or to cover the town-gates, or to occupy ſome commanding or advantageous ſpot of ground, which the enemy might otherwiſe make uſe of againſt the place.

From the ſaliant angle, A, of the baſtion T R A S V, (*Plate* VIII. *Fortification. fig.* 19.) as a centre with a radius equal to about 120 toiſes, deſcribe an arc of a circle cutting the capital of the baſtion produced in the point B; from the ſaid point B, ſet off or inſcribe the chords B C, B H, each of them equal to 110 toiſes; on each of which, as on an exterior ſide, conſtruct a front of a polygon, by drawing perpendiculars, D E, K I, to the middle points, D, K, of the exterior ſides, B C, B H, the lines, B E O, C E N, B I Q, H I P, of defence through the inward extremities, E, I, of the ſaid perpendiculars, and finding the flanks, G N, F O, L P, M Q, according to Vauban's firſt method for conſtructing the body of a place. If you follow him, you will make the perpendiculars, D E, K I, each equal to about 18 toiſes, and the faces, B G, B L, of the baſtion, and thoſe C F, H M, of the demi-baſtions, each equal to about 30 toiſes, and will make the branches C *a*, H *b*, when produced, terminate on the faces of the adjacent ravelins within 25 toiſes of their extremities. But if in conſtructing ſuch a work, you wiſh to make the flanks either equal to, or in a given ratio to the perpendiculars, you muſt have recourſe to Mr. Glenie's rule, delivered in the article Construction *military*, the only one for this purpoſe that has ever been delivered by any writer on fortification.

The ditch of this work ſhould be about 12 toiſes broad, and oppoſite to the branches its counterſcarp is parallel to the ſame, but in front terminates, when produced at the ſhoulders, like the great ditch of the body of the place. The parapet ſhould always be 3 toiſes thick, in order to reſiſt cannon ſhot.

Sometimes ſmall ravelins, having their capitals equal reſpectively to about 35 toiſes, are made oppoſite to the curtains of the crown-work, with ditches before them of about 8 toiſes wide.

Crown-*Work* is alſo a term ſometimes made uſe of to denote the moſt advanced part of a work when beſieged.

CROWNED, in *Farriery*. A horſe is ſaid to be crowned, when by a fall, or other accident, the knee is ſo hurt, that the hair falls off, without growing again.

Crowned *horn-work*, is a horn-work, with a crown-work before it.

CROWNING, in *Architecture*, is underſtood, in the general, of any thing that terminates, or finiſhes a member or decoration.

Thus, a corniche, a pediment, a croteria, &c. are called crownings. Thus, alſo, the abacus is ſaid to crown the capital; and thus any member or moulding is ſaid to be crowned, when it has a fillet over it; and a niche is crowned, when it is covered with a capital.

Crowning, in *Sea Language*, denotes the finiſhing part of a knot made at the end of a rope. It is performed by laying the firſt ſtrand over the walling, and the ſecond ſtrand acroſs over the firſt, and the third ſtrand acroſs over the ſecond, and through the bight of the firſt; then hauling the ends tight. Theſe crownings are uſeful in all kinds of ſtoppers.

CROWTH, or Crûth, an inſtrument of muſic (ſee *Plate*, *Muſic*,) reſembling a violin, formerly in common uſe in the principality of Wales, as a tenor accompaniment to the harp; but now become extremely rare in that country. The length is 20½ inches, the breadth at bottom 9½, tapering towards the top to 8 inches; its thickneſs is 1 8/10, and the finger board meaſures 10 inches in length. It has ſix ſtrings, ſupported by a flat bridge, placed obliquely to the ſides, and is played on with a bow. A, A, repreſent the apertures for the hand; B, B, the ſtrings conducted under the end board; C, C, the pegs, and *d*, *d*, the ſound holes. The fifth and ſixth ſtrings are the uniſon and octave of G, the fourth and third the ſame of C, and the ſecond and firſt the ſame of D; ſo that the ſecond pair of ſtrings are a fourth, and the third a fifth to the firſt.

Some have ſuppoſed this inſtrument to have been the parent of the violin; but it is much more extenſive in its compaſs. Two or three of the lower ſtrings are often ſtruck with the thumb, and ſerve as a baſe accompaniment to the notes ſounded with the bow.

This inſtrument was not peculiar to Wales; ſince a figure of it has been lately diſcovered among the outſide ornaments of the abbey church of Melros, in Scotland, built about the time of Edward II.

From the name *crowth* is derived *crowther*, a *crowder*, as a common fidler is now called. The uſe of this inſtrument is almoſt loſt.

The Welſh had alſo a three-ſtringed crowth, which was the ancient baſe viol.

CROXAL, Samuel, in *Biography*, was born at Walton on Thames, of which place his father was vicar. The exact date of his birth has not been aſcertained. He was educated at Eton, and from thence he removed to St. John's college Cambridge, where he was diſtinguiſhed for his poetical turn, and alſo for his attachment to the whig intereſt, in defence of which he employed his talents during the latter end of queen Anne's reign. His political pieces are now little known, and he is chiefly remembered by his tranſlation of Æſop's Fables, a work which, in ſome ſhape or other, is read by almoſt every young perſon. His firſt ſituation in the church was at Hampton, Middleſex, of which place he was vicar. After this he had ſucceſſive preferments of conſiderable emolument, and lived in the enjoyment of ſome of them to an advanced age: he died Feb. 13, 1752. His principal works are, 1. "The Fair Circaſſian," for which he was highly blamed by his contemporaries, in having proſtituted his muſe to purpoſes of licentiouſneſs, by converting the Song of Solomon into an amorous dialogue between a king and his miſtreſs: "Such a profanation," ſays Mr. Cragg, "was not to be expected from a clergyman." 2. "Scripture Politics," being a view of the original conſtitution, and ſubſequent revolutions of the Jews. This work was intended as an introduction to the knowledge of the Old Teſtament, adapted to uninformed readers. Two years before his death, he publiſhed "The Royal Manual," which was generally ſuppoſed to be written by himſelf; though, in his preface, he ſtated it to have been the production of the celebrated Andrew Marvel. Dr. Croxal was the author of ſome ſingle ſermons, publiſhed at different times, and on particular occaſions. Biog. Brit.

CROY, in *Geography*, a ſmall town of France, in the department of the Somme, 6 miles N.W. of Amiens. It had the title of a dukedom before the French revolution of the year 1789.

CROYDON, a townſhip of America, in the ſtate of New Hampſhire and county of Cheſhire, adjoining Corniſh, and about 18 miles N. E. of Charleſtown, incorporated in 1763, and containing, in 1775, 143, and in 1790, 537 inhabitants.

Croydon *Town*, a vicarage in Croydon hundred, in the county of Surrey; this town is ſituate near to the ruptured edge of the London clay-ſtratum, having the ſand under the ſame expoſed on the ſurface on the S.E. and S.W. ſides of the town, and a little further on the chalk ſtrata appear from under theſe. In 1805, the Surrey iron rail-way (nothern part) was completed up to this town from the Thames at Wandſworth, and the ſouthern part of the railway, under the ſame title, was completed to Merſtham, and in 1807 the Croydon canal was alſo completed, opening a communication from the Thames at Rotherhithe to this town. See Canal.

Croydon *Canal*, is the parliamentary name of a navigable canal, extending about 9½ miles in the counties of Kent and Surrey, between the grand ſurvey canal near Deptford, to the N. E. corner of the town of Croydon. See Canal. For ſeven miles at the ſouthern end, this canal is cut in the top or ſurface of the London clay-ſtratum elevated above its natural poſition, the remaining 2½ miles deſcend by a ſeries of locks and deep-cuttings down the edges of the ſame ſtrata, and prevented while cutting, and ſtill in many of its new banks, the fineſt opportunity which has perhaps ever occurred, of examining the ſeveral ſtratified and extraneous matters, compoſing this intereſting part of the Britiſh ſeries of ſtrata. See Clay *ſtrata*.

CROYLE Stone, in *Mineralogy*, a kind of ſpar, conſiſting of ſmall cryſtals, mentioned by Woodward, as found in the mines in the peak of Derbyſhire.

CROZAT, in *Geography*, a canal of France, in the department of the Aiſne, which begins at St. Quentin, and terminates at Chauny. It has ten locks, and is 41,866 metres, or 22,398 fathoms long. However, ſince the year 1798, its navigation has been completely interrupted by the bad ſtate of its locks. Herbin. Statiſtique de la France, vol. v. p. 118.

CROZET, a ſmall town of France, in the department of the Loire; 12 miles N. W. of Roanne.

CROZIER, in *Natural Hiſtory*, is the name of a foſſil ſhell deſcribed by Breynius with open ſpiral turns, ſomewhat like a biſhop's crozier. (See Crosier.) Da Coſta, *Conchology*, *Tab.* II. *figs.* 18 and 19, has figured a recent ſhell from the Indies, which he thinks reſembles cloſely this foſſil ſhell.

CROZIERED Abbot. See Abbot.

CROZON, in *Geography*, a ſmall town of France, in the department of Finiſtère, chief place of a canton, in the diſtrict of Chateaulin, with a population of 7942 individuals. The canton itſelf has 7 communes and 12,188 inhabitants, upon a territorial extent of 237½ kiliometres.

CRUACHAN, Ben, a ſolitary mountain of Scotland, in Argyleſhire, which is very high, (being about 3300 feet above the ſea) and ſituate near the ſea, on which account general Roy recommended that it ſhould be uſed with Ben Nevis for a ſeries of accurate experiments on terreſtial refraction. See Phil. Tranſ. 1790, p. 246.

This mountain, according to Mr. Jameſon, conſiſts, at the baſe, of ſlate and micaceous ſchiſtus, which is followed by granite to the top.

CRUANACARRA, a ſmall iſland in the Atlantic Ocean, near the weſt coaſt of the county of Galway, Ireland. Long. 9° 59′ W. Greenwich, lat. 53° 15′ N.

CRUANAKILLY, a ſmall iſland in the Atlantic Ocean, near the weſt coaſt of the county of Galway, Ireland. Long. 9° 59′ W. Greenwich, lat. 53° 18′ N.

CRUCCINI, or Cruzini, a ſmall town of France, in the iſland of Corſica, department of Liamone, not far from Vico. It is the chief place of a canton, in the diſtrict of Vico, and has 1126 inhabitants.

CRUCES, a town of South America, in Terra Firma, 5 leagues from Panama, ſituated on Chagre river, which begins to be navigable at this place; and diſtant from the mouth of this river, by the neareſt courſe, 21 miles, but by the windings of the river 43 miles. At this town is a cuſtom-houſe, where an account is taken of all goods brought up the river.

Cruches *à feu*, Fr. Theſe are earthen pots or pitchers with two handles, which are with grenades full of powder without fuſes. The interſtices or intervals between the grenades are alſo filled with powder. The mouth of the cruche, or pot, is covered with ſheep ſkin, which, by means of the handles, is firmly tied round the neck of it. A match is then faſtened to each handle, which, after being lighted, the cruche is thrown upon the enemy when they attempt to mount the breach in a work. As ſoon as it falls it breaks, and the fire of the matches communicates itſelf to the powder and grenades. In caſe of a deficiency of ſhells, they might be thrown by the beſieged into the works of the beſiegers, or by the beſiegers into the works of the place beſieged.

CRUCIAL Incision, in *Surgery*, an inciſion, or cut, into ſome fleſhy parts, in form of a croſs.

CRUCIAN, in *Ichthyology*, a ſpecies of cyprinus, common in many of the fiſh-ponds about London, and other parts of the ſouth of England, though probably not a native fiſh. The meat of it is coarſe, and little eſteemed. See Cyprinus.

CRUCIANELLA, in *Botany*, (diminutive of crux, ſo called becauſe ſome of the ſpecies have their leaves in fours, placed croſs-ways.) Linn. gen. 126. Schreb. 163. Willd. 186. Lam. Ill. 161. Gært. 131. Juſſ. 197. Vent. 2. 566. (Rubeola; Tourn.) Claſs and order, *tetrandria monogynia*. Nat. Ord. *Stellatæ*, Linn. *Rubiaceæ*, Juſſ.

Gen. Ch. *Cal.* Involucre two or three leaved, or two-parted; leaves linear lanceolate, keeled, acuminate, often connivent-compreſſed; proper calyx none. *Cor.* monopetalous, funnel-ſhaped; tube filiform; border four or five cleft; ſegments acuminate, inflexed. *Stam.* Filaments four or five, placed in the mouth of the tube; anthers ſimple. *Piſt.* Germ inferior; egg-ſhaped, compreſſed; ſtyle filiform, bifid; ſtigmas two, obtuſe, or capitate. *Peric.* *Capſules* two, connate, naked, not dehiſcent. *Seeds* ſolitary, oblong. (Pericarp none, except the external coat of the ſeed; Gært.)

Eſſ. Ch. Involucre to each flower two or three-leaved, or two-parted; proper calyx none, corolla ſuperior funnel-ſhaped, with a filiform tube; capſules two, oblong, naked.

Obſ. Linnæus and Juſſieu conſider the involucre as a proper calyx, to which Gærtner, La Marck, and Ventenat object, as contrary to the general character of the family.

Sp. 1. C. *anguſtifolia*. Linn. Sp. Pl. 1. Mart. 1. Lam. 1. Ill. Pl. 61. Willd. 1. Gært. tab. 24. fig. 3. Sabb. Hort. 2. tab. 12. (Rubeola anguſtiore folio; Tourn. 130. Rubia anguſtifolia ſpicata; Bauh. pin. 334. Barrel. ic. 550. Pſeudo rubia; Moris. hiſt. 3. § 9. tab. 22. fig. penult.) "Erect; leaves in ſixes, linear; flowers in ſpikes." *Root* annual, fibrous. *Stems* ſeveral, from ſix to nine inches high, procumbent at the baſe, afterwards aſcending very ſlender, quadrangular, ſmooth. *Leaves* narrow, acute, ſhorter than the internodes. *Spikes* two or three inches long, terminal, erect, imbricated, not interrupted, variegated with green and white. *Corollas* ſcarcely longer than the bractes and the involucre. A native of the ſouth of France and Italy. 2. C. *mucronata*. Roth. cat. bot. 1. 27. "Erect; leaves in fours, linear, mucronate; ſpikes alternate; involucre three-leaved." According to Willdenow ſcarcely more than a variety of the preceding ſpecies. 3. C. *latifolia*. Linn. Sp. Pl. 2. Mart. 2. Lam. 2. Willd. 2. (Rubia; Barrel. ic. 520 and 549. R. ſpicata cretica; Cluſ. hiſt. 2. 177. R. latifolia; Bauh. pin. 334. Rubeola latiore folio;

Tourn. 130.) " Procumbent; leaves in fours, lanceolate; flowers in ſpikes." Nearly allied to C. anguſtifolia, and as Linnæus himſelf ſuſpected, perhaps only a variety. Ray obſerves that it differs from it only in having broader leaves and ſpikes, and in being a larger plant. Like it, it is ſometimes erect. A native of the iſland of Candia, Italy, and the ſouth of France. 4. C. *monſpeliaca.* Linn. Sp. Pl. 5. Mart. 6. Lam. 3. Willd. 9. (C. repens, foliis ſenis, ſpicis longis; Sauv. monſp. 164. Rubia ſpicata repens; Magn. monſp. 225. Rubeola ſupina, ſpica longiſſima; Tourn. 130.) " Procumbent; leaves acute; thoſe on the ſtem, in fours, egg-ſhaped; on the branches, in fives or ſixes; flowers in ſpikes." *Root* annual. *Stems* ſeveral, a little aſcending in their upper part, branched, ſomewhat rough at the angles. *Spikes* five or ſix inches long, ſlender, variegated; corollas longer than the bractes. A native of the ſouth of France and the county of Nice. 5. C. *maritima.* Linn. Sp. Pl. 4. Mart. 5. Lam. 4. Willd. 7. (Rubia maritima; Bauh. pin. 334. R. marina; Barr. ic. 355. Rubeola maritima; Tourn. 130.) " Procumbent, ſomewhat ſhrubby; leaves in fours, mucronate; flowers oppoſite, quinquefid." *Root* perennial. *Stems* about a foot long, almoſt woody, permanent, branched, leafy their whole length. *Leaves* ſhort, ovate-lanceolate, acute, ſtiff, glaucous, edged with white. *Bractes* egg-ſhaped, mucronate, glaucous, with white and ſcarious edges; growing croſſwiſe in fours and forming a looſe ſpike. *Flowers* in the axils of the bractes, almoſt ſeſſile, yellowiſh, ſometimes with a tinge of red on the outſide, ſhutting in the day, and opening at night, ſweet-ſcented; the diviſions of the border ending in very long points. A native of France, Italy, and Candia. 6. C. *Ægyptiaca.* Linn. Mant. 38. Mart. 3. Lam. 5. Willd. 3. (C. herbacea; Forſk. Ægyp. 30.) " Leaves in fours, chiefly linear; flowers in ſpikes, quinquefid." *Root* annual. *Stems* not at all woody, procumbent and diffuſe near the root, erect-ſpreading in the upper part. *Leaves* revolute, ſomewhat ſcabrous on their upper ſurface, and at the edges; the loweſt egg-ſhaped, thoſe next above lanceolate, the reſt linear. *Spikes* terminal, ſolitary, rather looſe. *Bractes* lanceolate, not keeled. *Flowers* ſmall, longer than the bractes, yellowiſh-white; diviſions of the border mucronate, as in the preceding ſpecies. A native of Ægypt. 7. C. *patula.* Linn. Sp. Pl. 3. Mart. 4. Lam. 6. Willd. 4. Lœfl. It. 68. " Diffuſe; leaves revolute at the edges; bractes linear-awl-ſhaped, a little ſcabrous, flowers ſcattered." *Root* annual. *Branches* ſpreading. *Leaves* ſcabrous. *Flowers* axillary, yellow, quinquefid, firm. A native of Spain. 8. C. *ciliata.* Lam. 7. Willd. 5. (C. diffuſa; Roth. Cath. Bot. 1. 26.) " Diffuſe, generally in fours, linear, keeled; bractes linear, ciliated; flowers ſcattered." *Root* annual. *Stems* ſix or ſeven inches high, ſlender, feeble, quadrangular, leafy, branched. *Leaves* acute, often revolute at the edges, a little ſcabrous on the upper ſurface. *Bractes* in a looſe terminal ſpike, oppoſite, acute, ſtrongly keeled. *Flowers* ſeſſile in the axils of the bractes, ſolitary; leaves of the involucre ciliated like the bractes, erect, but not connivent; germ rather large, wrinkled. *Seeds* egg-ſhaped, covered with obtuſe ſcale-like tubercles, variouſly contorted. A native of the Levant. 9. C. *pubeſcens.* Willd. 6. (Rubeola cretica incana; Tourn. Cor. 5.) " Erect; leaves generally in ſixes, linear, pubeſcent; heads of flowers peduncled, axillary and terminal." Whole plant hoary-pubeſcent. *Stem* obtuſely quadrangular. *Flowers* purple; tube three times the length of the involucre; border flat, with five obtuſe diviſions. A native of Candia. 10. C. *capitata.* Lam. Ill. 1410. Willd. 8. Billard. Icon. Pl. Syr. Decaſ. 1. tab. 3. " Procumbent, ſomewhat ſhrubby; leaves in ſixes, ovate-lanceolate; flowers in heads, quinquefid." *Root* perennial, horizontal, ſtrong, woody. *Stem* about three inches long, weak, naked near the bottom, with filiform branches. *Leaves* acute, ſcabrous, revolute at the edges. *Flowers* dark-coloured, ſome peduncled, others ſeſſile; involucre one-leafed, two parted, with ſix or ſeven teeth. A native of mount Lebanon, near the ſummit. 11. C. *hiſpida.* Mart. 7. Mill. " Stem hiſpid; leaves lanceolate, hirſute, oppoſite; flowers in a terminal umbel. *Stems* quadrangular, rough, prickly, bending downward. *Flowers* blue, quadrifid. 12. C. *americana.* Mart. 8. Mill. " Stem erect, villous; leaves linear-lanceolate, hirſute, oppoſite; flowers axillary, ſolitary. *Stem* near three feet high, ſhrubby, branched. *Leaves* covered with ſtinging hairs. *Flowers* pale blue. The laſt two were ſent by Dr. Houſton from La Vera Cruz in New Spain. The plants grew in the Chelſea garden very well during the ſummer, but periſhed in the autumn before the ſeeds were ripe.

CRUCIATA, C. Bauh. Tourn. Barr. &c. See ASPERULA, GALIUM, RUBIA, and VALANTIA.

CRUCIATA *montana minor flore cæruleo;* Barr. See ANAGALLIS *monelli.*

CRUCIATÆ, in *Entomology.* See CICADA.

CRUCIBLE, in *Chemiſtry.* Crucibles are ſmall veſſels made of earthenware metal, or other materials, employed by chemiſts in operations with the naked fire, ſuch as fuſions and reductions of metallic ores in the ſmall way, vitrifications of earthy mixtures, calcinations, &c. &c. The conſtruction of theſe veſſels is of no ſmall importance to the chemiſt; and many obſervations will ſuggeſt themſelves with regard to their ſelection and proper uſe.

1. *Of earthen crucibles.* Formerly, when chemiſts made their own crucibles and fire-pots, the ſubject engaged much of the attention of ſuch eminent practical operators, as Pott, Glauber, Agricola, Cramer, &c. and more lately a conſiderable improvement has been made by that eminent ſcientific manufacturer, the late Mr. Wedgewood.

A pottery ware, which ſhould unite all the requiſites for a good crucible, ſhould be infuſible at almoſt any heat, cloſe and compact in texture, ſo as to retain ſaline and metallic fluxes for a conſiderable time, without being materially acted on by them, or allowing them to paſs through; and ſhould be able to bear ſudden changes of temperature, without cracking or ſplitting. It is found, however, that all theſe requiſites are incompatible in the ſame ware; ſo that a ſelection muſt be made, according to the intended uſe.

For enduring the moſt intenſe heat, without fuſion, the hard, coarſe, brown crucibles, originally made at Waldenburg, in Heſſe, have long been the moſt eſteemed. They are manufactured, according to Pott, by mixing a very refractory clay with a coarſe ſand, the finer parts of which have been ſeparated by the ſieve and rejected. Theſe veſſels are not turned on the potter's lathe, as this would require a conſiderable portion of water to bring them to the requiſite degree of plaſticity, but the maſs is barely moiſtened, and is then faſhioned into the proper ſhape, by being ſtrongly rammed into an iron mould. The crucibles are then very ſlowly dried and baked. The genuine Heſſian crucibles are extremely hard, and (unleſs filled with any ſubſtance that acts as a powerful flux) they are only ſoftened, but not melted down, by a heat of ſufficient intenſity for any chemical operation. Though the coarſeneſs of their texture tends to render them porous, this defect is counteracted, in a great meaſure, by the very ſmall quantity of water uſed in making them, and the conſequent ſmallneſs of the ſhrinkage whilſt drying; and their coarſeneſs enables them to bear a pretty rapid heating and cooling without cracking.

The ordinary brown crucible ware uſed in this country, is whiter and finer than the Heſſian, but is ſofter, more crumbly, and much more porous; ſo that litharge, when in fuſion at a full red heat, runs through this ware nearly as eaſily as water ſoaks through a ſponge. It is alſo more fuſible than the Heſſian, though it is ſufficiently refractory for moſt purpoſes.

The moſt infuſible material for fire-pots that is known, and which reſiſts the operation of ſaline fluxes for the longeſt time, is a mixture of burnt and unburnt clay; and this is the compoſition of the large pots or crucibles uſed in glaſs-making. The peculiar advantage of this mixture is, in ſubſtituting baked clay to ſand, or any other ſilicious earth, and thus increaſing the proportion of alumine, which is an earth of difficult ſolution in fluxes, and diminiſhing that of ſilex, which is more ſoluble.

Crucibles intended for the fuſion of metals are much improved by a mixture of plumbago. This ſubſtance is infuſible *per ſe*, and being protected from the action of the air by being involved in the clay, its carbonaceous ingredient eſcapes combuſtion. It has the additional advantage of having no affinity whatever with the earths, and, therefore, does not diſpoſe them to fuſion; and the unctuous ſoftneſs of this material gives a great ſmoothneſs to the ſurface of the crucible, which prevents it from detaining any portion of the melted material when poured out. The black-lead ware will bear ſudden heating and cooling better than any other; and it is ſo ſoft, that it may readily be ſawed or cut with a jagged knife, whereby the chemiſt may eaſily fit himſelf with ſtoppers, covers, &c.; but its extreme porouſneſs renders it unfit to retain any kind of ſaline flux.

The uſeful fire-ware invented by Mr. Wedgewood is a very fine, hard, cloſe grained porcelain biſcuit, made of very pure clay and ſilex, which are brought to extremely fine powder before they are worked. This gives a cloſeneſs of texture ſuperior to any other pottery; ſo that crucibles made of it will long retain ſaline fluxes; and retorts will ſerve for the diſtillation of the moſt corroſive liquors, without requiring any glazing. Experience has ſhewn, however, that no kind of earthenware remains impervious to air, when very ſtrongly heated. The great inconvenience attending the Wedgewood fire-pot ware is, its extreme liability to crack whilſt heating or cooling, which is owing to its porcellanous hardneſs, and the cloſeneſs of its texture. This inconvenience is, in ſome meaſure, remedied, by giving the crucible a ſlight coating of loam or clay.

It is often required, in chemical operations, to line the inſide of a crucible with charcoal; as, for example, in the reduction of many of the ſimple metallic oxyds, or carbonated oxyds, ſuch as the oxyds of mangane ſe, copper, or lead, and for other purpoſes. This is ſometimes done by cutting down a piece of charcoal to fit the cavity of the crucible, and then ſcooping a hollow in the charcoal; but it is a better and more ſpeedy way to mix up ſome charcoal powder with a very little linſeed meal, to moiſten the maſs juſt ſufficient to make a ſlightly adheſive maſs to line the crucible with it, and to dry it in a red heat, by which the volatile parts of the linſeed fly off, and a ſufficiently firm charcoal is left.

The form of the ordinary earthen crucibles is round, or three-cornered, or ſometimes barrel-ſhaped; and they are uſually furniſhed with ſtoppers of the ſame material, with a ſmall hole through the top, opening obliquely, to allow the eſcape of any vapour, when the joining is cloſed by lute, and at the ſame time to prevent any of the duſt of the fuel from falling in. As the lower part of the crucible would eſcape the greateſt heat of the furnace, if put immediately upon the bars, and would be liable to crack by the current of cold air, the crucible is generally ſet on a ſolid earthen ſtand, which raiſes it an inch or two from the grate. The lid of the crucible may be luted on by a mixture of clay and ſand; or, if it is required to be quite impervious, a mixture of pipe-clay, with about a tenth of glaſs of borax, may be employed, which, in a red heat, conſolidates into a ſemi-fuſed tenacious maſs.

Crucibles are alſo made of ſilver, iron, and platina. A ſilver crucible is almoſt indiſpenſible in the analyſis of earths and ſtones when they require to be firſt treated with cauſtic alkali; for, if earthen veſſels are uſed for this purpoſe, the alkali acts alſo on the ſubſtance of the crucible, and thus much confuſion is introduced in the proceſs; whereas pure ſilver is not in any way acted on by alkali. The ſilver employed for this purpoſe ſhould be freed from alloy, either by cupellation, or by being recovered from luna cornea. Silver, when perfectly pure, and laminated into a thin plate, is fuſible at a full red heat, not more intenſe than can be made in a common fire; ſo that a crucible of this material will but juſt bear the heat required for the perfect fuſion of the fixed alkalies, and will hardly retain the melted alkali for any great length of time. It is found, however, that this heat is by no means neceſſary, for moſt earths are completely *reſolved*, or rendered ſoluble in water or acid, by previous ignition with alkali, for about an hour, in a heat ſhort of fuſion.

When a very ſtrong heat is required to be given to the mixture of alkali and earths, chemiſts ſometimes employ an iron crucible, previouſly cleaned and ſmoothed on the inſide, which is often found very uſeful for other purpoſes.

Laſtly, we may mention platina as a material for crucibles, which has been found of ſuch ſingular utility for a vaſt variety of uſes, that it is almoſt indiſpenſible to the analytical chemiſt. Platina has the advantage of bearing the utmoſt intenſity of heat without fuſion, and not being in any degree oxydated by expoſure to air, the ſmoothneſs and poliſh of the ſurface remain uninjured; ſo that ſubſtances which are heated in it may be detached with great eaſe and accuracy. There are few ſubſtances that act on platina; ſo that moſt operations that require heat may be performed ſafely in veſſels made of this valuable metal: the particular mode of working it will be mentioned under the article PLATINA. It unfortunately happens, however, that the alkalies, when in ſtrong fuſion, diſſolve a ſenſible portion of this metal; and hence it is not equally valuable with pure ſilver under theſe circumſtances. When platina crucibles are ſtrongly heated, in contact with coak or coal, they ſhould be incloſed looſely in crucibles of earthenware, otherwiſe the vitreous ſlag of the coal is apt to adhere ſtrongly to the outſide of the platina veſſel, and cannot be got off without much difficulty.

CRUCICOLÆ, q. d. *worſhippers of the croſs*, a deſignation given to the primitive Chriſtians, by the heathens.

CRUCIFERÆ, in *Botany*, the third natural order of the thirteenth claſs in the ſyſtem of Juſſieu. It conſiſts of dicotyledonous polypetalous hypogynous plants, with the following peculiar character. *Calyx* four-leaved, almoſt always deciduous. *Petals* four, diſpoſed in the form of a croſs, alternate with the leaves of the calyx, moſt frequently furniſhed with claws, inſerted into an hypogynous diſk. *Stamens* ſix, with the ſame inſertion; four longer, in oppoſite pairs; two ſhorter, ſolitary, and oppoſite to each other, between the pairs; each of the pairs, and of the ſolitary filaments oppoſite to a leaf of the calyx. *Germ* ſimple, ſituated upon the ſtaminiferous diſk, which is ſometimes tumid between the longer and ſhorter ſtamens, and thence appears quadriglandular; ſtyle one or none; ſtigma moſt frequently ſimple. *Fruit* either a ſilique or a ſilicle, *i. e.* either long or ſhort; generally two-celled, and with many ſeeds, two-valved; valves opening lengthwiſe, and entirely ſeparating from each other; partition membranous, ſeminiferous on each of its edges, ſometimes extending beyond the valves, and forming a kind of beak. Periſperm none. *Stems* herbaceous, rarely ſhrubby. *Leaves* alternate (in a ſingle inſtance, oppoſite.) *Flowers*, for the moſt part, not axillary, ſcattered, or in terminal ſpikes, rarely panicled.

This family is univerſally allowed to be a very natural one, and, with ſome ſlight variations, has been kept ſeparate by moſt ſyſtematic botaniſts. It correſponds exactly with the Linnæan claſs tetradynamia, except that it excludes cleome, a rather anomalous genus, which does not well accord with the others, and which Juſſieu has therefore removed to the capparides, his next ſucceeding natural order. Juſſieu has thrown the genera, as Linnæus had done before him, into two diviſions, according to the length of the ſeed-veſſel, and the abſence or preſence of a ſtyle. Ventenat has made ſome alteration in the arrangement and number of genera. In his "Tableaux du regne Vegetal," the order ſtands thus: I. *Erucaceæ.* Style ſcarcely any. Fruit a ſilique, two or many-celled, terminated by a kind of tongue or beak; raphanus; raphaniſtrum, ſeparated from the preceding; ſinapis; braſſica. II. *Cheiranthoides.* Style ſcarcely any. Fruit a ſilique, two-celled, terminated by a point, which is commonly very ſhort; arabis, including turritis; heſperis; cheiranthus; eryſimum; ſiſymbrium; radicula, ſeparated from ſiſymbrium; cardamine; dentaria. III. *Alyſſoides.* Style apparent. Fruit a ſilicle, two-celled, rarely one-celled. Lunaria; ricotia, ſeparated from lunaria; biſcutella; clypeola, including peltaria; alyſſum; veſicaria, ſeparated from alyſſum; draba; cochlearia; coronopus, ſeparated from cochlearia; iberis; thlaſpi; capſella, ſeparated from thlaſpi; naſturtium, ſeparated from lepidium; lepidium; camelina, ſeparated from myagrum; anaſtatica; vella. IV. *Myagroides.* Style apparent, or ſcarcely any. Fruit a ſilicle, from one to four-celled, valveleſs; cells with only one ſeed in each, ſome of them often abortive; myagrum; rapiſtrum, ſeparated from myagrum; bunias; erucago, ſeparated from bunias; cakile, ſeparated from bunias; pugionum, alſo ſeparated from bunias: crambe; iſatis.

Moſt of the plants of this natural order are hot to the taſte, contain a portion of volatile alkali, and are reckoned deterſive, diuretic, and antiſcorbutic. The roots or leaves of ſeveral of them are ſome of the moſt common eſculent vegetables, and are eſteemed nutritious to man and to beaſt. It appears, from ſome experiments made in France by Deyeux and Beaumé, that theſe plants contain ſulphur, combined with their odorous principle; and that this combuſtible body, reduced to the ſtate of an elaſtic fluid by its combination with hydrogen, conſtitutes their aroma.

CRUCIFIX, a croſs, whereon the body of Jeſus Chriſt is faſtened in effigy; much uſed by the Romaniſts in their churches, and other places, to recognize the paſſion of Jeſus Chriſt, and direct their prayers to.

There are ſome chapters wherein Jeſus Chriſt is the firſt canon, and the income of the canonry goes to the ſubſiſtence of the *crucifix*.

CRUCIFIXION, an ancient form of execution, by faſtening the criminal to an erected croſs. See Cross.

CRUCIFORM Flower, *flos cruciformis*, in *Botany*, is ſo called from the reſemblance of its four ſpreading petals to a croſs. Such flowers conſtitute a very natural order of plants; as well as a claſs in Tournefort's ſyſtem, and even in that of Linnæus; his *Tetradynamia* being entirely compoſed of ſuch, with the exception of *Cleome*, which ſome botaniſts judge to be improperly placed there, even according to the Linnæan character of that claſs. See Cruciferæ, Corolla, and Cleome. S.

CRUCIS, Experimentum. See Experimentum.

CRUCITA, in *Botany*, Juſſ. See Cruzita.

CRUCKFALLA, in *Geography*, a mountain of the county of Donegal, Ireland, near Bloody Farland-point.

CRUCOLI, a town of Naples, in the province of Calabria Citra; 6 miles S.E. of Curiati Vecchia.

CRUDE, ſomething that has not paſſed the fire, or has not had the degree of concoction, *i. e.* of heat, requiſite to prepare it for eating, or ſome other uſe.

Crude, or raw ſilk, is that which has not been put in boiling water, to unwind it from off the cod; nor boiled in water and ſoap, to fit it for dyeing.

Crude *ſugar*. See Sugar.

Crude *antimony*, is that which comes immediately from the mines, without any preparation, except once melting.

Crude *humours*, in *Medicine*, or rather in the old humoral pathology, were the humours in an unconcocted ſtate. In the early ſtate of inflammation, when the ſecretions are thin and watery, they were termed *crude*, in contradiſtinction from the ſubſequent ſtate of ſuppuration, when a thick and purulent diſcharge takes place, which was ſaid to be *concocted* or digeſted. The terms were extended, by analogy, to all the diſcharges from the body in febrile diſeaſes in general, as we have ſhewn under the heads of Concoction and Crisis; which ſee.

CRUDEN, Alexander, in *Biography*, well known for his excellent Concordance of the Bible, was born in 1701 at Aberdeen, where he received his grammar learning: he afterwards ſtudied at Mariſchal college, with a view of entering the church. Unfortunately, before the period arrived when he could be admitted to officiate as a public inſtructor, ſuch decided ſymptoms of inſanity appeared in his conduct, as rendered confinement neceſſary. Throughout the whole of his life he believed that he was delegated by Heaven to reform a guilty world; and his conduct in a thouſand inſtances demonſtrated an ardour and zeal for the good of his fellow-creatures, that merited the higheſt applauſe. Thrice, however, was he ſhut up in a private madhouſe, in which, if the nature of his diſeaſe did not lead him to exaggeration, he was cruelly treated. Once indeed he brought his action againſt a reſpectable phyſician, and other perſons connected with him; the cauſe was tried, and Cruden was unable to make out a caſe. The verdict was given in favour of the defendants; but to the public he made an appeal; and the deſcription of the treatment which he experienced, or which he aſſerted that he had experienced, cannot fail to excite the commiſeration of every feeling heart. That moſt deplorable malady to which humanity is ſubject, is, we fear, too frequently treated with a degree of harſhneſs that cannot be juſtified upon any principles. On his releaſe from his firſt confinement he came to London, and engaged in ſome reſpectable families as private tutor. In the ſame employment he ſpent ſome years in the iſle of Man, and in 1732 he opened a ſhop in London, under the Royal Exchange, as bookſeller, and employed all his vacant time as a corrector of the preſs. In the following year he began to compile his great work, *viz.* "A complete Concordance of the Holy Scriptures of the Old and New Teſtament." We can ſcarcely conceive any literary work that required more patient labour than this, and few have been executed with greater accuracy. He had nearly executed the whole before he looked for public remuneration. The firſt edition was publiſhed in 1737, and dedicated to queen Caroline, who had led the editor to expect her patronage; her majeſty unfortunately died a few days before the work could be got ready. The author's affairs were now embarraſſed; he had none to look to for aſſiſtance, and in a fit of deſpondence he gave up his trade, and became a prey to melancholy. Shortly after this, he aſſumed the title of "Alexander the Corrector," maintained that he was divinely commiſſioned to reform the manners of the age, and reſtore the due obſervance of the ſabbath. To prophecy he appealed, in which he ſaw his own character delineated. He ſought, however, for earthly honours, and requeſted of his majeſty the dignity of knighthood, and earneſtly ſolicited his fellow-citizens to elect him member for the city of London. Both were deaf to his entreaties, and he turned from public offices to duties for which he was better qualified. He laboured almoſt inceſſantly, ſometimes in works of pure benevolence, and at others as corrector of the preſs, and ſeldom allowed himſelf more than four or five hours for ſleep. In 1770 he left Aberdeen for London; he took lodgings at Iſlington, where he died November the firſt. In private life Mr. Cruden was courteous and affable, ready to aſſiſt all that came within his reach, as well with his money as with his advice, which was founded upon the principles of practical religion. He was, with regard to doctrines, a Calviniſt; but, what is much better, he was a good man, and, like his great Maſter, exerciſed in works of piety and true benevolence. Biog. Brit.

Cruden, in *Geography*, a bay of Scotland, formed by a river of the ſame name, on the eaſt of the county of Aberdeen; 8 miles S. of Peterhead.

CRUDIA, in *Botany*, (named after a botaniſt called Crudey, by whom the plant was communicated to Schreber.) Schreb. 711. Willd. 821. Claſs and order, *decandria monogynia*.

Gen. Ch. *Cal.* Perianth one-leafed; tube ſhort, compreſſed-top-ſhaped, gibbous before at the baſe, with an oblique mouth, permanent; border four-parted, unequal, ſpreading, deciduous; upper ſegment roundiſh, concave; the others egg-ſhaped, very obtuſe, leſs concave. *Cor.* none. *Stam.* Filaments ten, filiform, a little broader at the baſe, bent in the middle, inſerted into the neck of the calyx, and twice the length of its ſegments; anthers roundiſh, adnate. *Piſt.* Germ ſcymitar-ſhaped, hiſpid, erect, affixed to the bottom of the calyx by a pedicel as long as the tube, inclined to the upper ſegment; ſtyle capillary, inflexed the length of the ſtamens, proceeding from the back of the germ; ſtigma thickened, obtuſe. *Peric.* Samara very large, egg-ſhaped, one-celled. *Seeds* two, roundiſh, depreſſed.

Eſſ. Ch. Calyx one-leafed; border four parted. Corolla none. Filaments dilated at the baſe. Samara with about two ſeeds, egg-ſhaped.

Sp. 1. C. *ſpicata*. Willd. 1. (Apalatoa ſpicata; Aubl. Guian. 1. 383. tab. 147.*) "Leaves pinnated; leaflets oblong-lanceolate, acuminate." *Root* perennial. *Leaves* alternate, ſmooth. *Racemes* ſimple, axillary. Willdenow, under the genus pterocarpus, has directed this ſpecies to be removed from the preſent genus, probably for a reaſon which Mr. Konig has ſhewn to be ill-founded, on the authority of Aublet's original ſpecimen in the herbarium of ſir Joſeph Banks. See Annals of Botany, vol. i. p. 358. 2. C. *aromatica*. Willd. 2. (Touchiroa aromatica; Aubl. Guian. 315. tab. 148.*) "Leaves ſimple, elliptical, acuminate." Different from the preceding chiefly in having ſimple leaves. Both ſpecies are natives of woods in Guiana.

CRUDITY, in *Medicine*, the condition of the humours previous to concoction. See **Crude**.

CRUELTY, in *Ethics*, is a habit of mind, directly oppoſed to mercy and compaſſion, diſpoſing men to take delight in inflicting miſery and puniſhment, and in ſatiating the thirſt after theſe, by beholding the torture and anguiſh of the ſufferers, independently of any conſideration of injury received or ſuffered. According to the arrangement of Dr. Hartley, it belongs to that claſs of affections which lead us to rejoice at the miſery of others. Cruelty and malice, ſays this writer (Obſ. on Man. p. 284.) are the genuine and neceſſary offspring of anger indulged and gratified. They are moſt apt to ariſe in proud, ſelfiſh, and timorous perſons, thoſe who conceive highly of their own merits, and of the conſequent injuſtice of all offences againſt them; and who have an exquiſite feeling and apprehenſion in reſpect to private gratifications and uneaſineſſes. Cruelty to brute animals indicates a mind deſtitute of reflection and ſenſibility. In the more atrocious inſtances of it, it either ſprings from, or tends to cheriſh, a ſavage diſpoſition; and in thoſe caſes, in which it forms a part of men's amuſements and paſtimes, it is culpable in its ſource, and injurious in its effects. Bull-baiting, cock-fighting, and ſuch ſports, which ſome have reckoned as manly, are remnants of barbarity; and there are other amuſements and ſports, which ought to be reſtrained and diſcouraged on account of the cruelty that attends heedleſsneſs and wantonneſs; but as it is of pernicious influence it ought to be checked and prohibited, particularly in the early periods of life. As a preſervative againſt all wanton acts of cruelty, even in favourite paſtimes, we would recommend, more eſpecially to young perſons, the peruſal of Thomſon's *Spring*, in his *Seaſons*. It may ſerve to check the practice, or at leaſt to diminiſh the pleaſure, of thoſe who torture worms and other inſects in the amuſement of fiſhing: and of others who, for the indulgence of a vitiated appetite, blend the moſt unfeeling cruelty with the arts of cookery. Referring to the former ſpecies of cruelty, the humane and moral poet deſcribes it in the following lines:

"But let not on thy hook the tortur'd worm,
Convulſive twiſt in agonizing folds;
Which, by rapacious hunger ſwallow'd deep,
Gives, as you tear it from the bleeding breaſt
Of the weak, helpleſs, uncomplaining wretch,
Harſh pain and horror to the tender heart."

In the education of youth, it is of great importance that no wanton, and more eſpecially no deliberate act of cruelty, ſhould be permitted or encouraged.

CRUGER, or **Kruger, Theodore**, in *Biography*, an engraver, born at Munich about the year 1576, but though a native of Germany, he reſided during the greater part of his life in Italy. He appears to have attempted the manner of Franceſco Villamena; but his prints, though executed in a bold ſtyle, loſe their effects from his ignorance of the diſtribution of light and ſhade. He died at Rome about the year 1650. His plates are uſually marked with a cypher, compoſed of the initials of his name; amongſt them are the following:

"Vita D. Joannis Baptiſtæ ex archetypo Andræ Sartii, &c." A ſet of 18 middle ſized prints, in which are included the frontiſpiece, the portrait of Andrea, two ſubjects from Francia Bigio, and four ſingle figures, repreſenting Juſtice, Faith, Hope, and Charity.

The "Laſt Supper," after the ſame painter, a large plate lengthways. Huber. Manuel des Arts.

Cruger, or Kruger, Theodore, (alſo called Ver Crus by the Flemings, and Dalla Croce by the Italians,) an engraver, born about the year 1646, by ſome ſuppoſed to be the ſon of the laſt-mentioned Cruger. This artiſt, in 1710, was employed, with three others, to engrave the Florentine gallery. There are ſome other plates by him, etched and retouched with the graver, in a ſtyle which does not ſhew any great merit. We ſhall only notice the following works of this maſter:

A Portrait of Ludovicus Adimari, engraved from P. Dandini; a ſmall plate.

A portrait of a gentleman, from P. Bordone, in the Florentine gallery, folio.

A portrait of a lady, from the ſame, in the ſame collection, folio.

A portrait of the wife of Giorgione, from a painting by that maſter in the ſame gallery, folio.

St. Francis at prayers, from Carlo Maratta. Huber. Strutt.

Cruger, or Kruger, Matthias, brother to the elder Theodore. This artiſt engraved ſome plates from Guido and other maſters, as well as from his own compoſitions. Strutt.

Cruger, Louis. See Krug.

CRUICKSHANK, William, a diſtinguiſhed anatomiſt, was born at Edinburgh in the year 1746. At the age of fourteen he was ſent to the univerſity in that city, and after ſtudying ſome years there, he was removed to Glaſgow. He was intended by his father for the church, and as he was very diligent, and forward in claſſical learning, he early employed a part of his leiſure hours in teaching Greek and Latin to the younger ſtudents, and in that capacity was engaged in the family of provoſt Buchanan: ſhewing at length a ſtronger propenſity to medicine than to theology, he was placed under the care of Mr. Moore, ſurgeon, at Glaſgow. From Mr. Moore Mr. Cruickſhank removed, in 1771, to London, where he was ſoon introduced, and made librarian to Dr. William Hunter, in which office he acquitted himſelf ſo well, that on the ſeceſſion of Mr. Hewſon, he became the aſſiſtant, and, in a little time, joint lecturer in anatomy, with the doctor. He had here full ſcope for his abilities, and as he was as diligent as he was ſkilful, he added largely to the beautiful collection of anatomical preparations with which the muſeum of Dr. Hunter was filled, particularly by his curious injections of the lymphatic veſſels. The reſult of his acquirements in this branch of anatomy, which he cultivated with aſſiduity and ſucceſs, he publiſhed in 1786, under the title of "The Anatomy of the Abſorbent Veſſels of the Human Body." In this work, which was re-publiſhed in 1790, he demonſtrated the ſtructure and ſituation of the valvular lymphatic abſorbents. On the death of Dr. William Hunter, which happened in the year 1783, Mr. Cruickſhank became partner in the lectures with the doctor's nephew, Dr. Baillie, and had with him the joint uſe of the muſeum, for the purpoſe of illuſtrating the lectures. The muſeum has ſince, agreeably to the direction of Dr. Hunter in his will, been ſent to Glaſgow. In 1795, Mr. Cruickſhank communicated to the Royal Society an account of the regeneration of the nerves. The paper was printed in the Philoſophical Tranſactions for that year. The ſame year he publiſhed a pamphlet on inſenſible perſpiration; and in 1797, an account of appearances in the ovaria of rabbits, in different ſtages of pregnancy; but his fame reſts upon, and is beſt ſupported by his anatomy of the abſorbents, which continues to be conſidered as the moſt correct and valuable work on the ſubject, now extant. He died on the 27th of June, 1800. Annals of Medicine, vol. v.

CRUISE, from the German *kruiſs*, *a-croſs*, ſignifies to croſs to-and-fro, to ſail up and down within a certain ſpace of the ſea, called the *cruiſing* latitudes, in queſt of veſſels, or fleets of an enemy, &c.

CRUISERS, in the *Navy*, are ſmall men of war, made uſe of to-and-fro in the Channel, and elſewhere, to ſecure our merchant-ſhips and veſſels from the enemy's ſmall frigates and privateers. They are generally ſuch as ſail well, and are commonly well manned; and, indeed, the ſafety of the trade in the Channel, and up and down the ſoundings, and other places, abſolutely requires the conſtant keeping out of ſuch ſhips at ſea.

CRUIT, in *Geography*, in iſland in the Atlantic ocean, near the Weſt coaſt of the county of Donegal, Ireland, Long. 8° 19′ W. Greenwich. Lat. 55° 2′ N.

CRULAY, a ſmall town of France, in the department of the Eure, 12 miles E. of Verneuil.

CRUMAU, or Krumau, or *Krumtow*, a town of Moravia, in the circle of Znaym; 16 miles N.N.E. of Znaym.

Crumau, or *Krumlaw*, a town of Bohemia, in the circle of Prachatitz, on the river Moldaw; 17 miles S.E. of Prachatitz, and 76 S. of Prague.

CRUMENA, from κρεμαω, *pendeo*, *I hang*, in *Zoology*, the name given by Cardan, and ſome others, to the purſe or pouch which the opoſſum has under its belly, and into which it receives the young in time of danger.

Scaliger, ſuppoſing there might be other animals, as well as the opoſſum, to which nature might have given this ſort of pouch, has erected a general diſtinction, under the name of *animalia crumentata;* but the opoſſum is the only ſpecies yet known to belong to this genus. The only inſtance that naturaliſts ſeem to afford us of a like proviſion of nature for the care of the young, is what is related of ſome of the fiſh kind. Oppian, in his Halieutics, mentions this property of receiving the young into the body, in time of danger, to be in the dog-fiſh, and in the ſquatina, and ſome others; and Tyſon obſerves, that, in the anatomy of a female dog-fiſh, he ſaw two ſlits under the belly, cloſed up in their natural ſtate, but eaſily diſtenſible, ſo as to be capable of receiving the young fiſh; and that theſe went not into the womb, nor any other peculiar part, but only into the cavity of the abdomen.

The account given by Oppian is, that, in time of danger from a ſtorm, or from any fiſh or prey purſuing the young fry, they go into the parent's belly. If, therefore, after this account of Tyſon's, any young fiſh ſhould ever be found looſe in the cavity of the mother's belly, it will prove the truth of this paſſage in Oppian, which has been ſo much diſputed. Phil. Tranſ. No. 239, p. 120.

CRUMENTATA, a term uſed by Julius Scaliger to expreſs ſuch animals as have a pouch or bag under their belly, into which young ones may be received in time of danger. See Opossum.

CRUMHUBELL, a ſilver mine in Sileſia, which produces galena and ſilver ore, was thought by ſome to be the moſt elevated above the ſea of any known mine, but Sterzingen ſilver-mine in the Tyrol (elevated 7512 French feet) and ſome others, are ſtill higher.

CRUMIRUM, in *Ancient Geography*, a town of Lower Pannonia.

CRUMLIN Canal, ſometimes, though improperly, called *Kew Chapel* canal, (under which name it is ſhortly deſcribed in our article Canal.) This canal, or water-level, in its general direction, is nearly weſt, with a bending courſe of two miles, in the county of Glamorgan in South Wales;

it is throughout about level with the higheſt tides, or 22 feet above low-water mark in the Briſtol Channel; it commences within ten yards of the river Neath, at Trueman's-hall ſhipping ſtaith, which is oppoſite to the commencement of the Neath canal at Giant's-grave-pill, and proceeds through Crumlin bog to Lan-y-wern colliery, whence a tram-road proceeds in a tunnel, half a mile into the hill, and there interſects the ſame great vein of run or bituminous coals, which Meſſrs. Smith and Co. are working at Lanſamlet. This canal is about 26 feet wide at top, 14 at bottom, and 3 feet deep, and was cut under the direction of Mr. Thomas Dadford, ſenior, at the ſole expence of Edward Elton, eſq.; who, it is to be feared, is but ſlightly remunerated by the ſmall trade thereon, for his heavy expences in the undertaking. Crumlin bog, of about 700 acres, was ſince drained by a company of leaſers, under lord Vernon and the lords of Neath abbey eſtate, to whom the ſame belongs.

Crumlin-*Water*, a ſmall river of the county of Antrim, Ireland, which riſes in mount Devis, and falls into Lough-Neagh.

CRUMMEL-Bottom, or *Cranwell-Bottom* quarries; theſe are ſituate near the village of Ealand, in the Weſt Riding of Yorkſhire, and furniſh great part of the excellent paving-ſtone which is now ſo generally uſed in the foot pavements in London, by means of the Calder and Heble navigation, which paſſes cloſe by them. (See Canal.) This valuable ſtone, and the white or grey ſlate from the ſame quarries, are the produce of the fourth grit-ſtone rock, reckoning upwards from the mineral or Derbyſhire lime ſtone ſtrata. This rock is remarkable in every part of its courſe through the kingdom for its abundance of mica, in ſmall plates, ſo diſpoſed as to occaſion the ſtone to ſplit with the utmoſt eaſe and truth, almoſt as thin as we pleaſe. Near Halifax the ſame is quarried in ſuch large ſlabs as to floor the largeſt kitchens with only four or ſix ſtones; and it alſo ſplits ſo readily and truly in other directions, that long beams are not unfrequently cleaved out of it, of which ſome very remarkable ſpecimens are, or were very lately, to be ſeen oppoſite to the late ſir William Staines's ſtone-wharf in Millbank-ſtreet, Weſtminſter.

CRUMNOCK Lake, or *Water*, in Cumberland, lies on the N.W. of Buttermere; it is about four miles long, and half a mile in breadth, has three ſmall iſlands in it, one of which is a naked rock, the others are covered with wood. This lake is extremely deep and clear, and contains abundance of char fiſh, from ſix to eight ounces weight each. The Coker river is fed from this lake, which itſelf receives the waters of Buttermere, and Lowes-waters.

CRUMP Island, a ſmall iſland in the Weſt Indies about a mile long, near the N.E. end of the iſland of Antigua. N. lat. 17° 14′. W. long. 61° 25′.

CRUÑA del Conde, a town of Spain, in Old Caſtile, on the Duero, near Aranda de Duero.

CRUNARAD, or Crumarad, a hill of the county of Donegal, Ireland, 2 miles N. of Killibegs. It has a remarkably ſharp top, and is much higher than any of the hills eaſtward of it, which makes it an excellent mark for finding the entrance of Killibegs harbour. M'Kenzie.

CRUNI, in *Ancient Geography*, a town of Greece, in the Peloponneſus, placed by Strabo between Chalcis and Pyle. —Alſo, a river of the Peloponneſus, which is near the forementioned town.—Alſo, a town of Lower Mœſia, upon the Euxine ſea, N.E. of Odeſſus, and W. of the Cape Tetriſias.

CRUOR *of the Blood*, is a term ſynonymous with *Craſſamentum*.

CRUPEZIA, in *Antiquity*, wooden ſhoes, or clogs, worn by the Meſochori.

CRUPINA, in *Botany*, a name by which ſome authors call the *carduus ſtellatus*, or ſtar-thiſtle.

CRUPPER is uſed by ſome for the hind or round part, or rump of a horſe, comprehended between the place of the ſaddle and the tail. See Horse.

The word is formed from the French *crouppe*, which ſignifies the ſame. It denotes alſo a thong of leather put under a horſe's tail, and fixed to the ſaddle, to prevent it from being thrown forward. See Saddle.

CRURA Clitoridis, in *Anatomy*, a term ſynonymous with *corpora cavernoſa clitoridis*.

Crura *Cerebelli*, are two portions of medullary ſubſtance, forming the trunk of the arbor vitæ, and joining the upper and back part of the pons varolii. See Brain.

Crura *Cerebri*, are two large proceſſes of medullary matter, departing from the inferior ſurface of the cerebrum, to join the pons varolii at its anterior part, where they unite at an acute angle. They are called by Soemmering *proceſſus medullæ cerebri*. See Brain.

Crura *Diaphragmatis*, two portions of muſcle, ariſing from the bodies of the lumbar vertebræ, and fixed to the poſterior part of the greater diaphragm. They conſtitute the leſſer diaphragm. See Diaphragm.

Crura *fornicis*, in the brain. There are four of theſe, *viz.* two anterior, and two poſterior. The former are diſtinct round medullary chords, ariſing ſeparately in the anterior lobes of the brain, and uniting to form the pillar or body of the fornix: the poſterior crura are thin, broad, and flat; and united by the medullary expanſion, termed *trigonus* or *pſalterium*. They run along the anterior part of the great hippocampus. See Brain.

Crura *penis*, are the ſame as the corpora cavernoſa of that part.

CRURÆUS, or Cruralis *Muſculus*, in *Myology*, derives its origin from the anterior rounded ſurface of the os femoris, and proceeds in a ſtraight direction to the baſis of the patella. It cannot be at all ſeparated from the vaſtus internus, and for the moſt part is as intimately united to the vaſtus externus. Theſe three muſcles ſhould indeed be included under one name and deſcription. The cruralis will aſſiſt in extending the knee-joint.

CRURAL, in *Anatomy*, is a term applied to the veſſels, &c. of the lower extremity; *viz.* to the femoral artery and vein. There is an *anterior crural nerve*, derived from the lumbar nerves, which ſupplies the front of the thigh. See Nerve.

Crural *Arch*, is the ſpace left under the lower border of the tendon of the external oblique muſcle, where it paſſes from the ſpine of the ilium to the pubis. The broad inſertion, which the tendon has into the angle and criſta of the pubis, gives to this part a concave form, which juſtifies the appellation of crural arch. The ſpace in queſtion is completely filled by various parts, which are paſſing between the thigh and the pelvis. Its outer part contains the iliacus internus, and pſoas magnus muſcles; between which, on the anterior part, lies the anterior crural nerve. Next to theſe muſcles, towards the inſide, is the femoral artery; and its correſponding vein is ſtill nearer to the pubis. The trunks of the lymphatics of the lower extremity enter the pelvis, about the femoral veſſels; and there is frequently a large gland, or more than one, under the tendon.

CRUS, denotes all that part of the body which reaches from the buttocks to the toes; and is divided into thigh, leg, and foot.

CRUSA, in *Ancient Geography*, a town of Aſia Minor, in the Ceramic gulf.

CRUSADES. See Croisades.

CRUSÆI, a people of Macedonia, who inhabited the country called Cryſis in Mygdonia.

CRUSCA, an Italian term, ſignifying *bran*, or what remains of meal after the flour has been ſifted out. It is only in uſe among us to denote that celebrated academy called *Della Cruſca*, eſtabliſhed at Florence, for purifying and perfecting the Tuſcan language.

The academy took its name from its office, and the end propoſed by it, which is to refine the language, and, as it were, to ſeparate it from the bran. Accordingly, its device is a ſieve, and its motto, *Il piu bel fior ne coglie;* that is, *It gathers the fineſt flour thereof.*

In the hall or apartment where the academy meets, M. Monconis informs us, every thing bears alluſion to the name and device: the ſeats are in form of a baker's baſket; their backs like a ſhovel for moving of corn; the cuſhions of grey ſattin in form of ſacks, or wallets; and the branches, where the lights are placed, likewiſe reſemble ſacks.

The vocabulary *Della Cruſca* is an excellent Italian dictionary, compoſed by this academy.

CRUSIUS, Gottlieb Lebrecht, in *Biography*, a German engraver, born in the year 1730. He ſtudied deſign ſome time at Leipſic, and made drawings for the bookſellers. He afterwards began to engrave, and went to Paris to complete his ſtudies. He then again eſtabliſhed himſelf at Leipſic, where he was principally employed in decorating the publications of the day. He had a brother named Carl, who likewiſe engraved for books, and died in 1779. Heinecken.

CRUSSEILLE, in *Geography*, a ſmall town of France, in the department of Mont Blanc, formerly the duchy of Savoy; 9 miles N. of Annecy.

CRUSSER, in *Commerce*, a piece of coin in Germany, valued at about three farthings.

CRUSSOL, in *Geography*, a ſmall town of France, in the department of the Ardeche, with an ancient caſtle; 9 miles S. of Tournon.

CRUST *of the Earth*, in *Geology*, a term implying the rocks and ſtrata which are within the reach of geological obſervation, by means of valleys, fiſſures, mines, &c. It ſeems more than probable, that the whole of this is compoſed of ſtratified matters, formed from aqueous depoſitions, ſince much diſlocated and broken in ſome parts, and being very thick and aſſuming a cryſtalline ſtructure in others. See Strata.

With ſome early writers, the term cruſt was applied only to the alluvial mixtures or mould, &c. which cover the ſtrata in moſt inſtances.

CRUSTA Lactea, a *Medical* term, applied to a ſpecies of itchy running ſcab, which appears in the face of infants one or two years of age: they are generally obſerved in infants at the breaſt, that have not yet cut their teeth. However, the diſeaſe ſometimes alſo appears later, as it has been met with in children of four or ſix years of age; and indeed it is not a diſeaſe of infants alone, for it has alſo, though rarely, been obſerved in adults. Children that are liable to it, are moſtly attacked with it as often as they cut a tooth. Inſtead of the diarrhœa and cough, which are the more ordinary attendants of teething, the eruption appears in theſe ſubjects; and again dries up when the tooth is cut, as then the irritation has ceaſed. See the article Achor.

This diſeaſe is not attended with fever: it always appears firſt in the face, on the cheeks, mouth, lips, and forehead, in ſmall ulcers of the ſize of a lentil, which contain a pale yellow gelatinous fluid. Theſe ſmall ulcers ſoon burſt, perhaps as ſoon as the ſecond day, and form a ſcab or cruſt, in colour reſembling milk that has been dried down over the fire, from whence alſo the diſeaſe takes its name. In the ſmall-pox a ſimilar ſcab is produced; but it is not ſo thick, nor ſo often reproduced. In the cruſta lactea the bottom of the puſtule is reddiſh, and the detached puſtules have a pale red margin, like thoſe of the ſmall-pox; but the eruption does not itch, and it ſoon breaks. When the ſcab has fallen off, another is ſoon produced. The puſtules ſoon coaleſce, occupy a large portion of the ſurface, ſometimes alſo approach the eye, rendering the cornea dim; whilſt the albuginea becomes inflamed, which produces intolerance of light; and the whole face becomes covered, as it were, with a maſk of ſcabs. They frequently appear alſo upon the breaſt and belly, and at length even upon the extremities; but only in a ſporadic manner. Sometimes the patients are at the ſame time affected with ſcrophulous tumours. Frequently this eruption is kept up, by the patients' rubbing and ſcratching; ſo that the diſeaſe ſtill continues for a long time, in conſequence of the perpetual irritation.

This eruption Mr. Wichman terms the genuine cruſta lactea, from which he diſtinguiſhes two other ſpecies of eruptions of the face: namely, when it is more violent, the *cruſta ſerpiginoſa;* and that of the worſt kind, the *cruſta ſcrofuloſa.* The cruſta ſerpiginoſa, which ſeems to him to be a combination of the cruſta lactea with ſome other dyſcraſia, and perhaps is of a herpetic nature, occurs alſo without fever, in children that are in other reſpects in perfect health, and chiefly in infants at the breaſt; appearing firſt in the cheek, in the vicinity of the parotid gland, where it forms a ſcab, which gradually ſpreads upwards to the forehead, and even behind the ear: it ſeldom occurs after the infant has been weaned; and more frequently in thoſe infants that are ſuckled by hired nurſes, than thoſe who receive ſuck from the mother. It ſoon occupies a larger extent of ſurface, ſometimes one ſeveral inches in diameter, upon the cheek, and forms a ſmall ſcab of a darker colour. It is never attended with ſmall ulcers, but rather with miliary eruptions; though theſe are of a darker colour than uſual, and ſoon break. The puſtules in this diſeaſe diſcharge a great deal, and contain an acrid fluid, producing an intolerable itching, which is not found in the cruſta lactea, unleſs when complicated. The diſeaſe does not yield to thoſe remedies which are uſeful in the cruſta lactea, but ſpreads, if it be left time to do ſo, into wet itching ſpots. Sometimes alſo it ſpreads over the face, frequently attacks the eye-lids, but not the ball of the eye; and often, on the other hand, it occupies the hairy ſcalp. Weaning does not remove it; and if proper remedies are not applied, it may continue for years, and exhauſt the ſtrength of the patient. The fluid which runs out produces redneſs and itching in the parts with which it comes into contact.

In general, thoſe children who are corpulent, who eat immoderately, whoſe mothers are of a ſcrofulous conſtitution, and who are nouriſhed with milk of a bad quality, are moſt liable to this diſeaſe. The prediſpoſition of an infant to the diſeaſe may be known, when its face is proportionably too full, when yellowiſh-red or dark-red ſpots appear upon its cheeks, when its urine has a fetid ſmell, and when the infant is much inclined to rub its cheeks.

In theſe caſes, the health of the mother or nurſe ſhould be carefully inquired into, and whether ſhe has had the ſame diſeaſe in her infancy. The mother or nurſe may drink a decoction of ſarſaparilla, and take every morning and evening about ten grains of rhubarb and flowers of ſulphur. The infant ſhould take, every two or three days, a ſmall table-ſpoonful of tincture of rhubarb; and the doſe ſhould be increaſed, whenever it is coſtive. But in the ſimple genuine cruſta lactea, mere antacids, eſpecially lime-water and magneſia, are chiefly recommended. Antimonial and mercurial medicines may alſo be tried.

When the milk of the mother or nurſe is not thought to poſſeſs the requiſite qualities, or when ſhe ſeems not to be perfectly healthy, the infant ſhould immediately be weaned, or a better breaſt of milk be found for it. The child's pap ſhould be made with ſtale bread crumb, boiled in a mixture of equal parts of milk and water, with the occaſional addition of a little Venetian ſoap and ſugar.

As a remedy in this diſorder, ſome have greatly recommended the *viola tricolor*.

CRUSTACEOUS ANIMALS, a claſs of creatures, chiefly of the aquatic kind, and which are diſtinguiſhed by having the body encloſed in a ſemi-calcareous cruſt, conſiſting either of one very large, and a number of ſmall pieces; or of a ſeries of annulations, nearly of an equal ſize throughout. They reſpire by means of diſtinct gills like fiſhes; and, like inſects, are provided with jaws, feelers at the mouth, and antennæ either two or four in number; the eyes in general two, or one apparently; and the feet numerous and articulated.

The French naturaliſts divide all cruſtaceous animals into two orders: *cruſtacés pediocles*, and *cruſtacés ſeſſiliocles*. The firſt of theſe are compoſed, for the moſt part, of the Linnæan cancri, or the crab and lobſter tribe, as already noticed under our article CANCER; the other includes his genera aſellus, oniſcus, lepiſma, and monoculus; the whole of which are comprehended, in the ſyſtem of that author, among the apterous tribe of inſects. See articles CANCER and ENTOMOLOGY.

CRUSTULA, in *Medical Writers*, the ſame as *ecchymoma*, in the eye, being a deſcent of the blood from the arteries into the *tunica conjunctiva*, occaſioned by a wound, ſtroke, &c.

CRUSTUMERIUM, in *Ancient Geography*, a town of Italy, in the country of the Sabines, ſituated on the eaſtern bank of the Tiber, a little to the north of Fidenæ. According to Cluverius, the ruins of this town appeared, in his time, in a woody tract, a little to the eaſt of Marcigliano Vecchio. Livy calls the hills in its neighbourhood "Montes Cruſtumini." This town was taken and deſtroyed by the Romans in the 4th year of Rome, and the inhabitants were removed to the capital.

CRUSTUMINUS AGER, a territory of Italy, ſo called by Pliny, and placed in Etruria.

CRUSTUMIUM, a river of Italy, in Umbria, between Ariminus and Piſaurus.

CRUSY, in *Geography*, a ſmall town of France, in the department of the Hérault; 9 miles S. of Saint Pons.

CRUTCHED, or CROUCHED *Friars*; ſo called from the figure of a crutch, or the letter T, which they bore on their cloaks upon the left ſhoulder. Having been inſtituted to attend upon the ſick and the infirm, in hoſpitals adjoining to their convents, they adopted the crutch as their diſtinctive badge. St. Anthony of Egypt, the patriarch of the Eaſtern monks, was the patron ſaint of their mother houſe, or firſt eſtabliſhment, which was founded near the city of Vienne in Dauphinè, about the latter end of the eleventh century. Hence the painters have been accuſtomed to repreſent the patriarch himſelf with this badge upon his ſhoulder. The Crutched friars had a convent and hoſpital in a ſtreet in London, which ſtill bears their name; beſides other eſtabliſhments at Oxford, Colcheſter, Guildford, and Reigate.

CRUX, in *Entomology*. See CARABUS, CASSIDA, CICADA, CIMEX, COCCINELLA, CURCULIO, and PHALÆNA.

CRUX *Herrings*. See HERRING.

CRUX *Haven*, in *Geography*, a ſea-port town of Germany, ſituated on the north coaſt of the duchy of Bremen, in the German ocean, between the mouths of the Elbe and the Weſer. N. lat. 53° 56′. E. long. 8° 6′.

CRUYLIUS, or CRUYL, LEVINUS, in *Biography*, a deſigner and engraver, born in Gand about the year 1640. In 1667 we find him at Rome, having become an eccleſiaſtic. This artiſt etched, from his own deſigns, a conſiderable number of views of Rome, enriched with figures, and executed with great delicacy and ſpirit; and amongſt others a ſet in 23 plates, 1665. We have likewiſe, by him, many drawings on vellum, which are deſigned upon a very ſmall ſcale with incredible neatneſs and accuracy. Huber. Manuel des Arts.

CRUYS, in *Geography*, a ſmall town of France, in the department of the Alps; 9 miles S.W. of Siſteron.

CRUYSFIORD, a bay on the coaſt of Norway; 20 miles S.W. of Bergen.

CRUYSHAGE, in *Ichthyology*, the name of a fiſh of the ſhark kind, the SQUALUS *Tiburo* of Gmelin, ſomewhat approaching to that ſtrange fiſh, the zygæna, but much leſs monſtrous, its head being only triangular, or ſomething like the figure of a heart, whence Willughby has named it *zygænæ affinis capite triangulo*. The eyes are very ſmall, and are placed as in the zygæna, at the ſides of the head: the mouth is ſmall and triangular, and placed a vaſt way below the end of the noſe, and is furniſhed with three rows of very ſmall teeth. See SQUALUS *Tiburo*.

CRUYS-HAUTHEM, in *Geography*, a ſmall town of France, in the department of the Eſcaut, chief place of a canton, in the diſtrict of Gand, with a population of 5145 individuals. The canton itſelf contains 10 communes, upon a territorial extent of 85 kiliometres, and 17,158 inhabitants.

CRUZ, JUAN PANTOJA DE LA, in *Biography*, a painter, born in Madrid in the year 1561. He was the ſcholar of Alonzo Sanchez Coello, whom he ſucceeded as painter of the chamber under king Philip II. Juan ſometimes painted hiſtory, but his *forte* lay in portrait. He died in 1610.

Under this name, J. S. Miller, an Engliſh artiſt, has engraved two plates, intitled "Writing the Billet," and "Delivering the Billet." Heinecken, however, conſiders them as no other than fictitious imitations of the Spaniſh ſtyle. Cumberland. Heinecken.

CRUZ, DE LA, DON JUAN, and DON MANUEL, two artiſts, probably brothers, born at Madrid about the year 1750. In 1777, were publiſhed in that city a ſet of 12 folio plates, repreſenting Spaniſh coſtume, deſigned by Don Manuel, and engraved by Don Juan. They are entitled, "Collection de Trajes de Eſpaña, tanto antiquos come modernos." Huber. Manuel des Arts.

CRUZ, ST. See *St.* CROIX.

CRUZ, *Santa*, a port on the weſtern coaſt of America, ſituated on the eaſt coaſt of the gulf or bay of Bucarelli, the entrance of which is, according to the determination of La Pérouſe, about W. long from Paris 136° 15′, or, according to an obſervation of captain Cook, 227° E. of Greenwich, and N. lat., according to the plan of the Spaniards, 55° 15′. This gulf runs upwards of eight leagues inland, contains ſeveral large iſlands, and preſents in its circumference 11 fine harbours, where ſhips may anchor with ſafety. Maurelle ſays, that he does not know a ſingle port in all Europe that could be preferred to that of Santa Cruz. When Maurelle viſited this port in 1779, he was ſoon viſited by the Indians in its vicinity. Traffic commenced, the Indians exchanging

ing their furs and various trifles for glaſs-beads, pieces of old iron, &c. Theſe Indians are of a clear olive colour, many of them having nevertheleſs a perfectly white ſkin. With a well-proportioned countenance, they are robuſt, courageous, arrogant, and warlike. Their clothes conſiſt of the undreſſed ſkins of otters, ſea-wolves, benadet (a ſpecies of deer), bears, and other animals taken in the chace. Several wear boots of ſmooth ſkins, laced up before; their hats, in the form of a cone, are woven from fine bark of trees; on their wriſts they wear bracelets of copper, iron, or fins of whale; and round the neck, necklaces of fiſh-bone or copper. Their ear-rings are mother-of-pearl, or plates of copper, emboſſed with a topaz coloured roſin and jet beads. Their hair is long and thick, held together in a ſmall queue by a comb, and tied with a narrow piece of coarſe linen. The aſpect of the women is pleaſing, their colour freſh, their cheeks of a lively red, and their hair long and plaited. About the loins they tie a long robe of ſmooth ſkin, which covers them from the neck to the feet, and the ſleeves reach down to the wriſts. Over this gown they put ſkins of otters, or other animals, as a defence from the weather. All the married women have in their lower lip a large aperture, filled up by an oval piece of wood, the ſmalleſt diameter of which is about an inch; and its ſize is larger or ſmaller, as the perſon who wears it is older or younger. The girls only wear a copper needle, which croſſes the lip in the part where the ornament is afterwards placed.

In war theſe Indians wear cuiraſſes and ſhoulder-pieces, reſembling the whale-bone ſtays of Europeans; round the neck is a large coarſe gorget, covering them up to the eyes; and on the head is a helmet, generally made of the head of ſome wild beaſt. From the waiſt to the foot they have a kind of apron, like the cuiraſs, formed of narrow boards tied together with threads, and thus rendered flexible. From the ſhoulder to the knee hangs a fine ſkin. With theſe arms they are invulnerable to their enemies. Their offenſive weapons are arrows and bows, lances headed with iron, iron-knives longer than European bayonets, and ſmall hatchets of ſilex or green ſtone, ſo hard as to cleave the cloſeſt wood without having its edge turned.

Their language is pronounced with great difficulty; and they ſpeak from the throat with a motion of the tongue againſt the palate. Near the Port, where theſe Indians attend the market, they ſeem to be diligent and laborious; and they ſupply purchaſers with a great variety of articles; ſuch as well-woven ſtuffs, ſhaded with various colours, ſkins of otters, bears, &c.; well-woven coverlets of common cloth, and large ribbons of the ſame; ſkins of the ſeal, of which this cloth is made; wooden trenchers, curiouſly wrought; painted canoes; and a great variety of trinkets, of their own device and manufacture. They furniſh the market alſo with great plenty and variety of fiſh, ſalmon, cod, pilchard, &c. The banks are lined with ſhells; and they uſe a great quantity of mother-of-pearl for ear-rings, but it did not appear to theſe voyagers whence they obtained it. Their food conſiſts of fiſh, boiled or roaſted, herbs and roots that are the produce of their mountains, and the fleſh of animals taken in the chace. Maurelle was not able to aſcertain whether they had any ideas or forms of religion: he obſerved, however, that they ſometimes inclined their bodies towards the ſun, but could not tell whether it was an act of devotion. In two iſlands he found three bodies laid in boxes, and decked in their furs, which were placed in a little hut, on a platform of the branches of trees.

Their country is hilly, the mountains very high, and their ſlope almoſt always extending to the ſea. The ſoil, which is limeſtone, is covered with lofty pine-trees; and as they are eaſily blown down, they rot and form a thick mould, in which are found nettles, camomile, wild celery, aniſe, elder, wormwood, ſorrel, and many other plants.

They have ducks, mews, divers, kites, ravens, geeſe, cranes, gold-finches, and other ſmall birds. Theſe people are addicted to theft; and ſo eager were they for obtaining iron, cloth, and other ſtuffs, that they ſold their children to procure them. The environs of this port are inhabited by different tribes inimical to each other. At the new and full moon the ſea riſes in the harbour of Santa Cruz to 17 feet 3 inches; and it is high-water at ¼ paſt 12 at noon. The loweſt tides are 14 feet 3 inches; and the night tides exceeded thoſe of the day by 1 foot 9 inches. La Pérouſe's Voyage, vol. i.

CRUZ, *Santa*, a conſiderable town on the north coaſt of the iſland of Cuba, about 30 miles E. by N. of the Havannah, and 115 N.W. by N. of Cadiz.—Alſo, the chief town of Cozumel iſland.

CRUZ, *Santa*, a town of Mexico, or New Spain, about 75 miles N. by E. of St. Salvadore, on the Pacific Ocean. It is ſituated on the gulf of Dolce, which communicates with the ſea of Honduras.

CRUZ, *Santa*, *De la Sierra*, a province or biſhopric of the vice-royalty of La Plata or Buenos Ayres in South America, in the audience of Charcas. This province is a government and captain generalſhip; and though its juriſdiction is of large extent, not many Spaniards are found in it; and the few towns are in general miſſions, comprehended only under the name of Paraguay miſſions. The miſſions belonging to the Jeſuits, in the parts dependent on this biſhopric, are thoſe called *Indian* CHIQUITOS, which ſee. On this nation borders another of Pagan Indians, called CHIRIGUANOS, which ſee. This province may be ranked among the warm regions beneath the chain of mountains; and trades in honey, ſugar, and bees.

CRUZ, *Santa*, *De la Sierra*, the capital of the preceding government, lies 80 or 90 leagues E. of Plata. It was originally built ſomewhat farther toward the S.E. near the Cordillera of the Chiriguanos. It was founded in the year 1548, by captain Nuflo de Chaves, who called it Santa Cruz, from a town of that name near Truxillo in Spain, where he was born. But the city having been deſtroyed, it was rebuilt in the place where it now ſtands. It is neither large nor well built, nor has it any thing that entitles it to the title of a city. It may, indeed, be regarded rather as a military ſtation than a regular town. It was erected into a biſhopric in the year 1605. The chapter conſiſts only of a biſhop, dean, and archdeacon; having neither canons, prebendaries, nor other dignitaries. The uſual reſidence of the biſhop is in the city of *Maſque-Pocona*, 80 leagues from Santa Cruz de la Sierra.

CRUZ, *Santa*, a town in the iſland of Teneriffe, the road of which was obſerved, in the "Embaſſy to China," to be 28° 28′ N. lat., and the longitude 16° 26′ W. of Greenwich; the variation of the compaſs was 17° 35′ W. of the pole; and the tide roſe perpendicularly 6 feet. Several obſervations were made by La Pérouſe, and his aſſociates, at Santa Cruz, from which the N. lat. was fixed at 28° 27′ 30″, and the longitude 18° 36′ 30″ W. from Paris. In this port Engliſh men of war do not ſalute, becauſe the Spaniards are forbidden to make a return. Beef, mutton, pork, goats, poultry, fruits, and vegetables, are very good and reaſonable; and for ſhips bound to the ſouthward, and requiring refreſhments, this place is preferable in many reſpects to Madeira, particularly as that wine is ſtronger and cheaper; a pipe, containing 120 gallons, not exceeding in price 10*l*. The town of Santa Cruz is pleaſantly ſituated, and, though not ſo crowded with inhabitants as Funchal, it is better laid out, more open, cleaner, and more comfortable. The well-built pier ſtretched out into the ſea; the contrivances for ſafe and eaſy landing near it; the handſome almeyda, or mall, along the quay, ſhaded with ſeveral rows of trees; the fountain adorned with marble ſtatues in the ſquare, all apparently of late conſtruction, denote a government attentive to the improvement of the place. The walks and rides in the neighbourhood of the town are more level and agreeable than thoſe near Funchal in Madeira; and thoſe who viſited them found that they breathed a lighter purer air than uſual, and felt, ſays ſir G. Staunton, that they were in a fortunate iſland. The governor of the iſland reſides at Santa Cruz; though the courts of juſtice are held at St. Chriſtophe de Laguna, the capital of the iſland. All the ſtones of the beach, and all the ground and rocks in the neighbourhood of Santa Cruz, are manifeſtly volcanic. The buildings of both Santa Cruz and Laguna exhibited no ſtone of any other kind; and as no limeſtone is found in Teneriffe, the lime is ſupplied from the neighbouring iſlands.

CRUZADO, or Croisade, an expedition to the Holy Land. See Croisade.

Cruzado, or *Cruſade*, in *Commerce*, is a Portugueſe coin, ſtruck under Alphonſus V. about the year 1457, at the time when pope Calixtus ſent thither the bull for a croiſade againſt the infidels.

It had its name from a croſs, which it bears on one ſide; the arms of Portugal being on the other.

Cruzado, *Bull of*, a bull publiſhed every two years in Spaniſh South America, and containing an abſolution from paſt offences by the pope, and among other immunities, permiſſion to eat ſeveral kinds of prohibited food, during Lent, and on meagre days; the monks employed in diſperſing theſe bulls, extol their virtues with all the fervour of intereſted eloquence; the people, ignorant and credulous, liſten with implicit aſſent; and every perſon in the Spaniſh colonies, of European, Creolian, or mixed race, purchaſes a bull, which is deemed eſſential to his ſalvation, at the rate ſet upon it by government; this price varies according to the rank of different perſons. Servants, or ſlaves, pay the value of 1*s.*; other Spaniards pay 8 reals; and thoſe in public office, 16 reals; the price has alſo varied at different periods. From the produce of this bull, there ariſes an annual revenue of 150,000 peſos.

CRUZINI. See Cruccini.

CRUZITA, in *Botany*, Linn. gen. 167. Schreb. 224. Willd. 259. Juſſ. 85. Claſs and order, *tetrandria digynia.* Nat. ord. *Atriplices*, Juſſ.

Gen. Ch. *Cal.* Perianth four-leaved, permanent; leaves egg-ſhaped, concave; two inner ones with a very thin lacerated margin. *Bractes* three, at the baſe of the calyx, permanent; anterior one linear, acute; lateral ones egg-ſhaped. *Cor.* none. *Stam.* Filaments four, capillary, a little ſhorter than the calyx; anthers ſmall. *Piſt.* Germ ſuperior, egg-ſhaped, obtuſe, compreſſed; ſtyle very ſhort, two-parted; ſegments ſpreading; ſtigmas ſimple. *Peric.* none, except the diverging calyx, which falls off with the ſeed. *Seed* ſolitary, egg-ſhaped.

Eſſ. Ch. Calyx four-leaved, with three bractes on the outſide. Corolla none. Seed ſolitary, encloſed by the calyx.

Sp. C. *hiſpanica.* Loef. it. 203. *Stem* tall. *Leaves* oppoſite, lanceolate, quite entire. *Flowers* ſpiked, collected into a panicle. A native of South America, in the province of Cumana. The trivial name given to it by Linnæus is founded on a miſtake.

CRUZY, in *Geography*, a ſmall town of France, in the department of the Yonne, 9 miles north-eaſt of Tonnerre.

CRY. See Hue, Clamor, Haro, &c.

CRYA, in *Ancient Geography*, a cape of Aſia Minor, about the middle, and towards the north-weſt part of the gulf of Glaucus; this promontory was weſt-north-weſt of that of Telmiſſus.—Alſo, a fountain of Aſia, in Cappadocia, near Cæſarea.—And alſo, a town of Aſia Minor, in Caria, according to Pliny; and in Lycia, according to Steph. Byz.

CRYASSA, or Cryassuæ, an ancient town of Aſia Minor, in the northern part of the gulf of Glaucus, north of cape Crya, and north-weſt of the town of Telmiſſus.

CRYEON Insulæ, three ſmall iſlands, ſituated in the northern part of the gulf of Glaucus, one of the three is a rock, and Steph. Byz. calls the other two Caryſis and Alina. He adds, that they belonged to the town of Crya.

CRYMNA, a town of Aſia Minor, in Lycia, probably the ſame with the Cremna of Strabo.

CRYMODES, from κρυος, *cold*, in *Medical Writers*, a cold ſhivering fever, but often accompanied with an inflammation of the inner parts.

CRYNIS, in *Ancient Geography*, a river of Aſia Minor, in Bithynia.

CRYON, a river of Aſia Minor, which, according to Pliny, diſcharged itſelf into the Hermus.

CRYPSIS, in *Botany*, (from κρυκις, *a concealment*, the ſpike of flowers being concealed within the ſheath of the leaf.) Hort. Kew. 1. 48. Schreb. 1710. Lam. Ill. 108. Vent. 2. 97. (Pallaſia, Scop. hiſt. nat. 62. Antitragus, Gært. 507.) Claſs and order, *triandria digynia;* Lam. *Diandria;* Hort. Kew. Willd. Natural order, *gramina.*

Gen. Ch. *Cal.* Glume one-flowered, two-valved; valves oblong-lanceolate, flattiſh, ſomewhat unequal. *Cor.* Glume two-valved, longer than the calyx; valves lanceolate, awnleſs, ſomewhat unequal. *Stam.* Filaments three, often only two, capillary, longer than the corolla; anthers oblong. *Piſt.* Germ ſuperior, oblong; ſtyles two, capillary; ſtigmas feathery. *Peric.* none; the corolla encloſing the ſeed. *Seed* ſolitary, egg ſhaped, acute.

Eſſ. Ch. Calyx two-valved, ſeſſile, lanceolate. Corolla two-valved, longer than the corolla, awnleſs.

Sp. 1. C. *aculeata.* Hort. Kew. 1. 48. Mart. Lam. Ill. 856. tab. 42. fig. 2. Willd. Schoeſbœ Marocco, part 1. p. 22. (Schœnus aculeatus, Linn. Sp. Pl. 2. Anthoxanthum aculeatum, Linn. jun. Supp. Phleum aculeatum. Lam. Enc. Phleum ſchœnoides, Jacq. Auſt. 5. 29, App. tab. 7. Agroſtis aculeata, Scop. Cam. *n.* 89. Antitragus aculeatus, Gært. 27. tab. 30. Phalaris vaginiflora, Forſk. diſc. 18. Gramen album capitulis aculeatis, Bauh. Pin. 7. Theat. 108. Schench. gram. 85. Moris. hiſt. 3. 195. § 8. tab. 5. fig. 3. Gramen ſpicatum, ſpicis in capitulum foliatum congeſtis, Tourn. 517.) "Spikes capitate-hemiſpherical, ſmooth, ſurrounded by an involucre of two or three mucronate, rather prickly, ſheathing leaves; ſtems branched." *Root* annual. *Stems* ſeveral, from four to ſeven inches high, diffuſe jointed, leafy. *Leaves* from one to three inches long, a line and half broad, glaucous or whitiſh, very acute; ſheaths ſhort, ſmooth, ſtriated. *Spikes* enveloped in the leaves of the involucre, which are longer than the ſpike, and finally become horizontal; glumes of the calyx a little ſhorter than thoſe of the corolla; ſtamens two or three. A native of Spain, Italy, and the ſouth of France, on dry ſandy or rocky ground. 2. C. *ſchœnoides.* Lam. Ill. 855. tab. 42. fig. 1. Desfont. Atl. 1. 62. (Phleum ſchœnoides, Linn. Sp. Pl. 5. Lam. Enc. 5. Jac. coll. 1. 111.

Crypſis aculeata β. Hort. Kew. Willd. Gramen maritimum typhinum brevi & craſſiori ſpica; Schench. agroſt. 86. Monti. gram. 50. fig. 35. good.) “Spikes inverſely egg-ſhaped, ſmooth, ſurrounded at the baſe by a foliaceous ſheath; ſtems branched, procumbent.” *Root* annual? *Stems* ſeveral, from ſix inches to a foot long, ſmooth, with eight or ten yellowiſh, ſlightly protuberant knots. *Leaves* from three to five inches long, a line and half broad, ſmaller in the upper part of the ſtem, a little glaucous; ſheaths ſmooth, ſtriated, ſhorter than the internodes; lower ones cylindrical, cloſely ſurrounding the ſtem; upper ones looſe, ſwelling in the middle, ſomewhat compreſſed. *Spikes* at the ſummit of the ſtem and branches, and from the axils of the upper leaves, oval-oblong, obtuſe, from four lines to half an inch long, or more, ſcarcely more than two lines broad, on very ſhort peduncles, ſurrounded only at the baſe by the floral leaves; flowers numerous, from four to ſix together on pedicels ſcarcely half a line long; ſtamens two or three; ſtyle filiform, ſimple, the length of the ſtamens, terminated by the two ſtigmas. A native of Spain, Italy, and the ſouth of France. Dr. Roth, in his ſupplementary remarks on Willdenow's edition of the Species Plantarum, has referred this plant to Schreber's new genus ſpartina, on account of its ſimple ſtyle; and has added to it dactylis ſtricta of Dr. Solander, in Hortus Kewenſis, and of Dr. Smith, which is diſtinguiſhed by the ſame character. But as this genus has not been taken up either by profeſſor Martyn, in his greatly improved edition of Miller's Dictionary, nor by La Marck in his Illuſtrations of the Encyclopedie, nor by Willdenow, we have left the preſent plant where La Marck placed it. We have not been able to diſcover from what plant Schreber drew his natural character of ſpartina, which does not correſpond in all points with that before us. Dr. Hort has likewiſe formed a new genus for this graſs, which he calls heleochloa, adding to it phleum alopecuriodes of Mitterpack; but has not aſcribed to it a ſingle ſtyle. La Marck alſo has not mentioned this remarkable particular in his deſcription given in the Encyclopedie, though it is expreſſed in the figure, afterwards publiſhed with his Illuſtrations. See Annals of Botany, vol. i. p. 140., and p. 297.

Crypsis *arenaria;* Lam. Ill. See Phalaris *arenaria.*

CRYPT, *(Martyrium, Confeſſio, Holy Hole,)* formed of κρυπτω, *abſcondo, I hide;* whence κρυπτη, *crypta;* is a ſubterraneous vault or chapel, conſtructed under the high altar, or eaſtern end in moſt ancient cathedral, abbey, and collegiate churches, for preſerving the bodies of martyrs, or other ſaints, and for the performance of divine worſhip. The primitive Chriſtians, having been accuſtomed in the times of perſecution to hold their religious aſſemblies in the catacombs, where theſe were to be met with, as at Rome, Naples, Nola, Lyons, &c. as we learn from Tertullian ad Scapulam, cap. 3, and from the decrees of the emperors and prefects againſt ſuch aſſemblies, (Euſeb. Hiſt. l. vii. c. 11. l. ix. c. 2.) affected, upon the ceaſing of perſecution, to build their churches over, or near to ſuch ſepulchres of the martyrs; and, in ſituations where theſe were not to be found, they fabricated ſubterraneous vaults, called crypts, (being quite diſtinct places from the common cœmeteries,) in which they depoſited ſuch remains of martyrs, or other ſaints as they could procure; and which they furniſhed with altars and other requiſites for the ſtated worſhip. This appears from Gregory of Tours, an author of the ſixth century, and from ſubſequent writers. In William Thorn, the monk of Canterbury, mention is made of a particular collect to be ſaid in the ſervice performed in the crypts. The crypt under St. Peter's Church of the Vatican at Rome, called the Confeſſion of St. Peter, and Limina Apoſtolorum, is provided with diverſe altars, and alſo with prieſts to officiate at them; but it is prohibited, under pain of excommunication, as an inſcription in the vault teſtifies, for any woman to enter into it, except on Whit-Monday, on which day it is equally unlawful for men to viſit the place. See the crypts under Canterbury, York, and Wincheſter cathedrals, alſo under the churches of St. Grimbald at Oxford, Chriſt Church in Hampſhire, Winburn in Dorſetſhire, Dorcheſter in Oxfordſhire, now uſed as a bone houſe, &c. See likewiſe repreſentations of the crypts of Grantham, Peterborough, Waverly, and Wells, in “Carter's Ancient Architecture of England,” vol. i. plates lxviii. lxix. M.

S. Ciampini, deſcribing the outſide of the Vatican, ſpeaks of the cryptæ of St. Andrew, St. Paul, &c. About two furlongs to the northward of Latikea or Laodicea in Syria, are ſeveral of theſe cryptæ or ſepulchral chambers, hollowed in the rocky ground, ſome 10, others 20 or 30 feet ſquare, but of low height, and never proportionable. A range of narrow cells, wide enough to receive one coffin, *ſarcophagus*, or κλινη, and long enough ſometimes for two or three, runs along the ſides of moſt of theſe ſepulchral chambers, and appears to be the only proviſion that was made, provided, indeed, they were only made for the reception of the dead. One of theſe cryptæ is held in great veneration by the Greeks; they call it “St. Teckla,” in commemoration of ſome acts of penance and mortification that are ſaid to have been performed here by that firſt virgin martyr. In the midſt of it there is a fountain, ſuppoſed to be inſtrumental in producing miraculous viſions, and extraordinary cures. Here they bring diſeaſed perſons, and after having waſhed them with holy water, and perfumed them, they return confident of a ſpeedy cure. Here likewiſe the aged and infirm pretend to receive warnings of their approaching diſſolution, while the young are made to foreſee a train of events that are to occur in the future courſe of their lives. The ſepulchral chambers near Jebilee, Tortoſa, and the Serpent fountain, together with thoſe that are commonly called the “Royal Sepulchres at Jeruſalem,” all of which communicate with each other by narrow entrances, are of the like contrivance and workmanſhip with the cryptæ of Latikea; as were, probably, the cave of Machpelah, and the other ſepulchres of the ſons of Heth. (Gen. xxiii. 6.) Inſtead of thoſe long narrow cells that are common in moſt of the other cryptæ; ſome of thoſe at Jeruſalem are ſingle chambers, others have benches of ſtone, ranged one over another, upon which the coffins were to be placed. To theſe we may join the ſepulchre where our Saviour was laid, which was alſo hewn out of the natural rock, (Matt. xxvii. 60.) and lay originally under ground like the others; but by St. Helena's cutting away the rock round about it, that the floor of it might be upon a level with the reſt of the pavement of the church, it is now a grotto above ground, or curiouſly overlaid with marble. It conſiſts of one chamber only, without cells, benches, or ornaments; being about ſeven feet ſquare, and ſix high; and over the place where the body was laid has been erected, for many years, an oblong table of ſtone, or thorus, κιβωτιον, 3 feet broad, and nearly of the ſame height, which ſerves the Latins for an altar. The low narrow door or entrance, where the ſtone was fixed and ſealed, till rolled away by the angel, ſtill continues to conduct us within it; and as this was not ſituated in the middle, but on the left hand, and as the grave where Chriſt was laid, may well be preſumed to have been placed within it, on the right hand, or where the altar is at preſent, we may, from theſe circumſtances, well account for Mary and John (John, xx. 5, 11.) being obliged

“ to ſtoop down, before they could look into it.” The ſepulchre of Lazarus was likewiſe of the ſame kind; as were the ſepulchres of the prophets, as they are now called, with many other caves that are met with on the mount of Olives; which might, all of them, have either ſerved, or have been originally deſigned for burying places, having their proper ſtones, or opercula, to lay upon them, or to ſhut them up. Shaw's Travels, p. 264, &c.

Vitruvius uſed the word crypta for a part of a building, anſwering nearly to our cellar; Juvenal, for a *cloaca*.

Hence *crypto-porticus*, a ſubterraneous place, arched, or vaulted; uſed as an under-work, or paſſage, in old walls. See Crypto-*porticus*.

The ſame is alſo uſed for the decoration at the entry of a grotto.

Crypt is alſo uſed by ſome of our ancient writers for a chapel, or oratory under ground.

CRYPTA, in *Anatomy*; a name given to glands which are ſuppoſed to be of the moſt ſimple form; *viz.* ſuch as conſiſt of a ſimple bag, with a direct and ſhort opening.

CRYPTANDRA, in *Botany*, (from κρυπτω, *to cover or conceal*, and ανηρ, *a man*, in alluſion to the five ſcales which conceal the ſtamina), is a New Holland genus of plants, firſt eſtabliſhed by the writer of this article in the 4th volume of the Linnæan Society's Tranſactions, p. 217. Claſs and order, *pentandria monogynia.* Nat. Ord. probably *Rhododendra* of Juſſieu.

Gen. Ch. *Cal.* perianthium of five leaves, inferior, permanent, membranaceous. *Cor.* of one petal, much longer than the calyx, tubular or bell-ſhaped, externally pubeſcent, its margin in five regular and equal ſegments. Scales five, alternate with the ſegments of the corolla, and inſerted at their baſe, vaulted, roundiſh. *Stam.* five, inſerted into the tube of the corolla at its ſummit, under each of the ſcales; filaments very ſhort; anthers roundiſh, vertical, beardleſs, of two cells. *Piſt.* Germen ſuperior, roundiſh, three-lobed; ſtyle ſimple, ſtraight, as long as the tube of the corolla; ſtigma ſmall, three cleft. *Peric.* Capſule of three valves and three cells, the partitions formed by the inflexed margins of the valves. *Seeds* ſolitary in each cell, roundiſh, compreſſed.

Eſſ. Ch. *Calyx* of five leaves. *Corolla* tubular; its limb five-cleft, with five vaulted ſcales between the ſegments. *Stamina* inſerted into the top of the tube, under each ſcale. *Stigma* three-cleft. *Capſule* ſuperior, of three valves, and three cells formed by the inflexed valves. *Seeds* ſolitary, compreſſed.

Species 1. C. *ericoides.* Leaves linear, acute. Corolla funnel-ſhaped, externally briſtly. *Sm. MSS.* *Stem* ſhrubby, much branched, ſlender; the branches leafy, and clothed when young with ſilky hairs or briſtles. *Leaves* a quarter of an inch long, faſciculated, oppoſite, ſmooth, linear, acute, keeled, on ſhort ſtalks. *Flowers* in denſe, leafy, terminal heads, apparently reddiſh, clothed externally with white, ſilky, cloſe-preſſed briſtles. 2. C. *amara.* Leaves ſpatulate, obtuſe. Corolla bell-ſhaped, externally hoary. *Sm. MSS.* *Stem* ſhrubby, of humble growth like the foregoing, being about three feet high, wand-like, beſet with numerous, alternate, ſhort, leafy branches, clothed with ſhort ſtarry pubeſcence. *Leaves* faſciculated and ſcattered, the length of the former, but ſpatulate, obtuſe, entire, ſmooth, on ſhort ſtalks. *Flowers* about the ſummits of the branches, cluſtered, with one or two ſtraggling axillary ones, on very ſhort ſtalks. Their colour ſeems to be internally reddiſh; their ſhape is campanulate and ſhort, and they are clothed externally with cloſe, white, hoary pubeſcence. *Calyx* brown. Every part of this ſpecies is bitter, eſpecially the leaves. The young twigs have the flavour of Peruvian bark, *Cinchona,* and it is much to be wiſhed that the plant ſhould be ſubmitted to chemical and medical experiment. It flowers in May.

Both ſpecies of *Cryptandra* grow in the neighbourhood of Port Jackſon, New South Wales, from whence Dr. White long ago ſent dried ſpecimens to Europe. We have not had any information of their introduction to the European gardens, but they both deſerve cultivation for their elegance, having the aſpect of *Ericæ*, or rather of ſome of the ſmaller kinds of *Daphne.* The flowers of the ſecond ſpecies, being nearly cloſed, and therefore exhibiting only their white outſide, look like little cluſters of pearls, as has been remarked by thoſe who have ſeen them growing wild. S.

CRYPTIA, *i. e.* the Ambuscade, in *Grecian Antiquity*, a cruel practice, ſubſiſting among the Lacedæmonians, and by ſome aſcribed to Lycurgus, of leſſening the number of their ſlaves when they were thought to be too numerous. Such as had the care of the Spartan youth, ſelected the ſtouteſt of them, and having armed them with daggers, ſent them out to deſtroy their unhappy ſlaves, either by ſurpriſing them in the night, or falling upon them in the day, when they were at their work, and defenceleſs. Plato (de Legib. et de Republ.) condemns this law; and Plutarch (in Vit. Lycurg.) denies that it was made by Lycurgus; whereas Ariſtotle expreſsly lays it to his charge; but whenever or however it was made, it was undoubtedly a cruel and unneceſſary expedient, in all reſpects unworthy of a virtuous people. See Helotes.

CRYPTOCEPHALUS, in *Entomology*, a genus of the Coleoptera tribe, the antennæ of which are filiform; feelers four in number; thorax margined; wing-caſes emarginate, and the body ſub-cylindrical. Gmelin. A number of the inſects in this genus belong, in the Linnæan ſyſtem, to the Chryſomela tribe, from which they have been ſeparated by Fabricius, and other late writers The Fabrician character of the genus cryptocephalus is taken principally from the ſtructure of the mouth; according to this writer they have four filiform feelers; the jaw furniſhed with a ſingle tooth, the lip horny and entire, and the antennæ filiform. Moſt of the ſpecies deſcribed by Gmelin in this genus, appeared in the firſt inſtance in the works of Fabricius.

Species.

Longipes. Duſky-black; wing-caſes pale, with three black ſpots; fore legs long. Fabr. *Clytra longipes*, Laichart.

Found on the nut-tree in Germany. The antennæ are ſhort, ſerrated, and black; dots on the wing-caſes, diſpoſed two in the middle, and one at the baſe; legs black.

3-Punctatus. Blackiſh-blue; wing-caſes teſtaceous with three black dots; anterior legs long. Fabr.

Deſcribed from a ſpecimen in the muſeum of Dr. Allioni; it is nearly allied to the laſt but ſmaller, and inhabits Italy.

Salicis. Black and poliſhed; wing-caſes red with three black dots. Fabr.

Found in Saxony, according to Hybner. The antennæ are black and ſhort; head and thorax deep black, and without ſpots; wing-caſes variable from red to teſtaceous; body black.

6-Notatus. Deep black; wing-caſes teſtaceous, with two dots and line behind of black. Fabr.

A ſmall ſpecies found in Barbary, and firſt obſerved by Fabricius in the cabinet of M. Deſfontaines. The antennæ are long; thorax black and immaculate; wing-caſes ſmooth; ſuture black.

6-Maculatus. Black, thorax red and immaculate, with three black dots. Fabr.

A native of Italy, in the cabinet of Dr. Allioni.

4-Punctata. Black; wing-caſes reddiſh yellow, with two black dots; antennæ ſerrated. Fabr. Donov. Brit. Inſ. *Chryſomela.*

4-Punctata. Linn. *Melontha,* Geoffr.

Found on the nut-tree in Europe.

4-Notatus. Blue-black; wing-caſes red with two blue-ſpots; antennæ ſhort. Fabr.

Inhabits Barbary; legs black. Prof. Vahl.

Lætus. Green-bronzed; wing-caſes teſtaceous, with two black ſpots. Fabr.

Diſcovered by Hybner in Saxony. The head is green, and braſſy; thorax braſſy, with teſtaceous margin; wing-caſes ſmooth; body blackiſh, at the tip braſſy; legs braſſy, with the ſhanks teſtaceous.

Atraphaxides. Black; thorax red, with three black ſpots; wing-caſes teſtaceous, with three black ſpots; ſhanks rufous. Fabr. *Chryſomela Atraphaxidis,* Pallas.

A native of Siberia, preſerved in the Bankſian cabinet. The antennæ are ſerrated and cinereous; thorax rufous, with three contiguous ſpots at the baſe; legs rufous; thighs black.

Lunulatus. Black, poliſhed; wing-caſes yellow, with a black lunule band, and dot at the tip. Fabr.

Deſcribed from a ſpecimen in the Bankſian muſeum; the native place unknown; antennæ ſhort and ſerrated; body black.

12-Maculatus. Black; thorax and wing-caſes red, with four black dots on each. Fabr.

Native of the Cape. The antennæ are ſhort, ſerrated, and reddiſh at the baſe; thorax rounded and ſmooth. Bankſian Cabinet.

Dorsalis. Ferruginous; ſuture black, near the tip ferruginous. Marſh. Ent. Brit.

A ſmall ſpecies found in Britain.

Marginellus. Black; margin of the head, thorax, and body, together with the legs, yellow. Donov. Brit. Inſ. Diſcovered in Coombe wood, Surrey; rather larger than the laſt.

Frontalis. Deep-black and gloſſy; front, anterior part lateral; margin of the thorax, and wing-caſes, with the legs yellow. *Cryptocephalus frontalis,* Marſh. Ent. Brit.

Obsitus. Teſtaceous; antennæ and margin of the wing-caſes black. Fabr.

A native of America. The antennæ are ſerrated, and black; abdomen cinereous fuſcous.

Lineatus. Reddiſh; thorax with two black ſpots; wing-caſes with two black lines. Fabr.

Deſcribed from the Bankſian cabinet, as a native of the Brazils.

Tridentatus. Blueiſh; wing-caſes teſtaceous; dot on the ſhoulder black. *Chryſomela tridentata,* Linn.

An European ſpecies found on the willow and poplar, and deſcribed by Fabricius in his Suppl. Ent. under the name of *clytra tridentata.*

Taxicornis. Blue; wing-caſes teſtaceous and immaculate; antennæ ſerrated.

Inhabits Italy, Dr. Allioni. Very much reſembles the laſt.

Venustus. Grey brown; two ſpots on the thorax, and margin yellow; wing-caſes yellow with two black fillets.

Deſcribed by Fabricius from a ſpecimen in the collection of Dr. Hunter, obtained from America.

Gorteriæ. Black and glabrous; thorax and wing-caſes with four yellowiſh dots.

Inhabits the Cape of Good Hope. *Chryſomela Gorteriæ,* Linn. Amœn. Acad.

8-Punctatus. Black; thorax rufous; wing-caſes teſtaceous, with four black dots. Naturf.

Found on plants in Barbary by profeſſor Vahl.

Maxillosus. Head and thorax fulvous; wing-caſes yellow, with a black dot at the baſe; ſcutel black.

A native of the Cape of Good Hope; in the Bankſian Cabinet.

Auritus. Deep-black, a yellowiſh ſpot on each ſide the thorax; ſhanks yellow. Herbſt. *Chryſomela aurita,* Linn.

Found on the nut-tree in Saxony.

Lentisci. Blue; wing-caſes blood-red, with rough blue ſpots. Fabr. *Chryſomela varioloſa,* Linn.

Inhabits Africa, where it occurs on the lentiſcus. Muſ. Desfontaines.

Didymus. Rufous, wing-caſes with three black ſpots, the anterior one double behind. Fabr. Donov. Inſ. New Holland.

Diſcovered in New Holland by ſir Joſeph Banks.

4-Maculatus. Rufous; head at the baſe, and two ſpots on the wing-caſes, blue. Fabr. *Chryſomela 4-maculata,* Linn.

A native of Germany, and feeds on the nut-tree.

Flavicollis. Black; thorax fulvous with ſix black dots; wing caſes pale, with two dots. Fabr.

A Siberian inſect, deſcribed from the Bankſian cabinet.

Longimanus. Dull-braſſy; wing-caſes teſtaceous with a black dot at the baſe. Fabr. *Chryſomela longimana,* Linn.

Inhabits Sweden, on the trifolium montanum.

Lar. Rufous; wing-caſes fuſcous gloſſed with blue; anterior legs elongated.

A native of South America. The wing-caſes ſtriated with dots.

Marginatus. Braſſy-black, with yellow wing-caſes; margin black. Fabr. *Cryptocephalus phaleratus,* Act. Hall.

Found on plants in Europe, chiefly Germany.

Pubescens. Thorax and elytra dull-braſſy and pubeſcent. Fabr.

An American ſpecies. The body is entirely covered with cinereous down; ſcutel black.

2-Punctatus. Black and poliſhed; wing-caſes red, with two black dots; antennæ length of the body. Geoffr. *Chryſomela 2-punctata,* Linn.

This and the following ſpecies inhabit Europe, and feed on the nut tree.

Lineola. Deep-black and gloſſy; wing-caſes red; line in the middle black; antennæ length of the body.

2-Maculatus. Deep-black; thorax fulvous; wing-caſes teſtaceous with two black dots. Fabr. *Chryſomela melanocephala,* Act. Hall.

Inhabits Italy, Dr. Allioni.

Cordiger. Thorax variegated; wing-caſes red, with two black dots. Geoffr.

An European ſpecies, found on the nut and willow.

Bothnicus. Deep-black; a longitudinal red line on the thorax. Fabr. *Chryſomela bothnica,* Linn.

A native of Sweden.

Frenatus. Deep-black; head, thorax, and legs rufous; two black dots on the thorax. Fabr.

Found in Auſtria, and nearly allied to the former; head rufous, with the poſterior margin black.

Obscurus. Duſky-black; poſterior legs elongated. Fabr. *Chryſomela obſcura*, Linn. Mant.

An European ſpecies; feeds on various plants.

Vitis. Gloſſy-black; thorax globoſe; wing-caſes rufous. Geoffr.

A ſpecies extremely deſtructive to the vine in the ſouth of Europe.

Coryli. Black; thorax and wing-caſes teſtaceous; ſuture black. Fabr. *Chryſomela coryli*, Linn.

Plagiocephalus. Black; thorax and wing-caſes teſtaceous; head thickiſh. Fabr.

Found in the ſouth of France according to Scheſtedt. It bears ſome affinity with the ſpecies coryli, which alſo inhabits Europe. The antennæ are ſhort, ſerrated, and black; head thick, prominent, and black; ſcutel black.

Pallens. Black with cinereous hairs; thorax and wing-caſes pale. Fabr.

Deſcribed from a ſpecimen received by Dr. Pflug, from China.

Variegatus. Black; abbreviated dorſal line, and margin of the thorax red; wing-caſes teſtaceous. Fabr.

A native of Italy. Dr. Allioni. The head is black with a yellow dot between the antennæ; legs black.

Trifasciatus. Above teſtaceous; band on the thorax, and three on the wing-caſes black. Fabr.

This, according to Dr. Pflug, is found in China; the head is black, with a large frontal teſtaceous ſpot, and the body black.

Ruficollis. Black; thorax rufous; wing-caſes teſtaceous; anterior legs long; thighs armed with a ſingle tooth at the tip. Fabr.

A ſpecimen of this ſpecies found at St. Helen's is preſerved in the Bankſian cabinet; it has been alſo met with by profeſſor Helwig in Italy. The antennæ are thick and much ſerrated; legs teſtaceous; thighs marked with a black line.

Nigripes. Head and thorax rufous; wing-caſes pale, legs black at the tip. Fabr.

A native of America. The antennæ are black with the baſe rufous.

6-Punctatus. Black; thorax variegated; wing-caſes red with three black ſpots. Fabr. *Chroſomela 6-punctata*, Linn.

Inhabits plants in Europe.

Coerulans. Gloſſy-blue; antennæ fuſcous. Fabr.

Deſcribed from an African ſpecimen in the Bankſian cabinet. The antennæ are ſhort and ſerrated.

Violaceus. Black-blue; antennæ and legs black; wing-caſes ſomewhat ſtriated. Fabr.

Inhabits Germany. Same ſize as the laſt, but has the antennæ black, and not ſerrated.

Cupreus. Gloſſy copper-red, beneath blue. Fabr.

Found in Cayenne, Von Rohr. The under ſurface is duſky.

Rubrifrons. Blue, and gloſſy; front with the band on the thorax, and the thighs red. Fabr.

Native place unknown. The antennæ are fuſcous with the baſe rufous.

Calcaratus. Violaceous; head, thorax and thighs dentated and rufous. Fabr.

Inhabits Sierra Leona. Bankſian cabinet.

Lobatus. Duſky-blue, with the poſterior ſhanks lobate at the tip. Fabr.

Found by Hybner in Hungary. It is of a middle ſize; the antennæ black, with the baſe teſtaceous: head and thorax blue; wing-caſes duſky.

Rufipes. Blue or green, and gloſſy; legs rufous. Fabr.

Native of the Cape of Good Hope. Bankſian cabinet.

Cyaneus. Blue, thorax and legs rufous. Fabr. *Melolontha*, Geoffr.

Found in France by Mallet.

Cinctus. Head and thorax rufous; wing-caſes black; margin rufous. Fabr.

Deſcribed as a native of South America from a ſpecimen in the Hunterian collection.

Bucephalus. Blue, mouth, margin of the thorax, and the legs red. Fabr. *Chryſomela bucephala*, Act. Hall.

Inhabits the Anthyllis vulneraria in Saxony.

Collaris. Blue, and gloſſy; ſides of the thorax, tips of the wing-caſes, and the thighs red. Fabr.

Native of Siberia. The antennæ rufous at the baſe; body black; legs and thighs rufous.

Sericeus. Green-blue; antennæ black. Geoffr. *Chryſomela ſericea*, Linn.

Found on the willow in Europe.

Nitens. Gloſſy-green; mouth and legs teſtaceous. Fabr. *Chryſomela nitens*, Linn.

An European inſect, found on the nut tree.

Glabratus. Violaceous; thorax and wing-caſes braſſy; antennæ fuſcous. Fabr.

Inhabits Braſil. The antennæ are fuſcous with the baſe ferruginous; wing-caſes ſmooth; beneath entirely violet.

Limbatus. Ferruginous with rufous thorax; ſuture of the wing-caſes gloſſy-blue. Fabr.

A native of Cayenne. Schulz.

Nitidulus. Thorax poliſhed braſſy; wing-caſes blue; head, antennæ at the baſe, and the legs yellow. Fabr.

Found in the ſouthern part of Ruſſia. Boeber. The wing-caſes are ſomewhat punctated; body black.

Labiatus. Black and gloſſy; mouth, legs, and antennæ at the baſe, yellowiſh. Fabr. *Chryſomela labiata*, Linn.

An European ſpecies, found moſt commonly on the roſe.

Vittatus. Black; margin of the wing-caſes, and abbreviated ſtripe yellow. Geoffr. and Schæff.

Found on graminiferous plants in the ſouth of Europe.

Flavilabris. Violaceous, and poliſhed; mouth pubeſcent; antennæ and legs black. Fabr. *Cryptocephalus parvulus*, Mill.

Inhabits the alder in Saxony, Schaller. The wing-caſes are marked with dotted lines.

Flavipes. Black and poliſhed; head and legs pale yellow. Fabr. *Cryptocephalus paracentheſis*, Schrank.

Found in Italy by Dr. Allioni.

Flavifrons. Blue-black and poliſhed, front and legs yellow. Fabr.

A native of Germany, about Kiel.

Hübneri. Black; head and wing-caſes at the tip, and the legs yellow. Fabr.

Found by Hübner in Germany.

Moraei. Deep black; wing-caſes with two ſpots and margin yellow. Fabr. *Chryſomela moraei*, Linn. Schæff. &c.

An European ſpecies.

8-Guttatus. Deep-black, wing-caſes with four yellow ſpots. Fabr.

Met with on the aſh in Saxony by Hübner.

15-Guttatus. Rufous; three ſpots on the thorax and ſix on the wing-caſes, yellow. Fabr.

Inhabits Braſil. The antennæ are black, with the baſe yellowiſh; anterior thighs marked with a yellow ſpot.

10-PUNCTATUS. Thorax teſtaceous, with a black marginal ſtripe; wing-caſes yellow, with ten black dots. Fabr. *Chryſomela 10-maculata*, Linn. *Cryptocephalus hieroglyphicus*, Herbſt.

Native of Europe. The head is teſtaceous, with the poſterior margin black; legs yellow, with the thighs of the hinder legs black.

12-PUNCTATUS. Thorax fulvous, with two black dots; wing-caſes teſtaceous, with five black dots. Fabr.

Deſcribed as a native of Germany, from the cabinet of Loewenſkiold.

HAEMORRHOIDALIS. Blue; tip of the wing-caſes and legs fulvous. Fabr.

Found in France, near Paris. Boſc.

2-PUSTULATUS. Deep-black; a rufous ſpot at the tip of the wing-caſes. Fabr. *Cryptocephalus podæ*, Laich.

2-FASCIATUS. Rufous; two ſpots on the thorax, and two bands on the wing-caſes black. Fabr.

Native of Africa.

4-PUSTULATUS. Black; wing-caſes ſmooth, with two rufous ſpots. Fabr. *Chryſomela 4-puſtulata*, Linn.

Inhabits Sweden.

NOTATUS. Black; wing-caſes ſtriated with dots; band and ſpot at the tip teſtaceous. Fabr.

Found in America. Muſ. Dr. Hunter.

HISTRIO. Black; thorax and wing-caſes varied with ferruginous; legs ferruginous, joints black. Fabr.

Native of Italy. The head is black; orbits rufous; thorax black, with ferruginous margin, and three abbreviated lines; wing-caſes punctured with ferruginous ſpots at the tip.

SCOPOLI. Black; thorax rufous; wing-caſes rufous, with two blue bands; legs black. Panz. *Chryſomela ſcopolina*, Linn.

Found in Germany, and the ſouthern parts of Europe.

KOENIGII. Rufous, with two blueiſh ſpots on the wing-caſes. Fabr.

Diſcovered in Tranquebar by Dr. Koenig.

PARACENTHESIS. Wing-caſes yellow, with ſmall line and three dots black. *Chryſomela paracentheſis*, Linn.

Feeds on the willow and alder in Europe.

HORDEI. Braſſy, and poliſhed; front coppery. Fabr.

Inhabits Barbary. The antennæ are ſerrated and black; anterior legs elongated.

CONCOLOR. Braſſy-green, and poliſhed; antennæ yellowiſh at the baſe; front impreſſed. Fabr.

A native of Europe.

PINI. Teſtaceous; wing-caſes pale and irregularly punctured; antennæ fuſcous. *Chryſomela pini*, Linn. Fn. Suec.

Inhabits the pine, and is chiefly found in Sweden.

RETICULATUS. Thorax and wing-caſes white, reticulated with teſtaceous. Fabr.

A native of Cayenne. The head is teſtaceous, with the orbits of the eyes white; thorax white, with four teſtaceous lines; breaſt black; abdomen and legs yellowiſh.

PUSILLUS. Thorax fulvous; wing-caſes ſtriated, teſtaceous, and ſpotted with black. Fabr.

Half the ſize of C. pini. The head is fulvous; the antennæ pale; eyes black; wing-caſes with two dots at the baſe, and a black band behind; body black; legs pale.

MINUTUS. Thorax fulvous; wing-caſes ſtriated, teſtaceous, and immaculate. Fabr.

Inhabits Germany, near Kiel.

GRACILIS. Deep-black; head and thorax fulvous; wing-caſes with a white marginal line and baſe. Fabr. Geoffr.

A ſmall ſpecies. The antennæ black, with the baſe rufous; thorax rufous and immaculate; legs rufous.

PYGMAEUS. Deep-black and poliſhed; wing-caſes teſtaceous; ſuture black.

Found in France by Boſc. This inſect is very ſmall; the head is black, with the front yellow; thorax at the anterior margin and ſides yellow; wing-caſes ſtriated; body black; legs yellow.

BIGUTTATUS. Black; head, tips of the wing-caſes, and legs yellow. Gmel.

A native of Saxony.

CASSIMILIS. Blue-black; head with two yellow ſpots; antennæ and front legs yellow. Herbſt., &c.

Inhabits Pruſſia, near Berlin.

ORNATUS. Black; head with a bilobate fulvous ſpot; thorax with a yellow line and margin. Herbſt.

PEREGRINUS. Black, glabrous; head, thorax, and wing-caſes blue. Herbſt.

Found in India.

LATICLAVUS. Black; head, thorax, and wing-caſes rufous; ſuture and edge of the wing-caſes black; antennæ ſerrated. Forſt. Nov. Inſ.

VIRIDANS. Green; wing-caſes margined. Lepech. It.

This and the two following are natives of Ruſſia.

8-NOTATUS. Thorax and wing-caſes yellow, with four black dots on each. Lepech.

6-NOTATUS. Black; thorax edged with rufous; wing-caſes with two dots and four ſpots of black. Lepech.

MULLERI. Black, and downy; wing-caſes with two red dots. Müll.

A native of Denmark.

MUSCIFORMIS. Green-blue; thorax red with a blue ſpot; ſhanks ferruginous. Geoffr.

This, and the five ſucceeding ſpecies, are natives of France.

VIBEX. Black; wing-caſes ſtriated, red with a black margin, and four ſpots. Geoffr.

PUNCTATUS. Blue with ſcattered punctures; ſhanks of the anterior legs ferruginous. Geoffr.

PARISINUS. Black, ſtriated; legs rufous. Geoffr.

ERYTHROPUS. Black, ſtriated; thorax and legs red. Geoffr.

FULVUS. Head and thorax fulvous; wing-caſes pale. Geoffr.

FERRUGINOSUS. Black and poliſhed; antennæ twice as long as the body; wing-caſes with a yellow ſpot at the tip. Schranck.

MULTICOLOR. Wing-caſes yellow with two ſcarlet bands. Hornſt.

This is a native of Java. The thorax is red; abdomen black at the tip.

SUMATRANUS. Wing-caſes yellow with a cheſnut ſpot in the middle. Hornſt.

COFFEAE. Thorax with a tranſverſe groove; abdomen green; wing-caſes yellowiſh. Hornſt.

Inhabits Bantam, on the coffee, the berries of which it reſembles in ſize, and appearance, as well as colour.

ORIENTALIS. Yellow, thorax rufous with a tranſverſe groove; wing-caſes black-blue. Hornſt.

Inhabits the Eaſt.

BATAVIENSIS. Head, thorax, and wing-caſes, with the legs livid. Hornſt.

Inhabits Java.

JAVANUS. Black; thorax, and wing-caſes red ſpotted with black; antennæ black, with the baſe rufous. Hornſt.

Inhabits Java.

CYANOCEPHALUS. Head, margin of the thorax; ſhells, baſe and tip of the thighs violet; crown and thorax ſcarlet. Leſk.

Flavifrons. Black, poliſhed; front, mouth, legs, baſe of the antennæ and edge of the ſhells yellowiſh. Leſk.

Fuscatus. Brown; head, thorax, and ſhells violet; the latter deeply punctured. Leſk.

Ochrocephalus. Black; head, antennæ, and wing-caſes yellow, the latter with four black dots and one at the tip. Leſk.

Chrysopus. Black, glabrous; wing-caſes punctured in ſtriæ; head, tips of the wing-caſes and legs yellow.

Suturalis. Black, glabrous; wing-caſes yellow, with black ſuture, and fillet connected at the tip. Leſk.

The ſix preceding ſpecies are natives of Europe.

† *Cryptocephalus*, Gmelin.—*Ciſtela*, Fabr.

Lip bifid; Body oblong.

Cervinus. Livid; legs fuſcous. *Chryſomela cervina*, Linn.

Found on plants in Britain and other parts of Europe. Donov. Brit. Inſ.

Cinereus. Livid; wing-caſes and legs brown. *Ciſtela cinerea*, Fabr.

Found in Germany, and conſidered by Helwig to be a variety or ſexual difference of the other.

Lividus. Livid; antennæ fuſcous. C. *livida*. Fabr.

Deſcribed from a ſpecimen in the Bankſian cabinet taken at Terra del Fuego.

Ceramboides. Black; thorax narrowed before; wing-caſes ſtriated and teſtaceous. Herbſt. *Mordella*, Geoffr.

Inhabits Europe, chiefly the northern parts.

Lepturoides. Deep-black; thorax ſquare; wing-caſes ſtriated and teſtaceous. *Ciſtela rufitarſis*, Leſk Reis.

Found in the ſouth of Europe.

Testaceus. Black; thorax, wing-caſes, and abdomen teſtaceous. *Ciſtela teſtacea*, Fabr.

Inhabits Barbary, on the chryſanthemum.

Picipes. Black; thorax ſquare; wing-caſes teſtaceous; antennæ and ſhanks pitchy.

Found on plants in Denmark. Seheſtedt.

Sulphureus. Yellow; wing-caſes ſulphureous. *Chryſomela ſulphurea*, Linn. *Tenebrio lutea*, Geoff.

Feeds on umbelliferous plants, in Europe.

Ruficollis. Deep-black; thorax ferruginous; wing-caſes ſtriated. Fabr.

Inhabits ſouthern Europe.

Bicolor. Black; wing-caſes and legs ſulphureous.

A native of Germany.

Cæruleus. Black; wing-caſes ſtriated and blueiſh.

Found on plants in Barbary, by profeſſor Vahl.

Nigripennis. Ferruginous; head, and ſtriated wing-caſes black. Fabr.

Inhabits the ſouth of France.

Analis. Reddiſh; antennæ, ſpot on the wing-caſes, and the tail, black. Fabr.

The ſpot on the wing-caſes is ſituated at the baſe, and in ſome ſpecimens there are two ſpots on each wing-caſe, one at the baſe, the other at the tip.

Found by Dr. Koenig at Tranquebar.

Rufipes. Black; wing-caſes ſmooth; antennæ and legs ferruginous. Fabr.

A native of Germany.

Fulvipes. Black; wing-caſes ſtriated; legs ferruginous. Fabr.

Inhabits ſame country as the preceding.

Varians. Griſeous; eyes black; wing-caſes ſomewhat ſtriated. Fabr.

Inhabits Saxony, and is rather ſmaller than the following ſpecies.

Murinus. Black; wing-caſes ſtriated, and with the legs teſtaceous. Herbſt. *Chryſomela murina*, Linn.

Ferrugineus. Teſtaceous; head and thorax fuſcous; wing-caſes ſtriated. *Ciſtela ferruginea*, Fabr.

Thoracicus. Fuſcous; thorax and legs ferruginous; wing-caſes ſmooth. *Ciſtela thoracica*, Fabr.

Inhabits Saxony. Hybner.

Flavipes. Black; wing-caſes duſky, with a yellow ſpot at the baſe; baſe of the abdomen, and legs yellow. Fabr.

Deſcribed from the Bankſian cabinet; the native place unknown.

Evonymi. Teſtaceous; abdomen greyiſh; wing-caſes ſmooth.

Inhabits Germany, on the evonymus.

Humeralis. Black; dot at the baſe of the antennæ ferruginous. Fabr.

Found by Hybner in Saxony.

Maurus. Black; wing-caſes ſubſtriated; baſe of the antennæ and legs ferruginous. *Ciſtela maura*, Fabr.

Pallipes. Black and poliſhed; baſe of the antennæ, and legs pale. Fabr.

A native of Germany.

Morio. Black, duſky; legs teſtaceous. Fabr. *Ciſtela gibboſa*, Thunberg.

Found in Sweden, Paykull.

Angustatus. Thorax and wing-caſes dull-rufous, in the middle black. *Ciſtela anguſtata*, Fabr.

Inhabits Britain. The head is black; antennæ brown; legs ferruginous.

Pallidus. Pale; head and tips of the wing-caſes brown. *Ciſtela pallida*, Fabr.

Found in Britain.

Aerugineus. Yellow; head and breaſt black; wing-caſes greeniſh. *Ciſtela aeruginea*, Fabr.

An African inſect; met with on the flowers of the aeſchynomene, to which it is extremely deſtructive.

Festivus. Ferruginous; wing-caſes blue-green, with ferruginous margin. *Ciſtela feſtiva*, Fabr.

Inhabits the Cape of Good Hope.

Aulicus. Black; thorax rufous; wing-caſes blue. Fabr.

Found in the ſame country as the preceding; the ſegments of the abdomen are rufous at the edges.

Svittata. Teſtaceous; margin of the wing-caſes, and ſtripe in the middle black. Fabr.

A native of Carolina, in the cabinet of Monſon.

Hirtus. Hairy; head and thorax rufous; wing-caſes blue. *Ciſtela hirta*, Fabr.

Inhabits the Cape of Good Hope.

Pubescens. Pubeſcent, grey; head and abdomen fuſcous. Fabr.

Found in Denmark. The antennæ are ferruginous at the baſe; ſuture of the wing-caſes blackiſh; body dark; legs grey.

Sex-Lineatus. Ferruginous; wing-caſes yellow, with three ſmall black yellow lines. *Ciſtela ſex-lineata*, Fabr.

Deſcribed from the Bankſian cabinet; native place unknown.

Alpinus. Black, poliſhed; wing-caſes cheſnut, and wrinkled, with the ſuture black. Moll.

Inhabits Alpine parts of Europe.

Strigosus. Reddiſh; abdomen black; front with two, thorax three, and wing-caſes four black bands. Sulz.

This, and the eleven ſucceeding ſpecies, are found in Europe.

Forsteri. Subvillous, brown, with longitudinal interrupted blackiſh bands. Schæff.

Pustulatus. Black, oval; wing-caſes with a ruſous waved ſpot. Forſt. Nov. Inſ.

Denigratus. Entirely ſhining black. Forſt.

4-Fasciatus. Sub-oval; black; with ſtriated wing-caſes. Forſt.

Holosericus. Oval; brown-green; wing-caſes with longitudinal interrupted duſky bands. Forſt.

Capucinus. Ferruginous; head, thorax, and wing-caſes brown, the latter with crenated ſtriæ; antennæ and legs ferruginous. Muſ. Leſk.

Conspersus. Above covered with yellowiſh duſt, beneath ſprinkled with ſilvery; antennæ brown; legs ruſty brown. Leſk.

Sulphuratus. Brown; antennæ, legs, and ſhells ſulphur; ends of the legs brown. Leſk.

Truncatus. Brown; wing-caſes ſmooth; antennæ and legs reddiſh yellow; thorax truncated behind. Leſk.

Brunneus. Brown; abdomen dark brown; wing-caſes ſmooth. Leſk.

Rufitarsis. Oblong; head, body, antennæ, and legs, braſſy-black and hairy; wing-caſes teſtaceous, punctured; tarſi ruſous. Leſk.

Inhabits near Luſace.

Cryptocephalus, Gmel. *Crioceris*, Fabr.

Bituberculatus. Fulvous; wing-caſes pale, ſurrounded with a fulvous margin. C. *tuberculata*, Fabr.

A native of Africa. Bankſian Cabinet.

Bidentatus. Yellow; wing-caſes black; with the tip reddiſh. Same country and cabinet as the preceding.

Melanocephalus. Rufous; head black; wing-caſes violet.

A native of New Holland. Antennæ black; ſcutel rufous.

Lunulus. Black; thorax pale; lunule, on the wing-caſes, margin and two bands pale.

Inhabits Cayenne. Antennæ black in the middle; body black; abdomen and legs pale.

Ochraceus. Teſtaceous; dot on the thorax and abdomen black; tail fulvous. Herbſt.

Ochreatus. Teſtaceous; breaſt and ſhanks black.

Found in Guadaloupe.

Lapponicus. Black; margin of the wing-caſes, antennæ, and legs yellow.

Inhabits Lapland, on the birch.

Nigritus. Ferruginous; antennæ, breaſt, and baſe of the abdomen black; thorax cylindrical, impreſſed each ſide.

Native of Germany.

Nigripes. Thorax cylindrical, yellow; antennæ, breaſt, and legs black.

Inhabits New Holland; the antennæ black.

Oculatus. Thorax cylindrical, yellow; wing-caſes black at the baſe, with a yellow dot.

Inhabits the ſame country as the laſt; the antennæ are yellow, and as long as the body; wing-caſes ſlightly ſtriated; breaſt and thighs black.

Melanopus. Blue; thorax and legs rufous. Sulz.

A native of Europe.

Violaceus. Black-violet; wing-caſes ſtriated.

Inhabits near Paris; body oblong and flat.

Equestris. Head and thorax teſtaceous; wing-caſes reddiſh-brown, with the margin, line at the baſe, and band in the middle yellow.

A native of Cayenne; antennæ and legs yellowiſh; body black.

4-Maculatus. Thorax rufous; wing-caſes teſtaceous, with two black ſpots.

Found in the ſouthern parts of Germany. The head is black; antennæ teſtaceous; abdomen black; breaſt and legs teſtaceous.

Parvus. Brown; two ſpots on the head; antennæ fulvous at the baſe.

Diſcovered in the vicinity of Berlin. Herbſt.

Tristis. Black; wing-caſes blue, with ſtriæ of punctures; legs fulvous.

Native of Auſtria. Herbſt.

Tricolor. Black; thorax cylindrical, gibbous at the ſides; head, ſuture, and margin of the wing-caſes ferruginous; wing-caſes teſtaceous; legs, antennæ and feelers reddiſh-yellow. Leſk.

Gibbus. Thorax cylindrical, gibbous at the ſides; head, thorax, and legs reddiſh-yellow; wing-caſes black, and deeply punctured.

A native of Europe.

Ochropus. Black; wing-caſes brown; thorax, baſe of the antennæ, and legs yellow; thighs brown at the baſe. Leſk.

Inhabits Europe.

Aquaticus. Black; thorax ſpotted; margin, broad ſuture of the wing-caſes, and the legs yellow. Müll.

Inhabits Denmark.

Beſides the above, Gmelin includes in his genus *cryptocephalus*, the three Fabrician genera *erotylus*, *lagria*, and *dryops*; which ſee reſpectively.

CRYPTOGAMIA, in *Botany*, (from κρυπτος, *ſecret* or *hidden*, and γαμυς, *marriage.*) the twenty-fourth and laſt claſs of the ſexual ſyſtem of Linnæus, formed for ſeveral very numerous families of plants, in which the parts eſſential to their fructification have not been ſufficiently aſcertained, or are too ſmall to admit of their being accurately deſcribed and referred to any of the preceding claſſes. It is divided by Linnæus into four orders, Filices, Muſci, Algæ and Fungi. See thoſe words. The order Hepaticæ has been added ſince. Mr. Kirwan, and ſome other geological writers, have maintained, that plants of this claſs and of the culmiferous kind are frequently found on the bituminous ſhales, which alternate with coal, but the whole of ſuch vegetable remains ſeem, when minutely axamined, to belong to no known genera, but to belong to the *incognita* of a former vegetable race, probably ſub-aqueous. See Colliery.

CRYPTOGRAPHY, the art of ſecret writing, or writing in cipher. See Cipher and Deciphering.

The word is compounded of κρυπτω, *I hide*; and γραφω, *I deſcribe.*

CRYPTO-PORTICUS. This word, taken etymologically, means a dark ſubterraneous gallery; ſee the article Crypt.

If we were to judge (ſays Winckelman) by the remains of antique edifices, and particularly by thoſe of the Villa Adriana at Tivoli, we might be led to believe that the ancients preferred darkneſs to light; for in fact we find ſcarcely any chamber or vault among theſe ruined edifices which has any appearance of windows. It ſeems probable that in ſome the light was only admitted through an opening in the middle of the vault, but as the vaults are generally fallen this point cannot be aſcertained.

The inhabitants of Italy were naturally attached to the ſhade and coolneſs of half-lighted apartments, the long galleries of the Villa Adriana, which were undoubtedly crypto-porticoes, receive a feeble light at each end from embraſures near the ceiling.

The term crypto-porticus appears, however, to have acquired a more extended meaning than might have been inferred from its etymology, and in fact to have had the ſame meaning as our word gallery; thus Pliny, deſcribing the crypto-porticus of his houſe of Laurentum, which he ſays partakes of the beauty and grandeur of public works, mentions windows on each ſide looking towards the ſea and upon the garden, as well as a ſmaller number placed above the others. In warm and ſerene weather they were all opened, but otherwiſe they were only opened on that ſide which was ſheltered from the wind. See GALLERY.

CRYPTOSTOMUM, in *Botany*, (from κρυπτος, *hidden*, and στομα, the *mouth*.) Schreb. 344. Wild. 390. (Montabea: Juſſ. 420. Aubl. 274.) Claſs and order, *pentandria monogynia*. Nat. Ord. undetermined.

Gen. Ch. *Cal.* Perianth one-leafed, funnel-ſhaped, ſwollen at the baſe, coloured with a five-cleft border; ſegments lanceolate, acute, unequal. *Cor.* Monopetalous, funnel-ſhaped; tube very ſhort, inserted into the throat of the calyx; border five-cleft; ſegments lanceolate, acute, unequal, converging. *Nectary* broad, arched, five-toothed, adnate to the baſe of the corolla and cloſing its mouth. *Stam.* Filaments none; anthers five, each of them attached to one of the teeth of the nectary. *Piſt.* Germ roundiſh, in the bottom of the calyx; ſtyle cylindrical, the length of the calyx; ſtigma capitate. *Per.* Berry dry, globular, three-celled. *Seeds* one in each cell, egg-ſhaped, acute, marked with a large hilum or ſcar.

Eſſ. Ch. Corolla funnel-ſhaped, inſerted into the calyx. Nectary one-leafed, cloſing the corolla. Berry dry, three-celled, with one ſeed in each cell. Obſ. Juſſieu calls the nectary a five-toothed filament.

Sp. C. *laurifolium.* (C. guijanenſe; Gmel. Montabea Aubl. guian. 2. 680.) A buſhy ſhrub. *Stems* ſeveral, five or ſix feet high or more, branched. *Leaves* alternate, nearly ſeſſile, elliptical, entire, acuminate, ſmooth. *Flowers* white, four or five in a cluſter on a ſhort axillary peduncle, ſweet-ſcented. *Berries* yellow. *Seeds* reſembling an almond, eaten by the Creoles. A native of Cayenne and Guiana.

CRYPTUS, in *Ancient Geography*, a port of Arabia Felix, placed in the ſtrait of the Perſian gulf.

CRYSTAL, CRYSTALLIZATION, or CRYSTALLOGRAPHY, in *Chemiſtry*. The Greeks called ice cryſtal, (κρυσταλλος,) from the remarkable facility with which it liquefies. By the Roman naturaliſts the ſame term was afterwards applied to the ſubſtance at preſent named rock-cryſtal, becauſe, from its colourleſs tranſparency, and from its being procured among the Alps and other cold mountainous regions, it was ſuppoſed to differ from common ice only in being more indurated by long-continued froſt, and therefore more permanent. But the ſymmetrical figure of rock-cryſtal, conſiſting of a ſix-ſided priſm terminated by ſix-ſided pyramidal ſummits, is equally remarkable as its luſtre and tranſparency; and as ſoon as it was obſerved that nitre and certain other ſalts were alſo capable, by particular management, of exhibiting a ſimilar priſmatic form, the word cryſtal aſſumed a more general meaning, and was applied to all thoſe regular polyhedral tranſparent ſolids which are preſented to our notice by nature or art. In this ſenſe the word is employed by the old chemiſts, and the cryſtalline form was conſidered as peculiarly characteriſtic of ſaline ſubſtances. By degrees it was found that the ſame tendency to ſymmetrical arrangement, which had been noticed in the claſs of ſalts, obtained alſo in many of the metallic ores, and in a variety of other bodies belonging to the mineral kingdom; and at length ſome able naturaliſts and chemiſts began to be of opinion that, with the exception of matter in the ſtate of vegetable or animal organization, every ſolid ſubſtance in nature was capable of being cryſtallized.

All compound bodies may be conſidered as made up of *integrant* particles, each of which is again compoſed of *elementary* ones. Thus a maſs of common ſalt conſiſts of a vaſt multitude of little cubes, which are its integrant particles, each of which is reſolvable into muriatic acid and ſoda, which are its elementary ones. With the latter of theſe cryſtallization has nothing to do, nor is it poſſible to aſcertain their forms, ſince they are not decompoſable by means which have any relation to form. Thus, when a piece of common ſalt is pounded in a mortar, the concuſſions that it receives are continually deſtroying the adheſion between its integrant particles; and though it is incapable of being actually and completely reſolved, on account of the comparative coarſeneſs of the inſtruments that we are obliged to make uſe of, yet we ſee an evident approximation to this. Now a body, that is mechanically diviſible, muſt be produced by the adheſion or aggregation of its conſtituent particles, and theſe, both with regard to their forms and the manner in which they adhere to each other, are proper objects of meaſurement and mathematical calculation. The caſe, however, is widely different with regard to the elementary particles of which the integrant moleculæ are compoſed; theſe are incapable of being in the ſmalleſt degree ſeparated by percuſſion or mechanical force, and therefore the mode of their combination is not capable of being explained by geometrical calculation.

It has been the practice of ſome late authors to extend the meaning of the term cryſtallization ſo as to make it ſynonymous with the attraction of aggregation; this, however, appears to be injudicious; the latter comprehends every ſpecies of formation by which ſolids are produced, but the former expreſſes only that regular arrangement of homogeneous integrant particles by which, when interrupted, cryſtalline lamina, and, when uninterrupted, entire cryſtals are produced; aggregation therefore includes cryſtallization, which is only a mode or ſpecies of the former. It is of importance to bear in mind that not only a regular external figure, but a regular internal ſtructure, is neceſſary to conſtitute a cryſtal, otherwiſe a column of baſalt might be conſidered as a priſmatic cryſtal, an error which ſome of the older mineralogiſts have actually fallen into.

Hardly any of the cryſtallizations that are performed by nature have been imitated by art: in return, however, chemiſtry has been able to effect the cryſtallization of a variety of ſubſtances, chiefly ſalts, which are not found cryſtallized naturally; and by taking proper advantage of this circumſtance, has ſucceeded in obtaining them in a ſtate of greater purity than any other method could afford them.

All ſubſtances, in order to be cryſtallized, require that their integrant molecules ſhould be ſeparated from each other by the intervention of a medium, in which they may move freely, according to the attraction of their cryſtalline polarity. But this neceſſarily implies two diſtinct operations; for the ſame attraction exerted by the medium, or ſolvent to overcome the attraction of a body, and reduce it to its integrant molecules, will alſo prevent the efficacy of its cryſtalline polarity. It is neceſſary, therefore, after having deſtroyed the aggregation of a ſolid by the requiſite quantity of a ſolvent, to abſtract by degrees ſuch a portion of it, that the attraction of the remainder ſhall be inferior to the cryſtalline polarity of the ſubſtance diſſolved. The ſimpleſt ſolvent that can be employed is caloric, and many great advantages attend its excluſive uſe. A number of caſes, however, occur, in which its application is impoſſible, except in combination with ſome liquid menſtruum, as water or alcohol.

Solids that are eaſily volatilized, without decompoſition, at a moderate temperature, may be obtained in a cryſtalline ſtate by gradual ſublimation in cloſe veſſels. Thus, when grey oxyd of arſenic is expoſed to a low red heat, the aggregation of its integrant molecules is deſtroyed, and it is converted into a vapour, which at the ſame, or any higher temperature, would continue in a permanently elaſtic ſtate. This is the firſt part of the proceſs, namely, the ſeparation from each other of the integrant particles of the arſenic, in conſequence of the addition of caloric, which interpoſes itſelf between them. The ſecond part of the proceſs, or the formation of cryſtals, depends on the tendency to an equilibrium, by which heat is characterized, and its being able to paſs with readineſs through media that are impenetrable by other bodies. When, therefore, the vapour, conſiſting of caloric and oxyd of arſenic, arrives in the upper part of the veſſel, the caloric paſſes through, like water through a filter, while the oxyd of arſenic is left behind; this latter, therefore, is continually increaſing in proportion to the remaining caloric, till the cryſtalline polarity of the particles of arſenic becomes ſuperior to the attraction of the caloric. As ſoon as this takes place, a ſtratum of particles begins to be depoſited on the inner ſurface of the containing veſſel, and theſe ſerve as a baſis, to which all the ſucceeding ones attach themſelves, according to their peculiar mode of arrangement, in proportion as their cryſtalline attraction becomes ſuperior to the affinity exerted by the caloric. In this way not only are volatilizable ſubſtances, when unmixed with others, obtainable in a pure cryſtalline ſtate, but they may often be ſeparated hereby from intimate mixture or combination with bodies of greater fixity. Thus, benzoic acid is ſeparable in a cryſtalline form from the reſin with which it is naturally combined, by taking advantage of its ready volatility at a moderate heat: thus, alſo, the manufacturers of ſal-ammoniac ſeparate this ſalt from ſulphat of ſoda, and procure it of a cryſtalline texture by the application of a heat ſufficient to ſublime the former, while it has no ſuch action on the latter.

Bodies may be made to aſſume the cryſtalline ſtate, not only by the proceſs of ſublimation, but in many caſes by a temperature only ſufficient to fuſe them. Thus, if we melt in a crucible a quantity of biſmuth, or antimony, or ſulphur, and afterwards cool it as ſlowly as poſſible, till a thin cruſt has formed on the ſurface, and then, by means of a pointed iron, pierce two ſmall oppoſite apertures through the cruſt, and quickly pour out by one the ſtill fluid portion while the air enters by the other, there will appear, on removing the upper cruſt, by means of a chizel, a cup-ſhaped hollow, ſtudded with cryſtals, which will be more or leſs perfect, according to the magnitude of the original maſs, the ſlowneſs with which it has been cooled, and the dexterity with which the fluid part has been evacuated.

There are, however, but few chemical ſubſtances, comparatively, that can be obtained in a cryſtalline ſtate by the agency of heat alone; for ſome are decompoſable by fire, and others are either inſuſible, or require ſuch a high temperature for this purpoſe, as to make its application exceedingly troubleſome and inconvenient. In effecting the cryſtallization of nearly the whole of the compound ſalts, and a few other bodies, recourſe has been principally had to the agency of water and alcohol, as theſe two fluids exert a conſiderable ſolvent power on the ſubſtances expoſed to their action, without however decompoſing them; and being themſelves readily volatile, at a moderate temperature, they may be abſtracted with ſufficient ſlowneſs to allow the ſubſtances held by them in ſolution to be depoſited in a cryſtalline form.

When a maſs of ſalt (nitre for example) is immerſed in water of the common temperature, the coheſive attraction of its particles is oppoſed by the ſolvent power or chemical attraction of the water. At firſt the nitre, being ſurrounded on all ſides by particles of uncombined water, begins to be rapidly diſſolved; but as the ſolution proceeds, this effect becomes more and more languid, till at length it entirely ceaſes; when the number of uncombined particles of water is ſo far reduced, that the ſum of the ſolvent forces of thoſe that are in contact with the nitre exactly counterbalances the attraction of coheſion, by which the undiſſolved reſidue of the nitre is held together. When this ſtate of equilibrium takes place, the ſolution is ſaid to be ſaturated; but although this is the caſe, as long as it undergoes no increaſe of temperature, yet, in proportion as the heat of the water is raiſed, the ſolvent power of the liquid is greatly augmented. The ſalt therefore that is contained in boiling hot water, may be conſidered as rendered fluid by the combined action of the heat and the water; and if this menſtruum is completely ſaturated, it is manifeſt, that in proportion as it cools, the coheſive attraction between the particles of nitre will gain the aſcendency, and continue to act till the oppoſing forces find themſelves again in equilibrium. All ſalts, therefore, which are more ſoluble in hot than in cold water, are in part depoſited from a ſaturated ſolution by mere cooling, and if this is done gradually, and without the interference of any materially diſturbing cauſe, the particles, as they conſolidate, will arrange themſelves in regular cryſtals.

When a ſolution of this kind has depoſited by cooling all the ſaline particles which it was enabled to hold by its increaſed temperature, in addition to thoſe which were retained by the mere action of the water, it is obvious that recourſe muſt be had to the abſtraction of the liquid menſtruum itſelf, if we wiſh to procure from it any additional cryſtals. We therefore ſubject the whole to a boiling heat, which has the double advantage of driving off part of the water, and enabling the remainder, in conſequence of the increaſed temperature, ſtill to hold the ſalt in ſolution. When the evaporation has proceeded ſome time, a ſaline pellicle begins to appear on the ſurface of the liquor, which is a proof that the coheſive attraction of the particles of ſalt is obtaining a ſuperiority over the ſolvent power of the hot water, and by continuing the evaporation, the whole of the water will be driven off, and the ſalt depoſited in an amorphous uncryſtallized maſs; but if, when the pellicle appears, the ſolution is ſlowly cooled, it will depoſit, as at firſt, in a cryſtalline ſtate, all that portion of ſalt which, in the cold ſaturated ſolution, was combined with the water which has evaporated. Thus, by ſucceſſive evaporation and gradual cooling, all ſubſtances, capable of cryſtallizing, and which are more ſoluble in hot than in cold water, may be procured in their proper cryſtalline forms.

A few ſalts, eſpecially muriat of ſoda, (common ſalt) are nearly equally ſoluble in water of any temperature; theſe therefore can only be obtained in a cryſtalline ſtate, by a carefully regulated evaporation.

All cryſtals that are formed in water retain a portion of this fluid; which is called the *water of cryſtallization*. Its proportion varies in different ſalts, and appears to be in an inverſe ratio to the force of their cryſtalline polarity. Thus, ſulphat of pot-aſh, which requires a large quantity of water to counterbalance the coheſive force of its particles, contains but little water of cryſtallization; whereas ſulphat of ſoda, which is readily ſoluble in water, holds more than half its chemical weight of this fluid. This water appears to be in a ſtate of combination with the ſalt, and not ſimply interpoſed between its laminæ: the affinity however which it exerts, is but feeble, at leaſt in thoſe ſalts into the compoſition of which it enters largely, ſince a conſiderable proportion of it is driven off merely by expoſure to the air. In theſe caſes, the cryſtal moulders away to powder, and entirely loſes its peculiar form and texture.

If a cryſtallizable ſalt is perfectly pure, its ſolution will continue to afford cryſtals by the common treatment to the very laſt drop; but as all ſalts have a greater or leſs chemical action on each other, it uſually happens, when two or more co-exiſt in the ſame ſolution, that after cryſtals have been obtained by ſucceſſive evaporations and coolings, the remaining portion of fluid, though changed to ſaturation with ſaline matter, refuſes to yield any more cryſtals. This liquor, whatever may be the nature of its contents, is known by the general appellation of *mother water*. Thoſe ſalts, the cryſtals of which are permanent in the air, have the ſtrongeſt degree of cryſtalline polarity; in thoſe which are effloreſcent, this force is conſiderably leſs, but it is the weakeſt of all in thoſe that deliqueſce on expoſure to the air. Now, if two ſalts are diſſolved together in the ſame quantity of water, provided they do not decompoſe each other, and eſpecially if their ratios of ſolubility are different; although they are rendered more ſoluble by their mutual affinity, yet they may be obtained again in the cryſtalline ſtate without leaving any mother water. Thus, equal parts of nitrat of pot-aſh and ſulphat of pot-aſh, though ſoluble when mixed together in leſs water than would have been neceſſary for both ſeparate, afford by evaporation, ſucceſſively, and in proportion to their ſolubility, firſt ſulphat of pot-aſh, and then nitrat of pot-aſh, without leaving any uncryſtallizable liquid. But on the other hand, if nitrat of ſoda, and ſulphat of ſoda are ſubjected to the ſame experiment, both of which have only a ſlight tendency to cryſtallize, and are of nearly equal ſolubility, only a ſmall quantity of ſulphat of ſoda will ſeparate by cryſtallization, all the nitrat and the remainder of the ſulphat remaining liquid and uncryſtallizable. When the mutual action of the two ſalts is ſufficient to effect a double decompoſition of them, it is neceſſary to take into conſideration the ſolubility of the new ſalts, in order to make a correct eſtimate of the quantity of uncryſtallizable reſidue. Thus, if equal parts of ſulphat of magneſia and muriat of ſoda are mixed together, although the ratio of ſolubility of the two is different, and their force of cryſtallization alſo conſiderable, yet the liquor can hardly be made to yield any cryſtals at all; for in conſequence of a mutual decompoſition, muriat of magneſia, a deliqueſcent ſalt, and ſulphat of ſoda, an effloreſcent one will be formed; and the ſlight cryſtalline force of the latter will be almoſt wholly annulled by the extreme ſolubility of the former.

In many inſtances, the diſturbance occaſioned by ebullition and other cauſes of agitation, prevents the formation of regular cryſtals. But though this is the caſe, it does by no means follow that the entire abſence of external motion is peculiarly favourable to cryſtallization. The ſolutions of thoſe ſalts that are much more ſoluble in hot than in cold water, and have but a feeble power of cryſtalline polarity, may, if kept ſtill, be cooled by degrees conſiderably below their congealing or cryſtallizing point, and ſtill retain their fluidity; apparently becauſe the attraction of their particles, in itſelf feeble and oppoſed by the affinity of the water, is held in equilibrium becauſe no one particle has a preponderating power over thoſe in its vicinity; for if a piece of the ſame kind of ſalt that is contained in the ſolution, be introduced, even with the utmoſt precaution, the inferior attraction of the maſs will be immediately exerted on the adjacent particles, and a rapid growth of cryſtals will take place, radiating from this maſs as their centre of attraction. Cryſtallization may alſo be induced in ſimilar circumſtances, merely by agitation, but when this is the caſe, it is always confuſed and irregular.

Although ſeveral varieties of form in cryſtals had been obſerved by chemiſts and naturaliſts, yet they were rather objects of vague curioſity than of ſcientific attention, before the time of Linnæus. This able man, who aſpired to be the claſſifier and lexicographer of the whole terreſtial world, obſerved a reſemblance more or leſs perfect between the forms of various ſalts, and of ſeveral of the native cryſtallized minerals. The faculty of cryſtallizing he conſidered as peculiarly characteriſtic of ſaline ſubſtances, and hence concluded that all the cryſtallized earthy minerals were compounded of earth and ſome particular ſalt, to the latter of which was owing their external figure. Hence, becauſe both nitre and quartz cryſtallize in the form of hexahedral priſms, terminated by hexahedral pyramids, he conſidered the former as the type of a whole genus, of which the latter was one of the ſpecies. So again, obſerving that alum and the diamond cryſtallize in pyramidal octohedrons, he arranged the latter as a ſpecies of the genus alum. The principal foundation of this theory, namely, that the particular forms of earthy cryſtals are owing to the preſence of a ſalt, was ſoon after demonſtrated by Wallerius and others, to be wholly groundleſs, yet the hypotheſis, however erroneous, had already induced mineralogiſts to pay more attention to the forms of cryſtals than they had heretofore been accuſtomed to do, and thereby prepared the way for the more important diſcoveries of Romè de Liſle.

It was in conſequence of the minute, ingenious, and multiplied labours of this able philoſopher, that cryſtallography firſt aſſumed the appearance of ſcience. He accurately examined all the cryſtalline forms that fell under his obſervation, delineated them with accuracy, aſcertained the meaſurement of their principal angles, and arranged them with great ſagacity, into ſpecies and varieties. Out of the various forms which each ſpecies exhibited, he ſelected one, which, from its ſimplicity, appeared to poſſeſs the faireſt claim to be conſidered as the primitve form of the ſpecies; and from this, by ſuppoſing it truncated in different directions, he deduced, in a moſt ingenious manner, a regular gradation through the leaſt to the moſt complex of the forms belonging to each ſpecies. He alſo made the intereſting diſcovery, that the principal of the angles formed by the incidence of the circumſcribing planes on each other, are always of the ſame dimenſions, notwithſtanding the truncatures and other modifications undergone by the primitive figure; and alſo that the dimenſions of theſe angles vary in every different ſpecies, although the general figure of the cryſtals may be the ſame. Thus, having aſcertained that the primitive cryſtalline form both of alum and nitre, is the pyramidal octohedron, compoſed of two four-ſided pyramids united at their baſes, he found that the two ſpecies might be accurately diſtinguiſhed by the incidence of the correſponding planes of the two pyramids on each other; the amount of this angle in the octohedrons of alum being conſtantly 110°, and in thoſe of nitre 120°.

The great objection to the ſyſtem of Romé de Liſle is, that the forms which he has ſelected as the primitive ones in each ſpecies are not demonſtrated, but only preſumed to be ſo, on account of their ſimplicity. The whole theory of truncatures alſo is allowed by the author to be merely hypothetical, or rather to be wholly different from the method purſued by nature in the formation of cryſtals, there being no example of any one variety of theſe being ever produced by the actual truncation of the primitive figure. In conſequence of theſe objections, Bergman was induced to ſuppoſe, that the varieties in cryſtallization are not owing to truncations of the primitive figure, but to the ſuperpoſition of ſecondary laminæ upon its faces, either in regular, or variable and decreaſing proportions. According to this hypotheſis, it would follow, that if the external laminæ of any cryſtals were taken off in regular ſucceſſion, the remaining nucleus would be conſtantly approaching to the primitive form, and would at length actually arrive at it. This Bergman demonſtrated to be the caſe with that variety of calcareous ſpar called dog-tooth ſpar, by an actual diſſection of the cryſtal; he diſcovered the various directions of the cryſtalline laminæ of which it is compoſed, and by removing theſe in ſucceſſion, he arrived at a rhomboidal ſolid, diviſible only by planes parallel to its ſurfaces, and therefore unſuſceptible of undergoing any further change of form. But in an attempt to apply this brilliant diſcovery to another variety of calcareous ſpar, he was not equally ſucceſsful as at firſt, and appears to have proceeded no further in the inveſtigation of the ſubject.

Much about the time of Bergman's diſcoveries, M. Hauy had begun to inveſtigate the ſame ſubject; he duly appreciated the diſcovery of the Swediſh philoſopher, adopted his fundamental propoſition, and by a moſt maſterly combination of algebraical and geometrical reaſoning, with unparalleled dexterity in the diſſection of cryſtals, he has produced a theory of their formation moſt remarkably beautiful and conſiſtent, and which has been applied by him with the happieſt ſucceſs, in the reſolution of the moſt intricate figures, and the reduction of them to the moſt ſimple primitive forms. We ſhall therefore conclude this article by a detailed view of M. Hauy's Theory of the Structure of Cryſtals.

The mechanical diviſion of cryſtals is the only method by which their primitive forms can with certainty be determined; and from the reſults of a multitude of theſe diſſections, the following general concluſion (ſubject to certain reſtrictions, which will be hereafter mentioned,) may be deduced; that all cryſtals belonging to the ſame ſpecies, (that is, which agree in their chemical compoſition,) however great may be the difference of their external figures, are reducible by the ſucceſſive abſtraction of their laminæ to one and the ſame primitive form. This will beſt be illuſtrated by a few examples.

Take a regular hexahedral priſm of calcareous ſpar, (Crystallography, *Theory of, Plate* I. *figs.* 1, 2.) If an attempt is made to divide this, upon the edges adjacent to the baſes, it will be found that only three alternate edges at the upper extremity of the cryſtal, repreſented by the letters *lf, cd, bm*, will admit of being thus divided: it will alſo be found that only three alternate edges at the lower extremity can be divided, and that theſe edges inſtead of correſponding with thoſe of the upper extremity as *l′f′, c′d′, b′m′*, are the intervening ones *d′f′, b′c′, l′m′*. The ſix ſections being made in the direction above indicated, will produce a like number of trapezoidal planes, three of which are repreſented in *fig.* 2, namely, *ppoo, aakk, nnii*. Each of theſe planes will exhibit a degree of poliſh and luſtre, by which it will be readily recognized as the area of one of thoſe cryſtalline laminæ of which the whole ſolid is compoſed; and if the priſm is divided in any other direction, it will be evident, from the roughneſs and dullneſs of the fractured ſurface, that ſuch ſection does not correſpond with any of the natural joints of the cryſtal. The diviſion of the cryſtal being continued in a direction parallel to the firſt ſections, it will happen, on the one hand, that the areas of the baſes will be continually leſſening, at the ſame time that the height of the lateral faces will be diminiſhing, and where the baſes are completely obliterated the priſm will have been converted into a dodecahedron, with pentagonal faces, ſix of which, as *ooi*O*e*, *o*I*kii*, &c. are the reſidues of the original faces of the priſm, and the ſix others, as E A I *oo*, O A′ K *ii*, &c. are the immediate reſults of the mechanical diviſion.

The ſection of the cryſtal being ſtill perſevered in, it is obvious that the terminal planes will preſerve their figure and dimenſions, while the height of the lateral ones will be continually diminiſhing, till the points *o*, *k*, of the pentagon *o* I *kii*, coinciding with the points *i*, *i*, and ſo of the other points ſimilarly ſituated, each lateral pentagon is reduced to a ſimple triangle, as in *fig.* 4. And when, at length, by a continuation of the ſame mechanical diviſion, theſe triangles have diſappeared, all the original faces of the priſm being completely obliterated, the primitive nucleus of the cryſtal will be obtained, in the form of an obtuſe rhomboid, the large angles of which, E A I, or E O I, meaſure 101° 32′ 13″.

If, for a ſecond example, we take a cryſtal of dog-tooth calcareous ſpar (*fig.* 6.), it will be found that, by making one ſection through the edges E O, O I; a ſecond through I K, G K; a third through G H, E H; a fourth through O I, I K; a fifth through G K, G H; and a ſixth through E H, E O, the primitive rhomboid will be at once obtained; whence it follows, that the edges above-mentioned correſpond with the lateral edges of the primitive nucleus, as is obvious, at firſt ſight, from *fig.* 7, which repreſents this primitive figure, inſcribed in a pyramidal dodecahedron, with ſcalene triangular faces.

Thus, in like manner, all the cryſtalline forms of calcareous ſpar, even thoſe that differ the moſt from the primitive one, may be reduced by mechanical diviſion in the directions of their laminæ to the rhomboid.

It has already been mentioned, that the primitive form of each ſpecies is conſtant, not only in its figure, but alſo in the dimenſions of its angles; but when we find that there are ſeveral rhomboids of calcareous ſpar, which differ very materially from each other in the meaſurements of their angles, it may be thought that this circumſtance invalidates the above aſſertion. But this objection, though plauſible, is by no means real; for none of theſe ſecondary rhomboids are diviſible parallel to their ſides, and, therefore, want the eſſential characteriſtic of a primitive cryſtal; further, they are all reducible to the primitive form by the ſucceſſive removal of their exterminal laminæ, as we ſhall proceed to ſhew, in the inſtance of the ſecondary rhomboid, the plane angles of which, ſurrounding the ſummits, are 75° 31′ 20″, and which is repreſented by *fig.* 8, incloſing its primitive nucleus. In order to effect the mechanical diviſion of this cryſtal, ſections muſt be made parallel to the ſix terminal edges *st*, *su*, *sn*, at one extremity, and *s′t′*, *s′u′*, *s′n′*, at the other, ſo that every one of theſe ſecondary planes ſhall intercept equal and ſimilar portions of the two adjacent faces of the rhomboid. Theſe ſections will produce the ſix pentagons *r*, *r*, *r*, *r′*, *r′*, *r′*, (*fig.* 9.) and it is eaſy to perceive that, by ſucceſſive ſections parallel to theſe, the original faces of the rhomboid will be obliterated, and the primitive rhomboid A A′ (*fig.* 8.) will be produced. It is to be remarked alſo, that the faces of this primitive rhomboid incline in the ſame degree towards the common axis, as the edges st, su, sn, &c. to which theſe faces are parallel. But the edges above mentioned form larger angles with the axis, than would be produced by the oblique diagonals sn', st', su', or, which is the ſame thing, by the faces $stn'u$, $snt'u$, $stu'n$; whence it is obvious that, in the rhomboid extracted by mechanical diviſion, the angles of the ſummit will be ſenſibly larger than the correſponding ones in the containing rhomboid.

If, inſtead of calcareous ſpar, a cryſtal belonging to another ſpecies is divided in a direction parallel to its laminæ, a different ſhaped nucleus will be eliminated. For example, a cube of fluor ſpar will afford a regular octohedron, by dividing it parallel to its eight ſolid angles; theſe will firſt be replaced by an equal number of equilateral triangles; and, at length, when the faces of the cube have entirely diſappeared, the cryſtal will be converted into the regular octohedron. Thus alſo the primitive form of heavy ſpar will be found to be a ſtraight priſm with rhomboidal baſes; that of apatite, a regular hexahedral priſm; that of galena, a cube, &c. It is not always neceſſary to diſſect a cryſtal, in order to reduce it to its primitive form; for we find natural rhomboids of calcareous ſpar, octohedrons of fluor ſpar, &c. which, in every reſpect, exactly correſpond with the primitive nuclei extracted mechanically from other varieties of the above ſpecies. Theſe natural primitive forms, however, are, upon the whole, of leſs frequent occurrence than the ſecondary, or derivative forms.

The number of primitive forms, as yet aſcertained, is only ſix; namely, the parallelopiped (including the cube and rhomboid); the octohedron; the tetrahedron; the regular hexahedral priſm; the dodecahedron, with rhombic planes, all equal and ſimilar; and the dodecahedron, with triangular planes compoſed of two ſtraight pyramids, united by a common baſe.

The nucleus, or primitive form of a cryſtal, is, however, by no means the ultimate reſult of its mechanical diviſion; for every primitive form admits of ſucceſſive ſections parallel to its faces, till it becomes no longer viſible to the naked eye; and certain nuclei are alſo ſuſceptible of tranſverſe or diagonal ſections, the reſult of which is a figure different from that of the primitive cryſtal. The form produced by the ultimate diviſion of a cryſtal, may be conſidered as the repreſentative of its *integrant particles*, and this is the laſt term to which mechanical diviſion is capable of being carried; the elementary, or chemical component particles, not being ſuſceptible of ſeparation from each other by any other means than chemical attraction, which is wholly different from mechanical force.

If the primitive form of a cryſtal is a parallelopiped, and can be ſubdivided only by ſections, parallel to its faces, it is evident that the figure of the integrant particles is the ſame as that of the primitive nucleus. Thus, the primitive form of calcareous ſpar is a rhomboid; and becauſe this rhomboid is diviſible only by ſections, parallel to its faces, it neceſſarily follows, that the form of its integrant particles is alſo a rhomboid. But it is poſſible that the primitive parallelopiped may be divided alſo by planes not parallel to the external faces. For example; let A A' K H (*fig.* 10.) be a rhomboid, diviſible at the ſame time, parallel to the ſix rhombs by which it is bounded, and in the direction of the ſhort diagonals of the faces. Theſe latter ſections will divide the rhomboid into ſix tetrahedrons, which, in *fig.* 10, are repreſented as ſurrounding the nucleus, which may thus be conſidered as made up of tetrahedral integrant particles. This peculiarity of ſtructure is found in the tourmaline.

An example of the integrant particles, differing in figure from the primitive nucleus, although this latter is diviſible only parallel to its external faces, is afforded by the apatite. The primitive form of this mineral is a regular hexahedral priſm, which may be ſubdivided only by ſections parallel to its baſes and ſides; but from this diviſion will reſult an aſſemblage of triangular priſms, as is plain from the mere inſpection of *fig.* 40, in which one of the baſes of the priſm is repreſented as divided into equilateral triangles, each of which is the baſe of a ſmall triangular priſm, repreſenting an integrant particle.

It is worthy of remark, that the forms of the integrant particles of all cryſtals may be reduced to one or other of the three above-mentioned, namely, the tetrahedron, the moſt ſimple of all the pyramids; the triangular priſm, the moſt ſimple of all the priſms; and the parallelopiped, the moſt ſimple of all thoſe ſolids, the faces of which are parallel to each other by pairs. And ſince every plane ſolid muſt be bounded by at leaſt four ſurfaces, it is evident that the three forms above-mentioned, in which the number of faces is ſucceſſively four, five, and ſix, are poſſeſſed of the greateſt ſimplicity poſſible.

This general ſimplicity is, however, by no means incompatible with almoſt infinite variety in the dimenſions of the integrant particles, and the meaſurements of their ſeveral angles. Thus, the parallelopiped may be rectangular, forming a cube or ſquare priſm; or may be oblique-angular, forming an infinite variety of rhomboids. The triangular priſm alſo may be equilateral or iſoſceles; and the pyramidal tetrahedron may exhibit analogous diverſities.

There are, however, certain forms of integrant particles, as well as of primitive nuclei, which are common to two or more different ſubſtances. Iron pyrites and common ſalt, for example, have each of them a cube for their primitive nucleus: ruby and native biſmuth preſent the regular octohedron. But it is remarkable, that all thoſe forms which are common to ſeveral minerals, are characterized by the utmoſt poſſible ſimplicity and regularity, as the cube, the regular octohedron, the dodecahedron with rhombic planes.

It remains to give a brief account of the peculiar modes of arrangement followed by the integrant particles, by which are produced thoſe regular coverings of cryſtalline laminæ, which diſguiſe, under ſuch various forms, one and the ſame primitive nucleus.

Now, experiment and obſervation ſhew, that this covering matter is an aſſemblage of laminæ, which, proceeding from the primitive nucleus as a centre, conſtantly decreaſe in extent, either on all ſides, equally, or more on ſome than on others. This decrement is effected by regular ſubtractions of one or more rows of integrant particles, either on the ſides or ſolid angles of the primitive form. A few ſimple inſtances will ſerve to give a clear idea of the laws to which theſe decrements are ſubject.

Let ss' (*fig.* 11.) repreſent ſecondary cryſtal, in form of a rhomboidal dodecahedron, with a cube for its primitive nucleus. In order to extract this nucleus, it is neceſſary to remove, ſucceſſively, the ſix ſolid angles, compoſed of four planes each, as s, r, t, &c. by ſections paſſing through the ſhort diagonals of the three rhombic faces, of which the ſummits O A' are compoſed; the planes of theſe ſections will form as many ſquares, A E O I, E O O' E', I O O' I', &c. *fig.* 12, which are the faces of the cube.

Now, ſuppoſe that each of the faces of the cube ſupports a ſeries of decreaſing laminæ, compoſed of cubical particles, every one of which exceeds that immediately above it, by one row of particles on each of its four ſides; the neceſſary reſult, therefore, will be the formation of ſix quadrangular pyramids, reſembling flights of ſteps, reſting on the ſix faces of the primitive cube. Three of theſe pyramids are repreſented in *fig.* 13, having their ſummits at s, t, r'. Theſe ſix quadrangular pyramids are compoſed of twenty-four triangles, as OsI, OtI, &c.; but becauſe the decrement is uniform, from s to t, and ſo of the reſt, the oppoſite triangles of two adjacent pyramids are on the ſame level and form a rhomb, as sOtI. The ſurface of this ſecondary ſolid will, therefore, be bounded by twelve equal and ſimilar rhombs, or, in other words, the rhomboidal dodecahedron (*fig.* 11.) will be recompoſed.

This dodecahedron is repreſented in *fig.* 13, in ſuch a manner, that the progreſſive decrement of the ſuperpoſed laminæ is viſible to the naked eye. The cubical nucleus, it is to be obſerved, has each of its faces compoſed of 17 rows of integrant particles, which will give 289 for the area of each ſurface, and 4913 for the ſolid contents of the cube. This primitive form is covered by eight ſuperpoſed laminæ, (the upper conſiſting of a ſingle particle) the length of the ſides of which are equal, reſpectively, to 15, 13, 11, 9, 7, 5, 3, 1 particles, forming a ſeries, the common difference of which is 2, there being one row ſubtracted from each end.

If, to the above repreſentation of integrant particles, which, however coarſe, has yet the advantage of being obvious to the eye, we ſubſtitute, in imagination, the almoſt infinitely delicate ſtructure of real cryſtals, we muſt conceive the primitive nucleus as compoſed of a vaſt multitude of cubes, each of which ſingly is imperceptible; in which caſe, the number of ſuperpoſed laminæ will alſo be far greater than in the preceding hypotheſis. Hence it will follow, that the ſtriæ, formed upon the faces of the dodecahedron, by the alternate ſaliant and re-entering angles of the ſuperpoſed laminæ, though they really exiſt, will yet, from their minuteneſs, be inviſible to the naked eye.

In the example juſt given, the ratio of the decrement is equal to two rows of integrant particles ſubtracted from the breadth of the ſuperpoſed laminæ; therefore, the height of the pyramid thus produced is equal to half the length of one of the ſides of its baſe; but the ratio may be equal to one, three, four, five, or ſix rows, in which caſes the height will be to the breadth of the pyramid, as $1 : 1$, $\frac{1}{3} : 1$, $\frac{1}{4} : 1$, $\frac{1}{5} : 1$, $\frac{1}{6} : 1$. But the decrements of theſe ſuperpoſed or ſecondary laminæ, may be conſidered as taking place, not merely in breadth, but in height; and the ratio or common difference of theſe latter may alſo vary from one to ſix rows of integrant particles, in which caſes the height will be to the breadth of the pyramid, as $1 : 1$, $1 : \frac{1}{2}$, $1 : \frac{1}{3}$, $1 : \frac{1}{4}$, $1 : \frac{1}{5}$, $1 : \frac{1}{6}$. It not unfrequently happens, that theſe two kinds of decrement are united in the ſame cryſtal; and to this circumſtance it is that the great variety of cryſtalline forms, under which the ſame ſubſtance appears, is chiefly to be attributed.

The dodecahedral iron pyrites, with pentagonal faces, is an example of the combination of the two modes of decrement. The primitive nucleus of this ſubſtance is a cube, the poſition of which, with regard to the circumſcribing dodecahedron, is evident from the mere inſpection of *fig.* 15. In this the ſuperpoſed laminæ, inſtead of forming pyramids, as in the foregoing example, compoſe very obtuſe, wedge-ſhaped ſolids, bounded by two trapeziums, as OIpq, AEpq, and two iſoſceles triangles Epo, AqI.

Now ſuppoſe a decrement to take place by two rows in breadth between the ſides OI and AE, II′ and OO′, EO and E′O′, and ſo in like manner on the oppoſite ſquares, and that a decrement, by two rows in height, takes place at the ſame time between the ſides EO and AI, OI and O′I′, OO′ and EE′; it is then obvious that the two kinds of decrement are carried on upon the different faces of the cube in ſuch a manner as to croſs each other at right angles in three directions. And the decrement, by two rows in breadth, tending to produce a more inclined face than the decrement by two rows in height, each pile of ſuperpoſed laminæ will terminate not in a point, but will produce a wedge-ſhaped ſolid, *fig.* 16, that is to ſay, it will be terminated by the edge pq or tn; and if the directions of theſe two edges are compared with that of the edge rs, (*figs.* 14 and 15.) which terminates the pile raiſed on the face EOO′E′ of the nucleus, it will be plain that theſe three edges are perpendicular to each other.

Further, each trapezium, as O$pq$I (*figs.* 15 and 16.) being on the ſame plane as the triangle OtI, which belongs to the adjacent pile, will be confounded with it, and the reſult of this union will be the pentagon pOtIq, whence it follows that the whole ſolid will be bounded by twelve equal and ſimilar pentagonal faces, on account of the regular form of the nucleus and the ſymmetry of its decrements.

Both the kinds of decrement which we have hitherto deſcribed, commence from the ſides or edges of the primitive nucleus; but theſe are not ſufficient to explain all the varieties of form preſented by ſecondary cryſtals. Both obſervation and calculation demonſtrate that there are alſo decrements commencing from the angles, and proceeding in a direction parallel to the diagonals of the faces. This is proved from the circumſtance, that the ſame ſubſtances which, having a cube for their primitive nucleus, appear under the forms of the pentagonal and rhomboidal dodecahedrons, are alſo found under that of the regular octohedron. It ſeems, indeed, at firſt ſight, very poſſible to deduce this octohedron from a decrement on the edges of the cubic nucleus, for if the ſecondary laminæ are conſidered as ſuperpoſed only on two oppoſite faces of the cube, as for example on AEOI, and A′E′O′I′, (*fig.* 20.) there will be formed on theſe baſes two pyramids, and if the faces of each pyramid are ſuppoſed to be prolonged till they meet, which will be effected merely by a continuation of the ſame law of decrement by which the pyramids themſelves are formed, there will be produced an octohedron, the angles of which will vary as the decrement has been made by the ſubtraction of one or more rows. But it may be demonſtrated by calculation, that no law of decrement, however complex, will produce an octohedron, the faces of which are equilateral triangles, if this decrement takes place from the edges of a cubical nucleus.

On the other hand, if we actually diſſect a regular octohedron, moulded on a cube, we ſhall perceive that this primitive nucleus is ſo ſituated with regard to the octohedron, that each of the eight ſolid angles of the former correſpond with the centres of the triangular faces of the latter; a fact wholly irreconcileable with the hypotheſis of a decrement on the edges. *Fig.* 20, repreſents this arrangement, and it is obvious that in order to diſengage the nucleus, it is neceſſary to deſtroy the ſix ſolid angles of the octohedron by ſections perpendicular to the axes paſſing through theſe ſame angles, and therefore of courſe parallel to the faces of the cube.

In order to explain the law of decrement on the angles which takes place in the preceding example, let OII′O′ (*fig.* 21.) be one of the faces of the cubic nucleus, ſubdivided into a multitude of leſſer ſquares, which are the baſes of an equal number of integrant particles. Theſe rows of particles may be conſidered in two different directions, namely, as parallel to the ſides, as the row a, n, q, r', s', or as parallel to the diagonal of the face, as the rows a, b, c, d, &c. n, t, h, m, &c. q, v, k, u, &c.

The particles of the rows parallel to the ſides, touch each other by one of their faces, and are in a ſtate of ſimple juxtapoſition. But the particles of the rows parallel to the diagonals, touch each other only by one of their edges, and each row is, as it were, locked into that adjacent to it on each ſide. Now it appears that the laminæ ſuperpoſed on the faces of a cubic nucleus, or of any other, not unfrequently decreaſe by the ſubtraction of diagonal rows of particles. In this caſe the ſecondary faces thus produced, are not ſtriated, (as they are where the decrement takes place parallel to the edges,) but ſet, all over, with points, which being all on the ſame level, and of extreme minuteneſs, appear to the eye like a plane ſurface. If now we ſuppoſe all the laminæ ſuperpoſed on a cubical nucleus, to decreaſe by one row on all the angles of the nucleus, this decrement will produce the regular octohedron, the mechanical diviſion of which has been already deſcribed.

In order to explain the operation of this law of decrement, let A E O I, (*fig.* 23, A.) be the upper ſurface of a cubical nucleus compoſed of eighty-one ſmaller ſquares repreſenting an equal number of integrant particles. The firſt of the ſuperpoſed laminæ will be of the form repreſented (*fig.* 23, B.) and will be ſo placed on the face of the nucleus, that the points e, a, o, i, of the latter, correſpond with the points e', a', o', i', of the former. According to this diſpoſition the ſquares Ee, Aa, Oo, Ii, (*fig.* A.) remain uncovered, which is the firſt effect produced by the particular decrement juſt mentioned. It is further to be obſerved, that the ſides Q V, P N, L C, F G, (*fig.* B.) exceed by one row the correſponding ſides A E, E O, O I, I A, (*fig.* A.), this being neceſſary in order that the nucleus ſhould be covered on the above ſides, and that the ſolid ſhould increaſe in the uſual manner in thoſe parts to which this particular law of decrement does not extend.

The upper ſurface of the ſecond laminæ will be ſimilar to B K H D, (*fig.* 23, C.) and it is to be placed on the preceding, ſo that the points e'', a'', i'', o'', may coincide with the points e', a', i', o', *fig.* B, in conſequence of which the ſquares which have their external angles ſituated at Q, S, R, V, P, T, M, G, &c. will be left uncovered by the ſubtraction of one row of particles. It is to be obſerved, alſo, that the ſolid continues to increaſe on the ſides analogous to E A, E O, A I, O I, (*fig.* A.); but as the effect of the decrement is continually contracting the ſurface of the laminæ, in the direction of the diagonals, there is only a ſingle cube added on the ſides B, K, H, D, (*fig.* C.) not ſubject to the decrement, inſtead of the five cubes by which the preceding lamina is terminated on the ſides Q V, P N, L C, F G, (*fig.* B.)

The ſurfaces of the ſuperpoſed laminæ, which hitherto have been octagonal, as *fig.* B, having by the progreſſive effect of the decrement become ſquare, as *fig.* C, will now decreaſe on all their ſides at the ſame time, ſo that the next lamina will have for its ſurface the ſquare B′, K′, H′, D′, (*fig.* D.) being leſs by one row of particles on each ſide than the preceding ſquare (*fig.* C.) and ſo placed upon it that the points c', f', h', g', (*fig.* D.), correſpond with the points c, f, h, g, (*fig.* C.)

The *figs.* E, F, G, H, I, repreſent the five ſucceeding laminæ neceſſary to compleat the pyramid, the latter of which, forming the ſummit of the pyramid, is only a ſingle cube.

From the above deſcription it will appear that the laminæ ſuperpoſed on the baſe E, A, I, O, (*fig.* A.) produce by the union of their decreaſing edges, four faces, which proceeding from the points E, A, O, I, incline towards each other, forming a pyramidal ſummit.

It is to be remarked, alſo, that the ſuperpoſed laminæ begin by increaſing in length, as is obvious from *figs.* B and C, and then gradually diminiſh, as is repreſented in the ſucceeding figures. Hence it follows that the ſecondary faces themſelves firſt enlarge to a certain point, and then diminiſh, ſo that they form, as it were, two triangles, joined at their baſes, or in other words, a quadrilateral figure. One of theſe is repreſented *fig.* 24, in which the inferior angle o coincides with the angle O of the primitive nucleus (*fig.* 20.) and the diagonal $t\,x$, repreſents the ſide H K of the lamina B K H D (*fig.* 23, C.); and becauſe the ſuperpoſed laminæ that produce the triangle $t\,o\,x$ (*fig.* 24.) are leſs in number than thoſe of which the triangle $t\,s\,x$ is compoſed, the latter triangle will be much higher than the former.

The ſurface of the ſecondary cryſtal will therefore be made up of 24 quadrilateral planes, diſpoſed in threes round each ſolid angle of the nucleus; but, as in decrements that take place by one row on every edge, the oppoſite faces on each edge are in the ſame plane, ſo in decrements by one row on the angles, the three ſecondary faces that are produced round each ſolid angle, as O (*fig.* 20.) are alſo on a level, and may therefore be conſidered as forming only a ſingle one; and ſince a cube has eight ſolid angles, each compoſed of three plane ones, the ſecondary cryſtal will have eight faces, which, on account of the regularity of the nucleus, will be equilateral triangles; ſo that the whole cryſtal will be a regular octohedron. One of theſe triangles is repreſented, *fig.* 26, ſo as to ſhow the arrangement of the ſmall cubical particles by which it is produced.

The above may ſerve to give a general idea of M. Hauy's Theory of Cryſtallography, for a more full account of which we refer the curious reader to the firſt vol. of this author's "Traite de Minéralogie."

CRYSTALS, in the *Arts.* When any piece of workmanſhip in cryſtal is become foul and dark, the method of recovering its luſtre without hurting its poliſh, is this: mix together ſix parts common water, and one part brandy; boil theſe over a briſk fire, and let the cryſtal be kept in it, in a boiling ſtate, a quarter of an hour; then take it out, and rub it carefully over with a bruſh dipped in the ſame liquor; after this, it is not to be left to dry of itſelf, but to be wiped with a clean napkin, and its ſurface will by this means be perfectly cleaned, and rendered as bright as at firſt, without that injury to the points of the cutting, or to the ſurfaces of the planes or facets, which would naturally have been the conſequence of doing it by mere rubbing or wiping.

Natural cryſtal may be reduced, by calcination, into the ſtate of the bodies proper for making glaſs with alkaline ſalts, and makes a moſt fine and valuable fritt. The method of doing it is this: calcine natural cryſtal in a crucible; when it is red hot, throw it into cold water to quench it; repeat this eight times, covering the crucible, that no duſt or aſhes may get in and mix with the cryſtal; dry this calcined maſs, and reduce it to an impalpable powder; mix three pounds of this powder with two pounds of pure ſalts of polyerine, or with a quarter of a pound of red lead, and with theſe make fritt, and with the proper quantity of manganeſe, or other tinging ſubſtance; waſh this often in cold water, and after a proper time, work it; it will yield a moſt beautiful glaſs. Some have pretended to colour cryſtals by thus fuſing them, and imparting the various tinges to them while in a melted ſtate. But as they cannot be fuſed by the heat of furnaces, without the medium of ſome fluxing body added to them, their texture and properties are ſo changed, or rather the glaſs produced by the compoſition is ſo different from the cryſtal itſelf, that there does not appear to be any advantage in employing rock cryſtal in ſuch a compoſition preferable to flints. Hand. Arts, vol. ii. p. 327.

Natural cryſtal may be coloured of ſeveral colours, without melting or running it into glaſs, in the following manner. Take a number of pieces of fine, clear, and pure cryſtal, of various ſizes, of white arſenic, and yellow orpiment in powder, of each two ounces; ſal ammoniac, one ounce; powder this alſo, and mix them well together; put this powder into a ſtrong crucible; and lay upon it the pieces of cryſtal in their natural ſtate, then cover this crucible with another, mouth to mouth; lute them well, and when the lute is dry, ſet them in coals, which kindle by little and little; and when they begin to fire, let them kindle of themſelves, and they will then ſmoak very much. Let this be done in a large chimney, taking care to avoid the fumes. When it fumes no more, let the fire go out of itſelf, and let all ſtand till cool; then unlute the crucibles, and take out the cryſtals; thoſe at top will be coloured to a fine yellow, with a deep and pale red, the colours of the common fine and balaſs ruby, with beautiful ſpots; and thoſe which are at the bottom upon the powder, will be of a watery colour, mottled like that of the viper. This cryſtal comes out ſo fair from this proceſs, that it may be cut as a gem; and though many are ſpoiled, yet, in making a large quantity, there are always ſome fair and perfect. Neri's Art of Glaſs. p. 117. See DOUBLETTS, and OPAL.

Baptiſta Porta directs to colour cryſtals by keeping them immerſed for four or five hours in a melted mixture of ſulphur, crude antimony, orpiment, arſenic, and tutty. In theſe operations, the cryſtals ſeem to imbibe ſome of the vapours of the metallic ſubſtances; though the method of giving colours to cryſtals by cementation ſeldom or ever fairly ſucceeds.

CRYSTAL, *Rock*, in *Mineralogy* and *Natural Hiſtory*. See QUARTZ.

CRYSTAL-*glaſs*, the pureſt ſort of glaſs, forming the baſis of the factitious gems. For a particular deſcription of which, ſee GLASS, *the manufacture of.*

CRYSTAL, or CREAM *of tartar*, is tartar purified and diſſolved, and again cryſtallized. For an account of its properties, and the method of preparing it, ſee TARTRITE *of potaſh*, (*acidulous.*)

CRYSTAL *of tartar chalybeated*, or *ferrum tartarizatum;* ſee IRON, *tartrite of.*

CRYSTAL *mineral*, called alſo *mineral anodyne*, and *ſal prunella*, is nitre detonated with ſulphur, thus; put a pound of nitre in a crucible, and ſet that in a furnace; and when the nitre is in fuſion, let it be detonated with a dram of ſulphur; after the detonation is over, pour the fluid into moulds, where it ſoon hardens into a white cryſtalline maſs.

CRYSTALS *of ſilver*, or *luna*. See SILVER, *nitrat of.*

CRYSTALS *of Mars*, called alſo *ſalt*, or *vitriol of Mars:* See IRON, *ſulphat of.*

CRYSTALS *of Venus*, or of *copper*, is nitrat of COPPER; which ſee. Acetite of copper, or cryſtallized verdegris, is alſo ſometimes called by this name.

CRYSTAL *of Iceland*, or *Iſland*, is very pure calcareous ſpar, in oblique rhomboidal priſms; for a particular deſcription of which, ſee LIMESTONE, *foliated.*

The Iceland cryſtal is electrical, and when rubbed will draw up ſtraws, feathers, and other light ſubſtances, in the ſame manner that amber does.

The vaſt maſſes of white ſpar which are found in the lead mines of Derbyſhire, though they are not externally of the parallelopiped figure of the Iceland cryſtal, nor have any thing of its brightneſs or tranſparence in the general lump; yet when they are broken, they ſeparate into rhomboidal fragments, and ſome of theſe are found to be tolerably pellucid: all thoſe which are ſo, have the property of the Iceland cryſtal; and being laid upon paper, where a black line is drawn, they all ſhew that line double in the ſame manner as the real Iceland cryſtal does.

Iceland cryſtal bears a red heat without loſing its tranſparency; and, in a very intenſe heat, calcines without fuſion; ſteeped a day or two in water, it loſes its natural poliſh.

It is very ſoft, and eaſily ſcratched with the point of a pin; it will not give fire on being ſtruck againſt ſteel; and ferments, and is perfectly diſſolved in aqua fortis. It is found in Iceland, from whence it has its name; and in France, Germany, and in many other places. In England, fragments of other ſpars are very often miſtaken for it, many of them having, in ſome degree, the ſame property.

Bartholine, Huygens, and ſir Iſaac Newton, have deſcribed the body at large, but have accounted it either a cryſtal or a talc, errors which could not have happened, had the criterions of foſſils been at that time fixed; ſince ſir Iſaac Newton has recorded its property of making an ebullition with aqua fortis, which alone muſt prove that it is neither talc nor cryſtal, both thoſe bodies being wholly unaffected by that menſtruum.

The phenomena of this ſtone are very remarkable, were firſt ſuggeſted by Bartholine, and have been examined with great accuracy by M. Huygens, and ſir Iſaac Newton. 1. Whereas in other pellucid bodies there is only one refraction, in this there are two; ſo that objects viewed through it appear double.

2. Whereas in other tranſparent bodies, a ray falling perpendicularly on the ſurface, paſſes ſtraight through, without ſuffering any refraction; and an oblique ray is always divided; in Iceland cryſtal, every ray, whether perpendicular or oblique, becomes divided into two, by means of the double refraction. One of theſe refractions is, according to the ordinary rule, the ſine of incidence out of air into cryſtal, being to the ſine of refraction as five to three; but the other is perfectly new. The like double refraction is alſo obſerved in cryſtal of the rock, though much leſs ſenſibly.

When an incident ray is thus divided, and each moiety arrives at the farther ſurface, that refracted in the firſt ſurface after the uſual manner, is refracted entirely after the uſual manner at the ſecond; and that refracted in the unuſual manner in the firſt, is entirely refracted after the like manner in the ſecond; ſo that each emerges out of the ſecond ſurface, parallel to the firſt incident ray. Again, if two pieces of this cryſtal be placed over each other, ſo that the ſurfaces of the one be parallel to the correſponding ones of the other; the rays refracted in the uſual manner in the firſt ſurface of the firſt, are refracted after the uſual manner in all the other ſurfaces; and the ſame uniformity appears in the rays refracted after the unuſual manner; and this in any inclination of the ſurfaces, provided their planes of perpendicular refraction be parallel.

From theſe phenomena ſir Iſaac Newton infers, that there is an original difference in the rays of light; by means whereof ſome are, here, conſtantly refracted after the uſual manner; and others in the unuſual manner. Were not the difference original, and did it ariſe from any new modifications impreſſed on the rays at their firſt refraction, it would be altered by new modifications in the three following ones; whereas, in fact, it ſuffers no alteration at all.

Again, he hence takes occaſion to ſuſpect, that the rays of light have ſeveral ſides, endued with ſeveral original properties; for it appears from the circumſtances, that theſe are not two ſorts of rays differing in their nature from each other, one conſtantly, and in all poſitions, refracted in the uſual, and the other in the unuſual manner; the difference in the experiment mentioned, being only in the poſition of the ſides of the rays, to the plane of perpendicular refraction. For one and the ſame ray is refracted ſometimes after the uſual, and ſometimes after the unuſual manner, according to the poſition of its ſides to the cryſtal; the refraction being alike in both, when the ſides of the rays are pointed the ſame way to both, but different, when different.

Every ray, therefore, may be conſidered as having four ſides, or quarters; two of which, oppoſite to each other, diſpoſe the ray to be refracted after the unuſual manner; and the other two in the uſual. Theſe diſpoſitions, being in the rays before their incidence on the ſecond, third, and fourth ſurfaces; and ſuffering no alterations, for what appears in their paſſage through them, muſt be original and connate.

Father Beccaria corrects the obſervations of Huygens and Newton concerning the refraction of rock or mountain cryſtal. The double refraction of the latter happens, when a ray paſſes through two ſides that are inclined to each other, and conſequently iſſues coloured; whereas that of the Iceland cryſtal is made by the paſſage of a ray through two parallel ſides, and therefore it iſſues colourleſs. He ſuggeſts, that there may be other ſubſtances, in which there is a manifold refraction. Graveſande had a priſm of Braſil pebble, which had a double refraction at each angle, but of a different kind from one another. Phil. Tranſ. vol. lii. part ii. p. 487, &c. Mr. B. Martin prepared ſeveral priſms of Iceland cryſtal, which exhibited not only a double but a multiple refraction. A ſingle priſm produced a ſix-fold refraction; and by combining ſeveral priſms, a number of refractions was obtained equal to the product of thoſe of the ſingle priſms; *i. e.* a priſm which afforded two images applied to one of ſix, produced a priſm of twelve images, &c. He farther obſerves, with reſpect to Iceland cryſtal, that though the ſides of its plane of perpendicular refraction be parallel to one another, a beam of light tranſmitted through them will not be colourleſs; in which property it differs from all other known ſubſtances. See Martin's Eſſay on Iceland Cryſtal, or Prieſtley's Hiſt. of Viſion, period vii. § 8. p. 548, &c. See REFRACTION.

CRYSTALLINE LENS, or *Cryſtalline Humour*, in *Anatomy*, a tranſparent body, nearly ſpherical in form; imbedded in the anterior part of the vitreous humour, where it is encloſed by the membrana hyoloidea paſſing before and behind it; which portions of membrane form its capſule. See EYE.

The cryſtalline is ſet in the anterior part of the vitreous humour, like a diamond in its collet; and is retained there by a membrane which ſurrounds it; and which, for that reaſon, is called the capſula of the cryſtalline. This membrane is ſometimes alſo called cryſtalloides; and by others, on account of its fineneſs, which reſembles that of a ſpider's web, arachnoides.

It is the configuration of the cryſtalline that occaſions perſons to be either myopes, or preſbytæ; *i. e.* to be either long, or ſhort-ſighted; a diſcovery firſt ſuggeſted, and proved by Maurolycus of Meſſina, in a treatiſe, De Lumine & Umbra, publiſhed in 1575. Bapt. Porta thought that this humour was the principal ſeat of viſion.

The cryſtalline being of two conſiſtences, outwardly like a jelly, but toward the centre as hard as ſalt; hence ſome authors think, that its figure may be varied; which variation they ſuppoſe to be effected by the ligamentum ciliare. Hence, Dr. Grew, and others, aſcribe to the ciliary ligament a power of making the cryſtalline more convex, as well as of moving it to or from the retina: accordingly, by the laws of optics, ſomething of this kind is abſolutely neceſſary to diſtinct viſion: for, as the rays from diſtant objects diverge leſs than thoſe from nigh ones; either the cryſtalline humour muſt be capable of being made more convex, or more flat; or elſe there muſt be an elongation of the eye, or of the diſtance between that and the retina.

The cryſtalline humour, when dried, appears to conſiſt of a vaſt number of thin, ſpherical laminæ, or ſcales, lying over one another. Leewenhoek reckons there may be two thouſand of them in one cryſtalline; each of theſe, he ſays, he has diſcovered to conſiſt of a ſingle fibre, or fine thread, wound up in a ſtupendous manner, this way and that, ſo as to run ſeveral courſes, and meet in as many centres; and yet not interfere nor croſs in any place. Phil. Tranſ. N° 165, and 293.

The veſſels of the cryſtalline humour of the eye are all the branches of an artery, which being ſent off from the artery which enters at the central part of the retina, paſſes through the vitreous humour, and when it reaches the cryſtalline, diſperſes its branches along the ſurface of the lens like radii, till they are exceeding minute, when they pierce into its ſubſtance. Med. Eſſ. Edinb. vol. i. p. 337.

M. Petit, the phyſician, has many minute obſervations and experiments on the colour, conſiſtence, meaſure, weight, &c. of the cryſtalline humour of the eye, and its capſula in different animals: but his obſervations are ſo numerous, that we can only take notice of ſome of them. He obſerved, that in ſerpents and fiſhes the cryſtalline is nearly ſpherical; whereas in all other animals which he examined it was lenticular, the anterior ſurface being leſs convex than the poſterior.

This humour hardens with age, and is not ſo hard in men as in birds, quadrupeds, and fiſhes; its hardneſs increaſing in the order here expreſſed.

He alſo obſerves, that the cryſtalline changes colour with age, becoming gradually more and more tinged with yellow, after the age of twenty-five years, in proportion to its hardneſs.

He ſhews, in confirmation of Leewenhoek's diſcovery, that the cryſtalline conſiſts of concentrical laminæ: he always found the capſula tranſparent, and denies any connection between this membrane and the cryſtalline, or that there are any veſſels going from the one to the other; but affirms that the cryſtalline is nouriſhed by abſorbing the lymph lodged between it and its capſula.

But Albinus diſcovered this to be a miſtake; and that, on the contrary, it is connected with the capſula by means of ſeveral veſſels, which, paſſing through ſmall perforations in the capſula, are inſerted at the extremities of it, and ſpread along the back part of it; and that it receives its nouriſhment by veſſels, which are the branches of the central artery paſſing through the vitreous humour, and divided into ſeveral branches in the back part of the capſula, and tranſmitted to the interior parts of the cryſtalline, by which it is alſo ſuſpended.

Dr. Porterfield has accounted for the greater central hardneſs of the cryſtalline; as the rays of light, which fall near its axis, and would conſequently be leſs refracted than thoſe that fall more obliquely nearer the extremities, have hereby their refraction increaſed, and are made to converge and meet with thoſe at the ſame point with thoſe that paſs through it nearer its edge.

When the cryſtalline or vitreous humours are fallen out of the eye, it is eaſy to conceive, that not only the ſight, but the figure of the eye, muſt be entirely deſtroyed; therefore, in an accident of this kind, the eye muſt at firſt be dreſſed with compreſſes dipped in warm wine, or ſpirit of wine, and afterwards with ſome vulnerary balſam. But it ſometimes happens, when only the tunica albuginea, and ſclerotica, are ſlightly wounded, the cornea and uvea remaining unhurt, that the eye recovers itſelf: and though both the vitreous and cryſtalline humours fall out by the wound, yet they are renewed again by the efficacy of nature, and the office of ſight performed as well as before the injury happened.

The cryſtalline is the ſubject of the diſeaſe called a CATARACT, and the operation of COUCHING. See EYE.

CRYSTALLINE *Heavens*, in the *Old Aſtronomy*, two orbs imagined between the primum mobile and the firmament, in the Ptolemaic ſyſtem, in which the heavens were ſuppoſed ſolid, and only ſuſceptible of a ſingle motion.

King Alphonſus of Arragon is ſaid to have introduced the cryſtallines, to explain what they called the motion of trepidation, or titubation.

The firſt cryſtalline, according to Regiomontanus, &c. ſerves to account for the ſlow motion of the fixed ſtars; which makes them advance a degree in ſeventy years, according to the order of the ſigns, *viz.* from weſt to eaſt; which occaſions the preceſſion of the equinox.

The ſecond ſerves to account for the motion of libration, or trepidation; whereby the celeſtial ſphere librates from one pole towards another, occaſioning a difference in the ſun's greateſt declination.

But the moderns account for theſe motions in a much more natural and eaſy manner.

CRYSTALLIZATION, in *Chemiſtry*. See CRYSTAL.

CRYSTALLOGRAPHY. See CRYSTAL.

CRYSTALLOMANCY, the art of divining, or foretelling, future events, by means of a mirror; wherein the things required are repreſented.

It is alſo called catoptromancy. The firſt from κρυϛαλλος, *congealed water*, or *cryſtal*; and the ſecond from κατοπτϱον, *mirror*, and μαντεια, *divination*.

CRYSTINE, in *Commerce*, a ſilver coin in Sweden, equal to fourteen ſols and eleven deniers French. They have alſo demi-cryſtines.

CSAKATHURN, in *Geography*, a town of Hungary, ſituated on a ſmall river between the Muer and the Drave; celebrated for its wine; 20 miles W. of Caniſcha, and 95 S. of Vienna.

CSABA, a ſmall town of Hungary, in the county of Bekes, on the river Theiſs, inhabited by a colony of Bohemians.

CSABRAG, a ſmall town of Hungary, with an ancient caſtle. There are ſome mines in its neighbourhood. It is ſituated in the province of Nagi Hont, and in the diſtrict of Bozok.

CSAKA TORNYA, or CSAKTHURN, a ſmall town of Hungary, in the county of Szala, belonging to the counts of Altheim, with a magnificent caſtle, the fortifications of which are faſt decaying. In one of the walls of the caſtle-yard are the ruins of a monument, erected to a Roman tribune by his wife, under the reign of Antoninus Pius. G. A. H. Guibert. Journal d'un Voyage en Allemagne, Paris, 1803.

CSAKOVAR, a ſmall town of Hungary, in the banat of Temeſvar, on the river Temes.

CSAKVAR, a ſmall town of Hungary, in the county of Szabolts, with an old ruined caſtle, belonging to the family of the Cſaki, who deſcend from the count Szabolts, one of the ſeven Hungarian leaders that invaded Hungary in the ninth century.

CSANAD, a ſmall town of Hungary, in the county of the ſame name, on the river Maros. It is the ſee of a biſhop, and carries on a flouriſhing trade; 64 miles N. of Belgrade, and 200 S.E. of Vienna.

CSEIKO, a ſmall town of Hungary, in the county of Bars, diſtrict of Leva; famous for its good wine.

CSEKLES, a ſmall town of Hungary, in the county and diſtrict of Preſburg, with a handſome palace belonging to prince Eſterhazi. It is ſituated on an eminence.

CSENGER, a ſmall town of Hungary, in the county of Szathmar, with an old caſtle.

CSEPREG, a ſmall, but formerly very populous, town of Hungary, in the county of Oedenburg or Sopron.

CSERAPUXA, a town and caſtle of Hungary; 8 miles N.E. of Erlau.

CSERNA, a river of Hungary, which runs into the Danube, near Orſova.—Alſo, a town of Sclavonia; 20 miles S. of Eſzek.

CSERNECK, or CSEZNECK, a ſmall town of Sclavonia, in that part which is called the bannat of Sclavonia, and in the county of Poſſeg.

CSERNIGRAD, or TARKAVARA, a ſmall town of Sclavonia, in that part which is called the bannat of Sclavonia, and in the county of Sirmi, on the river Drave. It was anciently fortified, and ſtill retains ſome traces of a fortreſs.

CSESZTE, a ſmall town of Hungary, in the county and diſtrict of Preſburg, on a pleaſant eminence near Biberſburg caſtle.

CSIKVAR, a ſmall town of Hungary, in the county of Stuhl Weiſſenburg, with an old caſtle on the river Carvitz.

CSOGOD, a town of Tranſilvania; 16 miles E. of Udvarhely.

CSOKAKU, a town of Hungary, at the conflux of the rivers Kores and Theiſs; 22 miles N. of Zegedin.

CSONGRAD, CZONGRAD, or CZONGRODT, a conſiderable town of Hungary, in the county of the ſame name, with an ancient caſtle, ſituated at the confluence of the rivers Koros and Theiſs.

CSOTORTOK, a ſmall town of Hungary, in the county and diſtrict of Preſburg, not far from the ancient caſtle of St. George, which is now a heap of ruins.

CTEMENÆ, in *Ancient Geography*, a town of Greece, in the Æſtiotide part of Theſſaly.

CTENITA, or CTENOIDES, names ſometimes given to thoſe pectens which have one of their ſhells very convex. See PECTEN.

CTESIBIUS, in *Biography*, a mathematician of Alexandria, who was contemporary with Ptolemy king of Egypt, in the 165th Olympiad, about 120 years before Chriſt. His memory is particularly cheriſhed as the inventor of the pump. The circumſtance that led to the diſcovery was purely accidental. On lowering a mirror into his father's ſhop, he obſerved that the counterpoiſe, which was included in a cylinder, produced a ſound, by driving the air before it; and upon examining the phenomenon more ſtrictly, he concluded that he might make an inſtrument, in which ſounds ſhould be produced by means of the action of water, driving the air before it. This invention was carried into effect by the emperor Nero. Cteſibius was the inventor, likewiſe, of a clepſydra, or water-clock. Water was made to fall upon a wheel, or a train of wheels, which were turned by it. The wheels communicated their motion to a ſmall wooden image, which, by being gradually raiſed, pointed with an index to the proper hours, that were engraved on a column near the machine. The invention was probably the means of the more modern conſtruction of the ſand-glaſſes for meaſuring time, which ſeem an imitation of the clepſydra. Cteſibius was author of a treatiſe, "Geodeſia, or the Art of dividing and meaſuring Bodies," which is ſaid to exiſt in the library of the Vatican. Moreri.

CTESIDEMO, an ancient painter, who is celebrated for his picture repreſenting Hercules taking of Oechalia, a city of Bœotia; and for another of Laodamia aſcending the funeral pile. Della Valle.

CTESIFONTE, CHERSIFONTE, or CTESIPHON, the architect who deſigned the famous temple of Diana at Epheſus, about 550 years before the Chriſtian era. This edifice, which was 200 years in building, was commenced under his direction, and continued under that of Metagenes his ſon; and is the ſame which was afterwards fired by Eroſtratus, actuated, as it is ſaid, in this barbarous enterpriſe, by no other motive than that of immortaliſing his name. Milizia Mem. degli Architetti.

He invented a machine that was uſed to tranſport the columns of the temple, from the quarries from which they were hewn, to the building of which they were to make a part. This machine conſiſted of a ſquare frame of wood, of ſufficient dimenſions to encloſe a whole column, with a ſocket at each end, into which certain ſtrong iron pivots, proceeding from the column itſelf, were received. By this contrivance, the column became a kind of rolling-ſtone.

CTESILOCO, the ſcholar of Apelles, was known by his picture repreſenting the birth of the Egyptian Bacchus, where Jupiter ſeemed to moan effeminately in the midſt of the goddeſſes, aſſiſting at the labour. Pliny depreciates this painting as highly indecent. It is conjectured by Della Valle, that this artiſt may have been the ſame with Cteſiloco, who is ſaid to have been the diſciple and brother of Apelles. Della Valle.

CTESIPHON. See CTESIFONTE.

CTESIPHON, in *Ancient Geography*, a city of Aſia, in Parthia, ſituated on the eaſtern bank of the Tigris, oppoſite to, and at the diſtance of only three miles from, Seleucia. This city was founded, according to Ammianus Marcellinus (l. xxiii. c. 20.), by Vardanes, and adorned and fortified by Pacorus, ſuppoſed by Valeſius to have been the Orodes, whom Ventidius defeated. Polybius (l. v. c. 45.), Tacitus, Herodian (l. iii. c. 9.), and Strabo (l. xvi.), ſpeak of Cteſiphon as the metropolis of the whole Parthian empire. It was at firſt an inconſiderable village; but as the Parthian monarchs frequently pitched the imperial camp on the plain in its vicinity, and the innumerable attendants on luxury and deſpotiſm reſorted to the court, it inſenſibly advanced to be a great city. Under the reign of Marcus, A. D. 165, the Roman generals penetrated as far as Cteſiphon and Seleucia; and both cities experienced the ſame aſſault and deſolation. Although Seleucia ſunk under the fatal blow, Cteſiphon, in about 33 years, had ſo far recovered its ſtrength, that it was able to maintain an obſtinate ſiege againſt the emperor Severus. The city was, however, taken by aſſault: the king, who defended it in perſon, eſcaped with precipitation; 100,000 captives, and a rich booty, rewarded the fatigues of the Roman ſoldiers. Notwithſtanding theſe misfortunes, Cteſiphon ſucceeded to Babylon and to Seleucia, as one of the great capitals of the Eaſt. In ſummer, the monarch of Perſia enjoyed at Ecbatana the cool breezes of the mountains of Media; but the mildneſs of the climate engaged him to prefer Cteſiphon for his winter-reſidence. In the time of Julian, Cteſiphon was a great and populous city; and Coche, as the only remaining quarter of Seleucia was called, was merely its ſuburb, connected with it, as we may ſuppoſe, by a permanent bridge of boats. The united parts contributed to form the common epithet of Al Modain, "the cities," which the Orientals have beſtowed on the winter-reſidence of the Saſſanides; and the whole circumference of the Perſian capital was ſtrongly fortified by the waters of the river, by lofty walls, and by impaſſable moraſſes. Julian having, after a ſevere conteſt, taken poſſeſſion of Coche, purſued the Perſians to the gates of Cteſiphon; and holding a council of war, he declined the ſiege of the city, as a fruitleſs and pernicious undertaking, though he was led by an army of 60,000 Romans, A. D. 363. In the year 637, the walls of Cteſiphon, which had reſiſted the battering-rams of the Romans, yielded to the darts of the Saracens. Said, the lieutenant of Omar, paſſed the Tigris without oppoſition: the capital was taken by aſſault; and the diſorderly reſiſtance of the people gave a keener edge to the ſabres of the Moſlems, who ſhouted with religious tranſport, "this is the white palace of Choſroes, this is the province of the apoſtle of God." The ſpoils, ſays Abelfeda, ſurpaſſed the eſtimate of fancy or numbers; and another hiſtorian (Elmacin) defines the untold and almoſt infinite maſs by the fabulous computation of three thouſands of thouſands of thouſands of pieces of gold. One of the apartments of the palace was decorated with a carpet of ſilk, 60 cubits in length, and as many in breadth: a paradiſe, or garden, was depicted on the ground; the flowers, fruits, and ſhrubs, were imitated by the figures of the gold embroidery, and the colours of the precious ſtones; and the ample ſquare was encircled by a variegated and verdant border. The rigid Omar divided the prize among his brethren of Medina. The picture was deſtroyed; but ſuch was the value of the materials, that the ſhare of Ali alone was ſold for 20,000 drachms. The ſack of Cteſiphon was followed by its deſertion and gradual decay. One of the moſt conſiderable ruins of Aſſyria is the hall of Choſroes at Cteſiphon.

CTISIANA, a town of Africa, in Mauritania Tingitania, according to Ptolemy.

CTYPANSA, a town of the Peloponneſus, in Triphylia, according to Strabo. It is called Tympanæa by Polybius, and Tympaneia by Ptolemy.

CUADAC, in *Geography*, a ſea-port town of Aſia, in Tonquin, on a river of the ſame name.

CUAMA, a river of Africa, at the mouth of which the city and fortreſs of Sofala are ſituated, called by the Arabs and Negroes Zambere and Embondo. Its ſpring-head is not known; but it ſurrounds, in ſome meaſure, the kingdom of Monomotapa, dividing it on the weſt from that of Abutua, and on the north from Chicova, Sacomba, and Mauruca. It receives in its courſe, among other ſtreams of leſſer note, the Mangania, Mazeno, and Suabo; and, dividing into two branches, diſcharges itſelf into the Indian ſea, at four mouths, from north to ſouth, diſtinguiſhed by as many names; *viz.* Kilimano, Linda, Cuama, and Luava; or, according to others, Penhamez, Lunagoa, Arruyga, Manjovo, Guadire, and Rueriva.

CUANARAMA, a mountain of New Andaluſia, in S. America, which riſes 6400 feet above the level of the ſea.

CUANDU, in *Zoology*, Coendou of Buffon, Braſilian Porcupine of Pennant, and HYSTRIX *prehenſilis* of Gmelin; which ſee.

CUARIUS, in *Ancient Geography*, a river of Greece, in Bœotia, according to Strabo.

CUATLACHTLI, or LUPUS *Indicus*, in *Zoology*, a name given by Fernandez to the Mexican wolf, or Canis *Mexicanus* of Gmelin.

CUB, in *Rural Economy*, a name ſometimes applied to a young fox, and alſo provincially to ſignify a cattle crib.

Cub, *North*, in *Geography*, a ſmall iſland in James's bay, Hudſon's bay. N. lat. 54° 25′. W. long. 80° 50′.

Cub, *South*, a ſmall iſland in the ſame bay. N. lat. 53° 42′. W. long. 80° 30′.

CUBA, in *Ancient Geography*, a town of India, placed by Ptolemy on this ſide of the Ganges.

Cuba, in *Geography*, a name given by the natives of San Salvador to a very large iſland of the Weſt Indies, one of the Great Antilles iſlands, when it was firſt diſcovered by Columbus in 1492; but he gave it the name of Iuanna, or, as ſome ſay, Ferdinanda, in honour of king Ferdinand, his maſter. But it ſoon recovered its Indian name, which it has ever ſince retained. This celebrated navigator entered the mouth of a large river with his ſquadron; but as he approached the ſhore, all the inhabitants fled to the mountains; thoſe who were deputed to examine the interior parts of the country, whilſt he was careening his ſhips, found that about 60 miles from the ſhore, the ſoil was richer and more cultivated than any they had hitherto diſcovered; and, beſides many ſcattered cottages, they ſaw one village which contained above 1000 inhabitants. The people, though naked, ſeemed to be more intelligent than thoſe of San Salvador, and treated them as if they had been ſacred beings, allied to heaven, paying them reſpectful attention and kiſſing their feet; they alſo gave them to eat a certain root, reſembling in its taſte roaſted cheſnuts, and a ſingular ſpecies of corn, called maize, which roaſted whole, or ground into meal, was palatable food. They perceived no four-footed animals, except a ſpecies of dogs, which could not bark, and a creature like a rabbit, but of ſmaller ſize; and they obſerved ſome ornaments of gold, which, as the natives reported, was found in "Cubanacan," by which they meant the middle or inland part of Cuba. Columbus viſited almoſt every harbour, from Porto del Principe, on the north coaſt of Cuba, to the eaſtern extremity of the iſland; but, whilſt he admired the beauty of the ſcenery, and the fertility of the ſoil, he was diſappointed by not diſcovering any quantity of gold. Cuba was not aſcertained to be an iſland till the year 1508, when a captain, named Sebaſtian, ſailed round it by order of Obando, the governor of Hiſpaniola, for Columbus ſuppoſed it to be a part of the continent; nor was it completely conquered by the Spaniards, who ſacrificed an incredible number of the inhabitants, till the year 1511. In this year the admiral, Jago, or Don Diego, Columbus ſent Jago Velaſquez with about 300 men, from Hiſpaniola, in order to take poſſeſſion of the iſland, and to plant it; and he ſettled on the ſouth coaſt, near a port which he called by his own name, and which for extent and ſecurity may be reckoned one of the fineſt in the world. While Velaſquez was governor of Cuba, he built the city, and port of the Havannah; the houſes of which at firſt were built of wood; afterwards they were conſtructed of ſtone, and a fort was erected at the mouth of the harbour. But this port has been often pillaged both by French and Engliſh pirates. (See Havannah.) The other principal towns are Santa Cruz, about 63 miles E. of Havannah, Porto del Principe, on the ſame coaſt, about 300 miles S.E. of Havannah, Baracoa, on the N.E. part of the iſland, with a convenient harbour for ſmall veſſels, and St. Jago, formerly the capital and the reſidence of its government.

This iſland commences on the eaſt ſide at N. lat. 20° 20′, approaches on the north the tropic of Cancer, and extends from W. long. 73° 50′, to 85° 30′, about 11° 40′, from eaſt to weſt, or 690 geographical miles from Cape Antonio on the weſt, to Cape Mayzi on the eaſt; but it is narrow, in proportion to its length, being in ſome parts not above 12 or 14 leagues, and at moſt but 120 miles in breadth. It contains about 38,400 ſquare miles. It lies W. of Hiſpaniola, N. of Jamaica, and the bay of Honduras, E. of the meridian of Yucatan, and S. of the great bank of Bahama, and the Florida ſtream; and commands the entrance of both the gulfs of Mexico and Florida, and the windward paſſage; ſo that the Spaniards, who are the ſole poſſeſſors of it, may with a tolerable fleet not only ſecure their own trade, but annoy their neighbours. The command of this iſland is entruſted with a governor, or captain-general, who decides all affairs, civil and military; and its finances are under the direction of an intendant. It is divided into 18 juriſdictions, each of which has a magiſtrate. A chain of mountains extends the whole length of the iſland from eaſt to weſt, and divides it into two parts; but the land near the ſea is in general level, and flooded in the rainy ſeaſon. Like moſt iſlands in the Weſt Indies, it is ſubject to ſtorms, but the climate is, upon the whole, healthy, and even temperate; for though in this latitude there is no winter, the air is refreſhed with rains and cooling breezes. The rainy months are July and Auguſt; the reſt of the year is hot. The ſoil is equal in fertility to any in America, producing ginger, long pepper, and other ſpices; aloes, maſtich, caſſia-fiſtula, manioc, maize, cocoa, &c. Tobacco is one of its principal productions, and it is ſuppoſed to have the moſt delicate flavour of any produced in the New World. The cultivation of ſugar has lately been introduced; but the indolence of the inhabitants renders it in every reſpect much leſs productive than it might otherwiſe be. The quantity of coffee is inconſiderable. Not more than 100th part of the iſland is cleared. The chief plantations are on the beautiful plains of Savannah, and are cultivated by about 25,000 ſlaves. The other inhabitants are ſaid to amount to about 30 000. Among the trees are oaks, firs, palms, cotton trees, ebony, and mahogany. In 1763 bees were introduced by ſome emigrants from Florida, and they multiplied ſo much in the hollows of old trees, that they ſoon obtained enough for their annual conſumption. In 1777 they exported honey to the amount of 715,000 pounds. The iſland abounds with mules, horſes, ſheep, wild boars, hogs, and fine black cattle. The horned cattle have increaſed ſo much that the foreſts are filled with droves of them, which run wild, and are hunted and killed for their hides and tallow. The chief birds are paroquets, turtle doves, and partridges; water-fowl are numerous; and on the coaſt turtles are abundant; mullets and ſhads are the principal fiſh. The copper-mines, which are in the eaſtern part of the iſland, furniſh all the Spaniſh colonies with utenſils of that metal; ſmall pieces of gold and ſilver are collected in the ſand of the rivers, which makes it probable that there are veins of theſe metals in the mountains. Few countries have better ports than Cuba; the moſt conſiderable and beſt known are the Havannah and St. Jago; which ſee.

Cuba, a town of Portugal, in the province of Alentejo; 3 leagues N.N.E. of Beja.

Cuba, in *Mythology*, a goddeſs among the Romans, thus called from *cubo*, *I lie down*, who was invoked in order to make children ſleep.

CUBÆA, in *Botany*, Scop. Schreb. 702. Willd. 814, (Tachigali; Aubl. Tachigalia; Juſſ. 349.) Claſs and order, *decandria monogynia.* Nat. Ord. *Lomentaceæ*, Linn. *Leguminoſæ*, Juſſ.

Gen. Ch. *Cal.* Perianth one-leafed, top-ſhaped, ſpreading, permanent, five-parted; diviſions roundiſh, concave; four erect; the fifth and loweſt larger, declining. *Cor.* Petals five, oblong, nearly equal, furniſhed with claws, inſerted into the neck of the calyx; three upper ones erect; two lower ones declining. *Stam.* Filaments ten, villous at the baſe, inſerted into the calyx below the petals; three upper ones ſhorter, filiform, erect, cloſe-preſſed to the upper petals; the ſeven lower ones longer, capillary, longer than the lower petals, and incumbent on them; anthers oblong. *Piſt.* Germ oblong, pedicelled; ſtyle capillary; ſtigma acute. *Peric.* Legume long, coriaceous, villous, ſwollen, obliquely acuminate, one-celled. *Seeds* ſeveral, ſomewhat kidney-ſhaped.

Eſſ. Ch. Calyx top-ſhaped, five-parted. Petals five, nearly equal, irregular. Stamens inſerted into the calyx, long, all fertile, three upper ones ſhorter. Pericarp a legume.

Sp. 1. C. *paniculata.* Mart. 1. Willd. 1. Aubl. Guian. 1. 372. tab. 143. fig. 1. "Leaves pinnated; leaflets oppoſite." A tree ſixty feet high, much branched at the top; ſmaller branches triangular. *Leaves* large, alternate; leaflets in ſix pairs, ſomewhat egg-ſhaped, acute, entire, green and ſmooth above, ſomewhat downy underneath, and of an aſh-coloured green. *Stipules* two, oppoſite, at the baſe of the leaf-rib. *Flowers* very numerous, on ſhort peduncles, in long terminal trigonous ſpikes, which form an ample panicle. 2. C. *trigona.* Mart. 2. Willd. 2. Aubl. tab. 143. fig. 2. "Leaves pinnated; leaflets alternate." Very ſimilar to the preceding, and perhaps ſhould be conſidered as a mere variety. Both kinds are natives of Guiana in woods, on the banks of rivers. The trivial name of the latter is ill choſen, the leaves in both having a triangular midrib.

CUBAGUA, in *Geography*, a ſmall iſland about 8 miles long, near the coaſt of Cumana, in South America, between the iſland of Margarita and the continent, diſcovered by Columbus in the year 1498, and afterwards chiefly viſited by the Spaniards for the ſake of the pearls found on its coaſts; but in 1524 the banks of pearls diſappeared, and the fiſhermen, who were Indians from the Lucayos iſlands, were nearly exhauſted. The ſoil is dry, barren, and nitrous, without freſh water, and producing little beſides ruſhes. N. lat. 10° 56′. W. long. 63° 30′.

CUBAIMAROU, a river of the iſland of St. Vincent, which runs into the ſea, in a bay of the ſame name, on the ſouth coaſt of the iſland. N. lat. 13° 6′. W. long. 61° 11′.

CUBAN, or Kuban, a province of the ſouthern diviſion of Ruſſia, in Europe, in the government of Taurida, between the 45th and 47th degree of north latitude, bounded to the ſouth by Circaſſia; to the weſt by the Black Sea, and the gulf of Taman; to the north and north-eaſt by the ſea of Aſoph; and to the eaſt by the government of Caucaſus. It is a level and not very fertile country, inhabited chiefly by Tartars, who lead a wandering paſtoral life on the banks of the Cuban, a conſiderable river, from which the country derives its name. Before their ſubmiſſion to the Ruſſian empire, they had their particular khan or chief, and could bring 40,000 men into the field; but whole tribes of them have deſerted, and gone over to the Turks. They are of Mongolian origin, and a very unſettled people. Their inclination to rob has not yet been changed, though they have been much reduced by ſevere, capital, and merited puniſhments.

The Cuban paſſed under the domination of Ruſſia, at the ſame time with the *Crim* or *Crimea* (which ſee), in the year 1784, and in the laſt treaty with the Ottoman Porte, the river Cuban was fixed upon as the boundary of the Ruſſian empire in that quarter. This river falls into the Euxine or Black Sea. It is the *Hypanis* of the ancients. It riſes in the Caucaſian mountains, and is formed by the confluence of a number of ſmall rivers. With the river Tumeſek it makes ſeveral iſlands between the ſea of Aſoph and the Black Sea, of which one of the fineſt is the iſle of Taman. A principal arm of the Cuban falls northward into the ſea of Aſoph, and the other ſouthward into the Euxine. The river in general, and the firſt arm in particular, has a rapid courſe and clear water; but that arm which falls into the Black Sea, flows in a very gentle current, has a troubled water and forms at its mouth a pretty ſpacious bay, which however is ſo ſhallow that it can never ſerve as a haven.

The Cuban has neither rocks nor water-falls, and therefore is well adapted to being navigated with veſſels that do not draw much water. It admits to the right the rivers Barakla and Barſukta; to the left the Yaſſik, Yaſſi, Urp, Sagraſſa, Laba, Karabokan, and ſeveral other ſmall rivers. In the mountainous part of the country, watered by the Cuban, its banks are very ſteep; but in the lower regions they are flat. Here the country is one continued Steppe, almoſt entirely deſtitute of wood, but in other reſpects tolerably fertile. The iſle of Taman, which is conſidered as part of the Cuban, has an excellent, and in ſome diſtricts ever verdant ſoil. See Taman.

The mountains in the ſuperior regions of the Cuban are thickly covered with foreſts; and not far from this river, at a place called Atſhuel, is a lake of ſalt water. Tooke's View of the Ruſſian Empire. P. S. Pallas's Travels through the Southern Provinces of the Ruſſian Empire.

CUBATURE, or Cubation, of a ſolid; the meaſuring of the ſpace comprehended in a ſolid; as a cone, pyramid, cylinder, &c. or finding the ſolid content thereof. The cubature regards the content of a ſolid, as the quadrature does the ſuperficies of a figure. See Solid.

CUBBITTING, in *Farriery*. See Crib-*biting*.

CUBBRIDGE-Heads, in *Ship building*, is ſometimes uſed for the bulk-heads of the fore-caſtle, and the half-deck: the firſt being called the *cubbridge-head before;* the other the *cubbridge-head abaſt.*

CUBCABIA, in *Geography*, a conſiderable town of Africa, in the country of Darfûr, ſituated on the road from Cobbe to Bergoo, and containing many inhabitants. This town is the key of the weſtern roads, and the depôt of all the merchandize that is brought from that quarter. A market is held here twice a week, in which the chief medium of exchange, for articles of ſmall value, is ſalt, which the inhabitants make by collecting and boiling the earth of thoſe places where horſes, aſſes, or other animals have been long ſtationary. This market is celebrated for a quantity of "tokeas," and for the manufacture, if it may be ſo called, of leather, which they dexterouſly ſtrip of the hair, tan, and then form into large ſacks for corn, water, and other purpoſes. The "tokeas" are cotton cloths, 5, 6, or 8 yards long, and from 8 to 22 inches wide; they are ſtrong but coarſe, and form the covering of the whole lower claſs of both ſexes. The inhabitants are partly Fûrians, who ſpeak their own language, partly Arabs, and partly emigrants from ſome of the weſtern countries, as Bergoo, &c. Brown's Travels in Africa, p. 238.

CUBDENSIS, in *Ancient Geography*, an epiſcopal ſee of Africa, in the proconſular province.

CUBE, in *Geometry*, a regular or ſolid body, conſiſting of ſix ſquare and equal faces, or ſides; and its angles all right, and therefore equal.

The word comes from κυϐος, *teſſera*, *die.*

The cube is alſo called *hexahedron*, becauſe of its ſix ſides. The cube is ſuppoſed to be generated by the motion of a ſquare plane, along a line equal to one of its ſides, and at right angles to it: whence it follows, that the planes of all ſections, parallel to the baſe, are ſquares equal to it: and, conſequently, to one another.

To deſcribe a rete, or net, whence any given cube may be conſtructed, or with which it may be covered. On the right line A B (*Plate* III. *Geometry*, *fig.* 52.) ſet off the ſide of the cube four times: on A erect a perpendicular, A C, equal to the ſide of the cube A I, and complete the parallelogram A C D B: with the interval of the ſide of the cube, in the line C D, determine the points K, M, and O; laſtly, draw the right lines, I K, L M, N O, and B D, produce I K and L M, each way to E and F, and to G and H; till EI=IK=KE, and GL=LM=MH, and draw the right lines EG, FH.

To determine the ſurface and ſolidity of a cube.—As the ſurface of a cube conſiſts of ſix equal ſquares, a ſide multiplied by itſelf and the product by ſix, will give the ſuperficies; and the ſame product, again, multiplied by the ſide, the ſolidity.

Hence, if the ſide of the cube be 10, the ſolidity will be 1000; if that be 12, this will be 1728: wherefore the geometrical perch being ten feet, and the geometrical feet twelve digits, &c. the cubic perch is 1000 cubic feet, and a cubic foot 1728 cubic digits, &c.

Hence, alſo, cubes are in the triplicate ratio of their ſides; and are equal, if their ſides be ſo.

CUBE, *duplication of a.* See DUPLICATION.

CUBE, *ſcenography of a.* See SCENOGRAPHY.

CUBE, or CUBIC *number*, in *Arithmetic*, is a number ariſing from the multiplication of a ſquare number by its root: or, it is formed by multiplying any numbers twice by themſelves. Thus, if the ſquare number four be muliplied by its root two, the factum eight is a cube or cubic number; and the number two, with reſpect to it, a cube root.

Alſo, the cubes of

	1,	2,	3,	4,	5,	6,	7,	8,	9,	10.
are . . .	1,	8,	27,	64,	125,	216,	343,	512,	729,	1000.

Thus a table of cubes may be eaſily formed for any ſeries of numbers.

Hence, ſince as unity is to the root, ſo is the root to the ſquare; and as unity is to the root, ſo is the ſquare to the cube: the root will, alſo, be to the ſquare, as the ſquare to the cube: that is, unity, the root, the ſquare, and the cube, are in continual proportion; and the cube root is the firſt of two numbers that are mean proportionals between unity and the cube.

All cubic numbers, whoſe root is leſs than 6, *v. g.* 8, 27, 64, 125, being divided by 6, the remainder is their root itſelf. Thus, 8, being divided by 6, 2, the remainder of the diviſion, is the cube root of 8. For the cubic numbers beyond 125, as 216, the cube of 6, divided by 6, leaves no remainder; 343, the cube of 7, leaves a remainder of 1, which added to 6 gives the cube root of 343. And 512, the cube of 8, divided by 6 leaves 2, which added to 6, makes the cube root of 512. So that the remainder of the diviſions of the cubes above 216, divided by 6, being added to 6, always give the root of the cubic number divided, till that remainder be 5, and, conſequently, 11 the cube root of the number divided: but the cubic number above this, being divided by 6, there remains nothing, the cube root being 12; thus, if you continue to divide the higher cubes by 6, you muſt not add the remainder of the diviſion to 6 but to 12, the firſt multiple of 6, and thus coming to the cube of 18: the remainder of the diviſion muſt not be added to 6, nor to 12, but to 18; and ſo on *in infinitum.*

M. de la Hire, from conſidering this property of the number 6, with regard to cubic numbers, found, that all other numbers raiſed to any power whatſoever, had each their diviſor, which had the ſame effect with regard to them that 6 has with regard to cubes. And the general rule he has diſcovered is this: if the exponent of the power of a number be even, *i. e.* if that power be raiſed to the 2d, 4th, 6th, &c. power, it muſt be divided by 2; and the remainder, if there be any, added to 2, or to a multiple of 2, gives the root of the number correſponding to its power, *i. e.* the 2d or 6th root, &c. But if the exponent of the power of the number be uneven, *i. e.* if it be raiſed to the 3d, 5th, 7th, &c. power, the duple of that exponent will be the diviſor, which ſhall have the property here required.

It appears, from a due examination of the cubes of the natural numbers, that their third differences are all equal to each other, being the conſtant number 6. Let m^3, n^3, p^3, be any three adjacent cubes in the natural ſeries of cubes, that is, let them be ſuch whoſe roots m, n, p, have the common difference 1; then becauſe $n=m+1$, we ſhall have $n^3=m^3+3m^2+3m+1$; and becauſe $p=n+1$, we ſhall have $p^3=n^3+3n^2+3n+1$; ſo that the differences between the 1ſt and 2d, and between the 2d and 3d cubes, are

$$\left.\begin{array}{l} n^3-m^3=3m^2+3m+1 \\ p^3-n^3=3n^2+3n+1 \end{array}\right\}$$ the 1ſt difference, and the difference of theſe differences, *viz.* $\overline{3n^2+3n+1}-\overline{3m^2+3m+1}=3\cdot\overline{n^2-m^2}+3\cdot\overline{n-m}=3\cdot\overline{n+m+1}=6\cdot\overline{m+1}$, is the 2d difference. In like manner the next ſecond difference is $6\cdot\overline{n+1}$; and the difference of theſe two differences is $6\cdot\overline{n-m}=6$, which is therefore the conſtant third difference of all the ſeries of cubes. And hence that ſeries of cubes will be found by addition only; *viz.* by adding always the 3d diff. 6 to find the column or ſeries of 2d differences, and adding theſe always for the firſt differences, and again adding theſe always for the cubes themſelves, thus:

3d Differences.	2d Differences.	1ſt Differences.	Cubes.
6	6	1	0
6	12	7	1
6	18	19	8
6	24	37	27
6	30	61	64
6	36	91	125
6	42	127	216
6	48	169	343

Peletarius, among various ſpeculations concerning ſquare and cubic numbers, ſhews that the continual ſums of the cubic numbers, whoſe roots are 1, 2, 3, &c. form the ſeries of ſquares whoſe roots are 1, 3, 6, 10, 15, 21, &c. Thus:

$$1 = 1 = 1^2$$
$$1+8 = 9 = 3^2$$
$$1+8+27 = 36 = 6^2$$
$$1+8+27+64 = 100 = 10^2, \text{ \&c.}$$

Or, in general, $1^3+2^3+3^3+4^3$, &c. to $n^3=\overline{1+2+3+4\ldots\ldots n}|^2=\frac{1}{2}n\cdot n+1$. It is alſo a property of theſe cubic numbers, that any number, and the cube of it, being divided by 6, leave the ſame remainder; the ſeries of remainders being 0, 1, 2, 3, 4, 5, continually repeated. Or, that the differences between the numbers and their cubes, divided by 6, leave always o remaining; and the quotient, with their ſucceſſive differences, form the ſeveral orders of figured numbers. Thus:

Num.	Cubes.	Differ.	Quot.	1ſt Diff.	2d Diff.
1	1	0	0	0	0
2	8	6	1	1	1
3	27	24	4	3	2
4	64	60	10	6	3
5	125	120	20	10	4
6	216	210	35	15	5
7	343	336	56	21	6

Cubic numbers, for the compoſition of. Every cubic number of a binomial root is compoſed of the cubic numbers of the two parts of the factum, and of thrice the ſquare of the firſt part into the ſecond, and of the factum of thrice the ſquare of the ſecond part into the firſt.

Demonſt. For a cubic number is produced by multiplying the ſquare by the root; but the ſquare of a binomial root is compoſed of the ſquares of the parts, and double the factum of one part into the other.

Wherefore, the cubic number is compoſed of the cube of the firſt part, of the triple factum of the ſquare of the firſt part into the ſecond, and of the triple factum of the ſquare of the ſecond part into the firſt. An ocular demonſtration of this we have in the following example, where multiplication alone is uſed. Suppoſe, *v. gr.* the root 24, or 20 + 4.

$$\begin{array}{ll} \text{Here} & 24^2 = 20^2 + 2 \times 4 \times 20 + 4^2 \\ & \qquad\qquad\qquad\qquad 20 + 4 \\ \hline & \quad 4 \times 20^2 + 2 \times 4^2 \times 20 + 4^3 \\ & 20^3 + 2 \times 4 \times 20^2 + 4^2 \times 20 \\ \hline & 24^3 = 20^3 + 3 \times 4 \times 20^2 + 3 \times 4^2 \times 20 + 4^3 \end{array}$$

$$\begin{array}{lrr} \text{Then} & 20^3 = & 8000 \\ & 3 \times 4 \times 20^2 = & 4800 \\ & 3 \times 4^2 \times 20 = & 960 \\ & 4^3 = & 64 \\ \hline & 24^3 = & 13824 \end{array}$$

Hence, as the part on the right-hand is placed among units, and that on the left among tens; the cubic number of the right hand part muſt be put in the right-hand place; the factum of its triple ſquare into the left, in the ſecond place; and the factum of the triple ſquare of the left into the right, in the third: laſtly, the cube of the left-hand part falls in the fourth place.

If the root be a multinomial, two or more characters on the right muſt be eſteemed as one, that it may have the form of a binomial. It is obvious, that any cube is compoſed of the cubes of the ſeveral parts of the root, and of the factums of the triple ſquare of any of the left-hand characters into the next on the right; and alſo of the factums of the triple ſquare of the right-hand characters into all the left. Suppoſe, *v. gr.* the root 243; take 240 for one part of the root, three will be the other part; conſequently,

$$\begin{array}{rr} 240^3 = & 13824000 \\ 3 \times 240^2 \times 3 = & 518400 \\ 3 \times 240 \times 3^2 = & 6480 \\ 3^3 = & 27 \\ \hline 243^3 = & 14348907 \end{array}$$

The places of the ſeveral factums are determined from what was obſerved above: for regard muſt here, too, be had to the ciphers to be added to the numbers multiplied by each other, if they be placed alone.

This compoſition of cubic numbers once well conceived, the extraction of cubic roots will be eaſy.

CUBE *root*, or CUBIC *root*, the origin of a cubic number, or a number by whoſe multiplication into itſelf, and again into the product, any given number is formed.

The *extraction of the cube root* is the ſame thing as the finding any number, *v. gr.* 2; by whoſe multiplication into itſelf twice continually, a given number, *v. gr.* 8, is produced: the proceſs whereof ſee under the article EXTRACTION.

CUBEBS, in *Pharmacy*, a fruit brought from the iſland of Java, Guinea, &c. in grains or ſeeds, reſembling pepper, both in form and ſize; whence ſome call it *wild pepper*.

This is a ſmall round fruit or berry, rather leſs than pepper, with a dark-brown wrinkled outſide, and whitiſh within, having a little ſhort ſtalk at one end; whence it has been called *piper caudatum*, or pepper with a tail. It is not near ſo hot and biting as pepper, but is of an aromatic ſmell and taſte. It is the fruit of the PIPER *cubeba*; which ſee.

Cubebs were deemed, by former medical practitioners, heating and drying, and ſaid to ſtrengthen the ſtomach, expel wind, comfort the brain and nerves, and to be particularly uſeful againſt the vertigo or giddineſs, with other diſorders of the head.

They were recommended in a hoarſeneſs and loſs of voice, eſpecially when the tonſils were ſtuffed and obſtructed. The doſe was from ten to twenty-four grains in ſubſtance, to be chewed, or from a dram to a dram and a half in infuſion.

They were farther recommended in diſorders of the ſpleen, and in cold diſtemperatures of the uterus. They have the ſame qualities, though in a weaker degree, with the other kinds of pepper. See PIPER.

It is ſaid the natives of the place boil it before they allow it to be exported, to prevent its being ſown in other countries.

CUBENA, in *Ancient Geography*, a town of Aſia, in Armenia.

CUBERT, or CUBLY, in *Geography*, a village in Cornwall, in the hundred of Powder. In the government trigonometrical ſurvey in 1795, the ſituation of the ſteeple was determined, by an obſervation from St. Agnes' ſtation, diſtant 35,224 feet, and bearing 42° 26′ 53″ S.W. from the parallel to the meridian of St. Agnes, and another from Henſbarrow ſtation, diſtant 69,141 feet, whence is deduced its latitude 50° 22′ 43.″9, and its longitude 5° 5′ 50.″1, or 20^m $23.^s3$ W. of Greenwich.

CUBIC EQUATION. See EQUATION.

For the conſtruction of cubic *equations*, ſee CONSTRUCTION. —*For the reſolution*, ſee RESOLUTION.—*For their root*, ſee ROOT, and EXTRACTION.

CUBIC *Foot.* See FOOT.

CUBIC *Hyperbola*, in *Conics*, one expreſſed by the equation $xy^2 = a$, having two aſymptotes, and conſiſting of two hyperbolas, lying in the adjoining angles of the aſymptotes, and not in the oppoſite angles, like the *Apollonian hyperbola*. It is alſo called by Newton, in his "Enumeratio linearum tertii Ordinis," an *hyperboliſmus* of a *parabola*. See HYPERBOLA.

CUBIC *Numbers.* See CUBE.

CUBICAL PARABOLA. See PARABOLA.

CUBICLE. See CHAMBER.

CUBICULUM, among the Romans, a bed chamber.

This name was alſo given to the balcony or loggia, in which the emperors were placed at the public games.

CUBIDIA, in *Natural Hiſtory*, the name of a genus of ſpars. The word is derived from κυβος, *a die*, and is given them from their being of the ſhape of a common die, or of a cubic figure. Theſe bodies owe this ſhape to an admixture of particles of lead, and there are only two known ſpecies of the genus. 1. A colourleſs cryſtalline one, with thin flakes, found in the lead mines of Yorkſhire, and ſome other parts of the kingdom. And, 2. A milky-white one, with thicker cruſts. This is found in the lead-mines of Derbyſhire and Yorkſhire, but is uſually ſmall, and is not found plentifully.

CUBII, in *Ancient Geography*, a people placed by Ptolemy in the vicinity of the Maræotide lake.

CUBING *of a Solid*. See Cubature and Solid.

CUBIT, a long meaſure, uſed by the ancients, eſpecially the Hebrews; taken from the ordinary extent of a man's arm, between the elbow and the tip of the hand.

In the Scripture, we find cubits of two lengths; the one equal, according to Dr. Arbuthnot, to 1 foot 9 inches $\frac{888}{1000}$ of an inch, our meaſure; being the fourth part of the fathom, double the ſpan, and ſix times the palm: the other equal to 1 $\frac{824}{1000}$ foot, or the four hundredth part of a ſtadium. The Romans, too, had a cubit, equal to 1 Engliſh foot, 5 inches, $\frac{406}{1000}$ of an inch. F. Merſenne makes the Hebrew cubit 1 foot, 4 digits, and 5 lines, with regard to the foot of the Capitol. According to Hero, the geometrical cubit is 24 digits; and, according to Vitruvius, the foot is $\frac{2}{3}$ of the Roman cubit, *i. e.* 16 digits, or finger's-breadth. The cubit was a meaſure of length uſed in England in the earlier period of its hiſtory, when the different parts of the body, &c. were reſorted to as meaſures on different occaſions, without much regard to their exact relation to each other, but which ſubſequent writers have thus ſtated. The Engliſh cubit or fore-arm = 864 hairs' breadth = 54 barley corns = 24 digits or finger's breadths = 18 inches = 16.8895 French pouces, or thumb's breadths = 8 nails = 6 palms, or hand's breadths = 4½ hands, or clenched fiſt's breadths = 2 ſpans = 1½ foot = ½ a yard, or whole arm = $\frac{3}{20}$ pace or ſtep = $\frac{2}{5}$ Engliſh ell or arm = $\frac{1}{4}$ fathom, or arm's reach = $\frac{1}{11}$ pole, or rod = 2.2727 links = .2346 toiſe of France = .4570 metre of France.

CUBITÆUS Externus, or *ulnaris*, in *Anatomy*, the firſt of the extenſor muſcles of the fingers; thus called, as being placed along the cubitus externally. It riſes from the external protuberance of the humerus, and, paſſing its tendon under the *ligamentum annulare*, is inſerted into the fourth bone of the metacarpus, that ſuſtains the little finger. See Ulnaris *extenſor*.

Cubitæus *internus*, the firſt of the flexors, placed along the cubitus, withinſide the arm. It riſes from the internal protuberance of the humerus, and part of the ulna; upon which it runs along till it paſſes under the *ligamentum annulare*, and is inſerted by a ſtrong and ſhort tendon into the fourth bone of the firſt order of the carpus.

CUBITALIS, from *Cubitus;* is an adjective uſed ſometimes in naming parts which are connected with, or adjacent to, the ulna; hence we have a cubital artery and nerve, and cubital muſcles.

CUBITA Biceps. See Biceps.

CUBITUS, a term applied to the ulna.

Cubitus, *fractured and luxated.* See Fracture and Luxation.

Cubitus, a meaſure of length, adopted by Linnæus for deſcribing the dimenſions of plants = 17 French inches = 204 lines = 18.11775 Engliſh inches = 1.50981 Engliſh feet.

CUBLANC, in *Geography*, a ſmall town of France, in the department of the Correze; 12 miles S.W. of Brives.

CUBO-CUBO-CUBUS. See Cubus-cubi.

CUBO-CUBUS, the term whereby Diophantus, Vieta, &c. diſtinguiſh the ſixth power; which the Arabs call quadratum cubi.

CUBOIDES Os, in *Anatomy*, one of the bones of the tarſus. See Skeleton.

CUBROS Gezira. See Gezira *Cubros*.

CUBUS-CUBI, a name whereby the Arab writers, and thoſe who follow them, denominate the ninth power, or a number multiplied eight times by itſelf continually; which Diophantus, and after him Vieta, Oughtred, &c. call *cubo-cubo-cubus*.

CUCADMA, or Cucunda, in *Ancient Geography*, a town of Aſiatic Sarmatia, placed by Ptolemy near the river Bureus.

CUCANA, in *Geography*, a town of Italy, belonging to the ſtate of Venice, in the country of Friuli; 7 miles W. of Palma la Nuova.

CUCASBIRI, in *Ancient Geography*, one of the fortreſſes of Thrace, conſtructed by Juſtinian in the province of Rhodope.

CUCCHIARA, in *Geography*, a ſmall iſland in the Adriatic, near the coaſt of Naples; 6 leagues N.W. from Vieſte.

CUCCI, or Cuccium, in *Ancient Geography*, a place of Pannonia, near the Savus, placed, in the Itinerary of Antonine, between Bononia and Cornacum; and ſuppoſed to be the preſent Ceroſicka or Curuſca.

CUCHECUNNA, in *Geography*, a town of Aſia, in the country of Candahar; 68 miles W.N.W. of Candahar.

CUCKFIELD, a market-town in Suſſex, in the Rape of Lewes, is ſituate in a high and commanding ſituation, although it is built upon the loweſt ſtratum in the ſeries, which any where makes an extent of ſurface, in the road between London and Brighton. About two-thirds of a mile ſouth of the town, this ſtratum produces a quarry of tolerable free-ſtone, with which anciently the town was built; it is a yellowiſh ſtone, whoſe grit is exceeding fine, and the lower beds in the quarries have numerous black ferruginous ſepta or joints between the ſtone; under which is a pipe-clay ſtratum, producing wood-coal in detached pieces (ſee Coal and Colliery); and this clay it ſeems to be, which holds up the water in the very diſlocated and porous diſtrict in which this town ſtands, and ſupplies the wells therein with water, but rather ſcantily. This is a neat pretty town, the foot-paths being paved with red paving-bricks, of a very fine and durable quality, manufactured from a ſtratum of red pottery-clay, which appears about four miles ſouth of this town. Some parts of the ſtone found in this Cuckfield ſtone ſtratum, are ſeparated by layers of mica, which fits it for ſplitting, ſo thin, as formerly to have been much uſed for ſlating buildings; other parts are ſeparated by curious wavey joints, that preſent matter of curious ſpeculation to the naturaliſt. The land round this town, particularly on the ſouth ſide, is of good quality. The ſpire of this church is furniſhed with a conductor, and, like moſt others in Suſſex, is covered with wooden ſhingles, which have aſſumed a blue caſt, exactly reſembling ſlate in colour and appearance. Its ſituation was determined in the government trigonometrical ſurvey in 1793, by an obſervation from Ditchling ſtation, diſtant 38,568 feet, and bearing 12° 20′ 25″ S.E. from the parallel to the meridian of Greenwich, and another from Chanctonbury ring, diſtant 67,789 feet; whence is deduced its latitude 51° 0′ 18.″3 N., and longitude 0° 8′ 29.″8, or 34^s W. of Greenwich.

CUCKING-STOOL, Cokestool, or Castigatory, anciently called *tumbrel* and *trebucket*; an engine for the puniſhment of ſcolds and unquiet women, by ducking them in the water. It is frequently corrupted into *ducking*-ſtool, becauſe the reſidue of the judgment is, that when they are placed in it, they ſhall be plunged in the water for their puniſhment.

Kitchen ſays, "Every one having a view of frank-pledge, ought to have a pillory and a tumbrel." This machine was much in uſe, even among our Saxon anceſtors, who called it *ſcealding-ſtole*, or *ſcolding-ſtool*.

The puniſhment was anciently alſo inflicted on brewers, and bakers, tranſgreſſing the law; who were thereupon, in ſuch a ſtool or chair, to be ducked *in ſtercore*, ſome muddy or ſtinking pond. This was anciently written *gaging-ſtool;* in Domeſday it is called *cathedra ſtercoris*.

CUCKMERE, in *Geography*, a river of England, which runs into the ſea, 3 miles W. of Beachy head.

CUCKOLD's Point, a cape on the E. coaſt of the iſland of Barbadoes. N. lat. 13° 32'. W. long. 58° 28'.

CUCKOW, in *Ornithology*. See Cuculus.

Cuckow, *green yellow-bellied*, of Edwards. See Trogon *Curucui*.

Cuckow-*Flower*, in *Botany*. See Cardamine *pratenſis*.

Cuckow-*Flower*, in *Agriculture*, is the name of a plant, the (*lychnis floſculi*), which is a common weed in meadows and paſtures. It is likewiſe denominated meadow cuckow-flower, meadow pinks, rugged robin, &c.

Cuckow-*Lamb*, in *Rural Economy*, is a name applied in ſome diſtricts to ſuch a lamb as is yeaned in April, or the following month, becauſe it falls in what is termed cuckow-time. Theſe are generally either the lambs of very young or very old ewes, occaſioned by their taking ram late in the ſeaſon. Theſe lambs are uſually of the weakeſt and ſmalleſt ſort, and therefore both the ewes and lambs ſhould have the beſt keep, in order to fatten the lambs for the butcher; as ſuch diminutive lambs are improper to be kept for ſtore-ſheep ſtock in moſt caſes, except where neceſſity obliges the farmer to have recourſe to them.

Cuckow-*Pint*, in *Botany*. See Arum.

Cuckow-*Spit*, in *Agriculture*, a name ſometimes applied to the frothy ſubſtance which is occaſionally obſerved on plants, and which is ſuppoſed to afford protection to inſects from the heat of the ſun, and the attacks of the ſpider. But it has been ſuppoſed by Mr. Liſle to be nothing more than the nocturnal dew which deſcends upon the fork or joint of the plant, and which is worked into a froth by the inſects.

CUCKSOO. See Cooscoosoo.

CUCQ, in *Geography*, a ſmall town of France, in the department of the Tarn, 18 miles N.E. of Caſtres.

CUCUBALUS, in *Botany*, (Plin.) Tournefort, Cl. 8. § 1. gen. 3. Gært. 491. Smith Flor. Brit. 2. 464. Claſs and order, *decandria trigynia*. Nat. Ord. *Caryophillei;* Linn. and Juſſ.

Gen. Ch. *Cal.* one-leafed, inflated, five-cleft half way down, permanent. *Cor.* Petals five; claws nearly the length of the calyx, generally more or leſs crowned; expanſion ſemi-bifid. *Stam.* Filaments ten, awl-ſhaped, inſerted alternately into the claws of the petals; anthers oblong. *Piſt.* Germ pedicelled, globular, ſmooth; ſtyles linear, villous their whole length on the interior ſide; ſtigmas acute. *Peric.* Berry black, ſhining, ſpherical, ſoft, pulpy, not dehiſcent, at firſt three-celled, but afterwards the partitions ſhrivel up, and diſappear. *Seeds* numerous, attached to a free central receptacle.

Eſſ. Ch. Calyx one-leafed, inflated. Petals five, furniſhed with claws. Berry ſuperior, finally one-celled. Seed numerous.

Sp. C. *bacciferus*. Linn. Sp. Pl. 1. Mart. 1. Lam. 1. Eng. Bot. 1577. Gært. tab. 77. fig. 7. (Silene baccifera; Willd. Silene fiſſa. Saliſb. Prod. 302. Cucubalus Plinii; Lugdb. 1429. Tourn. 339. Dill. in Rai. Syn. 257. Alone ſcandens baccifera; Bauh. pin. 250. Viſcago; Hall. Helv. *n.* 912. Lychnanthus volubilis, Gmel. in Act. Petrop. 1759. v. 14. 225. tab. 17. fig. 1.) Berry-bearing chickweed. *Root* perennial, creeping. *Stems* ſeveral, annual, three feet long, weak, ſtraggling, much branched, dichotomous, cylindrical, hollow, rough with deflexed hairs. *Leaves* oppoſite, petioled, widely ſpreading, egg-ſhaped, acute, entire, pubeſcent, pale green, reſembling thoſe of ſtellaria nemorum. *Flowers* axillary and terminal; calyx large, bell-ſhaped, membranous, pubeſcent; ſegments reflexed as the fruit ripens; petals greeniſh-white, diſtant. A native of France, Italy, Switzerland, Germany, &c.; admitted as an Engliſh plant by Dillenius into his edition of Ray's Synopſis, on the authority of ſpecimens ſent to Dr. Richardſon by Mr. Fowlkes of Llanbeder, near Ruthin, and ſaid to have been gathered in the iſland of Angleſea; but no other botaniſt has been fortunate enough to find it there, or in any other part of Great Britain.

Obſ. The only eſſential difference between this genus and ſilene, as ſettled by Linnæus, and received by moſt ſucceeding botaniſts, is the want of a crown to the claws of its petals. It has been juſtly obſerved by La Marck, that this diſtinction is not only purely arbitrary, and ſeparates plants which are cloſely united by other natural characters; but alſo that it is in itſelf by no means in all caſes ſufficiently clear and determinate; the crown being occaſionally obſolete in ſome plants, which generally have it diſtinctly marked, and always ſo ſmall in others, as to make it ſcarcely viſible, and to occaſion a doubt to which genus the plant ought to be referred. He adds, but rather inconſiſtently, that he has retained the Linnæan diſtribution ſolely for the ſake of facilitating the ſtudy of the ſpecies, as thoſe already arranged under ſilene are very numerous, and difficult to determine. Gærtner and Dr. Smith have reſtored Tournefort's original generic character of cucubalus, and conſidered the plant before us as the only ſpecies hitherto known. We adopt without heſitation the idea of theſe eminent botaniſts, and refer all the ſpecies which have a real capſule to the genus ſilene.

CUCUJUS, in *Entomology*, a genus of coleoptera, eſtabliſhed by Fabricius, and adopted by Gmelin, in the laſt edition of the Linnæan Syſtema. The character of the genus, after the Linnæan method of claſſification, conſiſts in having the antennæ filiform; feelers four, and equal, the extreme joint truncated, and thicker; lip ſhort, bifid, with linear diſtant diviſions; and the body depreſſed.

Three of the ſpecies belonging to the preſent genus were known to Linnæus; theſe are, depreſſus, cæruleus, and flavipes. The firſt he conſiders as a cantharis, and deſcribes under the ſpecific name of ſanguinolenta: the cæruleus is the tenebrio depreſſus of that author, and the flavipes his cerambyx planatus. Swederus gives two new ſpecies (maculatus and rufus), in the Stockholm Tranſactions, the reſt were deſcribed originally from various cabinets by Fabricius, who, with much propriety, embodied this natural tribe into a diſtinct genus. The eſſential or generic character laid down by Fabricius, is chiefly taken, as uſual in the Syſtem of that author, from the ſtructure of the mouth; the four equal feelers having the extreme joint truncated, and thicker; the ſhort bifid lip with linear diſtant diviſions; and the antennæ being moniliform and filiform, conſtitute the Fabrician character of the cucujus genus.

Species.

Depressus. Thorax denticulate, and with the wing-caſes rufous; legs ſimple and black. Fabr. *Cantharis ſanguinolenta*, Linn.

The antennæ are hairy and black; head depreſſed with an obtuſe-angular globule each ſide. A native of Germany, according to Friſch and Hattorf.

Sulcatus. Thorax grooved, black; wing-caſes marked with crenated ſtriæ.

Found in putreſcent wood in Croatia. Saldoner.

Rufipes. Thorax ſulcated; wing-caſes black and punctured; antennæ and legs ferruginous.

This is the largeſt ſpecies of its genus, and is found in rotten or decaying wood in Barbary. The antennæ are pale aſh, with the firſt joint black; thorax narrowed behind, and marked with three diſtinct grooves.

Cæruleus. Thorax ſulcated and black; wing-caſes ſtriated and blue; abdomen rufous. Fabr. *Tenebrio depreſſus*, Linn.

Found in Germany. The head is black, with the mouth piceous; legs black.

Festivus. Thorax ſulcated, black; wing-caſes ſtriated, blue; margin of the abdomen, and ſhanks rufous.

Inhabits the ſame country as the preceding, and is about half its ſize.

Castaneus. Thorax ſulcated, black; wing-caſes ſtriated; margin of the abdomen and the legs teſtaceous.

Deſcribed from the cabinet of Smidt as a native of Germany.

Dubius. Thorax denticulated and rufous; wing-caſes black; antennæ filiform, and the length of the body. Fabr.

Native of North America. The antennæ are very long, and flexuous, with the laſt joint acute, in which latter particular it differs from the reſt of the genus; it does not appear to us as ſtrictly appertaining to this genus.

Flavipes. Thorax denticulate and black; legs yellowiſh; antennæ length of the body. Fabr. *Cerambyx planatus*, Linn.

Inhabits northern Europe, and preys on bark of trees.

Dermestoides. Thorax ſulcated, and fuſcous; wing-caſes ſmooth and teſtaceous.

A ſmall ſpecies found in Germany. The antennæ are ſhort. Thorax marked with two grooves. Smidt.

Testaceus. Thorax ſomewhat ſquare, unarmed; body teſtaceous; thighs compreſſed.

Inhabits Europe, and is found under the bark of the birch tree.

Muticus. Thorax unarmed and black, with an impreſſed dot each ſide; wing-caſes fuſcous and ſtriated.

Found in Germany. Hattorf.

Monilis. Thorax unarmed, black; margin with ſpots on the wing-caſes, ferruginous.

A native of Germany.

Rufus. Rufeſcent; antennæ, feelers, and legs black; head gibbous; wing-caſes ſoftiſh. Swederus Nov. Act. Stockh. Inhabits the iſland of Sumatra.

Maculatus. Sordid yellow; thorax unequal, ſquariſh; legs, and ſubquadrangular ſpot on the wing-caſes, black. Swederus.

CUCULARIS Musculus, in *Anatomy*, a name under which the trapezius muſcle is frequently deſcribed.

CUCULLA, a cowl. See Abbot, and Cowl.

CUCULLANUS, in *Natural Hiſtory*, a genus of worms which infeſt the inteſtines of various quadrupeds, birds, and fiſhes. The character of the genus conſiſts in the body being ſharp-pointed behind, and obtuſe before: the mouth orbicular, with a ſtriated hood. Several ſpecies and varieties of theſe deſtructive creatures have been detected by the continental naturaliſts, eſpecially by Goeze and Müller, who obſerved moſt of them to be viviparous.

Species.

* *Infeſting the Mammalia.*

Talpæ. Inhabits the common mole of Europe.

This ſort is gregarious, and lives incloſed in a membrane ſpirally twiſted in the fat about the peritonæum. Goeze.

Ocreatus. Body faſciolated; tail ſheathed.

Found by Goeze in the inteſtines of the mole; this creature is believed to be of the oviparous kind; it reſembles a piece of ſtraw, is about two inches in length, and lives in cluſters or ſocieties.

Muris. In the leſſer inteſtines of the mouſe. Goeze.

** *Infeſting Birds.*

Buteonis. Inhabits the inteſtines of the buzzard. Goeze.

*** *Infeſting Reptiles.*

Ranæ. Tail foliaceous.

Infeſts the inteſtines of the frog.

**** *Infeſting Fiſhes.*

Lacustris. Body rufous, the anterior part truncated. Müll.

Several varieties of this kind of worms are deſcribed by writers. Goeze ſpeaks of one (*var. α*) peculiar to the conger eel; another (*percæ*) to the river perch, and a third (*luciopercæ*) to the perca lucioperca. Müller and Pallas obſerved another variety (*cernuæ*), in the ruffe, and Goeze two others, one in the ſalmon (*farionis*), and another in the trout (*ſalaris.*) All theſe are very fertile, and generally infeſt the inteſtines; the laſt mentioned kind is found alſo in the liver.

Ascaroides. Head orbicular, and hooked each ſide; tail rounded, ſhort, and pointed, with two exſerted ſpicules.

Infeſts the ſtomach of the *ſilurus glanus*. Theſe are about an inch long, of a greyiſh-white colour, reſemble the maggot of a muſca fly, and live together in cluſters.

Murinus. Yellowiſh-aſh, obtuſe in front. Mull.

There are two varieties of this kind, *cirratus* and *muticus*, the firſt of which, as the name implies, is furniſhed with cirri, the other is unarmed; theſe are oviparous, and are found in the inteſtines of the common cod-fiſh. The body of this ſpecies is long, flexuous, round, pellucid, and very finely ſtriated acroſs; the head broad, but orbicular, and appearing as if burnt on the fore part. The male is armed with blackiſh, ſetaceous, bicuſpidate prickle at the tail, near the vent; female diſtinguiſhed by a tuberculate aperture in the middle of the body.

CUCULLARIA, in *Botany*, Schreb. 11. Willd. 16. Claſs and order, *monandria monogynia*.

Gen. Ch. *Cal.* Perianth one-leafed, deeply four-parted; ſegments roundiſh, unequal; two upper ones ſmaller, divaricated. *Cor.* Petals four, unequal, inſerted into the calyx; upper one aſcending, wedge-ſhaped, hollowed, emarginate; lower one larger, inverſely egg-ſhaped, rounded, concave; two lateral ones ſmaller, vertical, oblong, covered on the lower ſide by the larger petal; claws broad, ſhort. *Nect.* at the baſe of the upper petal, corniculate, long, incurved,

curved, obtuſe, prominent between the upper diſtant ſegments of the calyx. *Stam.* Filament ſolitary, petal-ſhaped, oblong, growing broader before, cowled at the top, inſerted into the bottom of the calyx below the germ, longer than the lower petal, and incumbent on it; cells of the anther two, ſeparated, linear, adnate to the filament within the cowl. *Piſt.* Germ egg-ſhaped, three-furrowed; ſtyle filiform, recurved, incumbent on the upper petal; ſtigma flat upwards, curved below. *Peric.* three-celled. *Seeds* numerous.

Eſſ. Ch. Calyx four-parted. Petals four, unequal, upper one ſpurred. Filament petal-ſhaped. Anther with ſeparated cells.

Sp. C. *excelſa.* Willd. (Vochy guianenſis; Aub. Guian. 1. 18. tab. 6.) A lofty tree. *Leaves* oppoſite, inverſely egg-ſhaped, acute, veined. *Flowers* yellow, in terminal racemes. A native of Guiana. C. excelſa of Vahl is a different ſpecies. See Annals of Botany, vol. ii. p. 185.

Cucullaria; Buxb. See Valantia *cucullaria.*

CUCULLATE Flowers, among *Botaniſts,* are ſuch as reſemble a *cucullus,* or monk's hood, or cowl. See Cucullus.

CUCULLUS was anciently a traveller's cap; called alſo *cowl, goul,* or *gula:* whence the name paſſed to the monks, among whom it ſignified their frock and cap, which were of one piece.

Cucullus, in *Botany,* is uſed by profeſſor Willdenow to expreſs a peculiar kind of *Nectarium,* or honey-bag, quite diſtinct from the other parts of the flower, as in *Aconitum,* or Monk's Hood, in which the part in queſtion is double, ſtanding on a pair of ſtalks, and looking like a couple of little birds. In *Aquilegia,* the columbine, there are five honey-bags, ranged alternately with the petals. The term is alſo applied, by the ſame author, to a very different organ, whoſe nature has not generally been underſtood, in the *Aſclepias.* The anthers in this genus grow out of the ſtigma, ſo that none can be more truly gynandrous. They conſiſt of a pair of maſſes of naked conglutinated pollen, as in the *Orchis* family, and the *cucullus* of Willdenow is a membranous caſe, or *lamina,* proceeding from the baſe of the flower, where ſtamens are uſually inſerted, and ſerving to cover and ſhelter the anther, with which, however, it is totally unconnected. S.

CUCULUS, in *Ornithology,* the cuckow genus. Theſe are of the picæ order; their bill is ſmooth, and a little curved; noſtrils ſurrounded by a ſmall rim; tongue ſagittate, ſhort, and pointed; feet formed for climbing. As a ſecondary character, it may be added, that the toes are uſually placed two forward, and two backward, and the tail cuneated, and conſiſting of about ten ſoft feathers.

Species.

Capensis. Greeniſh-brown; beneath white lineated with black; cheeks, chin, throat, tail, and upper wing-coverts rufous; tail-feathers white at the tips. *Cuculus capenſis,* Gmel. *Coucou du Cap de Bonne Eſperance,* Buff. *Edolio,* Kolb. Cape cuckow, Lath.

One of the ſpecies of cuckow, found at the Cape of Good Hope; its length is about twelve inches; bill and legs brown, the irides yellow.

Glandarius. Tail wedge-ſhaped; head ſomewhat creſted; wings brown ſpotted with white and cinereous; band over the eyes black. *Cuculus glandarius,* Linn. *Cuculus Andaluſiæ,* Briſſ. *Le grand coucou tacheté,* Buff. Great ſpotted cuckow.

This is the ſize of the magpie. The bill is black; creſt blueiſh-aſh; ſhoulders, upper wing, and tail-coverts brown ſpotted, quill-feathers brown; tail blackiſh, with the tips white. Inhabits Andaluſia.

Canorus. Cinereous; beneath whitiſh, tranſverſely ſtreaked with brown; tail rounded, blackiſh, dotted with white. *Cuculus canorus,* Linn. *Cuculus,* Geſn. *Il cuculo,* Olin. *Coucou,* Buff. *Kuckuck,* Wirſing. Common cuckow.

This is the cuckow common to the Britiſh iſles, and which extends alſo throughout moſt part of Europe, Aſia, and Africa. The length of this bird is about fourteen inches, the bill black, and two thirds of an inch long; the plumage in general cinereous, tranſverſely barred with deep brown or black ſtreaks; the two middle tail-feathers black, with the tips white, the reſt marked with white ſpots on each ſide the ſhafts, and the legs ſhort and yellow. The female differs a little from the male, the neck both before and behind being of a browniſh-red, the tail barred with the ſame colour, and black, and ſpotted on each ſide the ſhaft with white. The young are brown mixed with ferruginous and black.

Thoſe birds feed principally on inſects, or when brought up from a young ſtate, as they ſometimes are, they will eat bread and milk, fruit, eggs, and fleſh, either cooked or raw. It is well known that the cuckow does not hatch its own eggs, but depoſits the eggs in the neſts of ſome other birds, generally thoſe of the hedge-ſparrow, water wagtail, or yellow hammer, and leaves the care of the young to their foſter parents. The cuckow comes into England about the middle of April, or at leaſt its note of love is heard for the firſt time in the ſeaſon about that time. It is only the male that ſings, and his note ceaſes before the end of July, though the cuckows do not take their final leave till the end of September, or beginning of October. They migrate from the north of Europe at the cloſe of ſummer, and paſs the winter in the warmer parts of Africa.

The rufous cuckow, *le coucou roux* of Briſſon, is a variety of this bird.

Taitensis. Fuſcous ſpotted with ferruginous; beneath hoary white, longitudinally ſtriated with fuſcous; tail cuneated, and marked with numerous ferruginous brown bands. *Cuculus taitenſis,* Muſ. Carlſ. *Cuculus taitius,* Gmel. *Ara wereroa,* Cook's Voyages. *Le coucou brun varié de noir,* Buff. Society cuckow, Lath.

About the ſize of a magpie, and nineteen inches long; it inhabits Otaheite, where it is called by the natives *areva-reva.* The ſame ſpecies is alſo found in New Zealand and Tongataboo.

Mindanensis. Tail rotundate; body golden-green ſpotted with white; beneath white, undulated with blackiſh. *Cuculus Mindanenſis,* Linn. *Le coucou varié de Mindanao,* Buff. Mindanao cuckow.

Larger than our common cuckow, and meaſures fourteen inches and a half. It inhabits Mindanao, and other of the Philippine iſlands.

Scolopaceus. Tail wedge-formed; body clouded with grey and brown. *Cuculus ſcolopaceus,* Linn. *Le boutſallik,* Buff. *Coucou tacheté de Bengale,* Pl. Enl. Brown and ſpotted Indian cuckow, Edwards. Indian ſpotted cuckow, Lath.

Length fourteen inches. This ſpecies inhabits Bengal. The bill is dirty yellow-green; the plumage on the upper part rufous, with the feathers edged with brown; wing-coverts white, edged with brown; quills and ſcapulars tranſverſely ſtriated with brown, and rufous; tail cuneiform, ſeven inches and a half in length, ſubrufous, and croſſed with oblique broad bands and brown; legs dirty greeniſh-yellow. In Bengal this bird is known by the name of Boutſallick.

MACULATUS. Tail elongated; body grey-green, gloſſed with fuſcous, and variegated with white ſpots; beneath faſciated with brown and white; head black. *Coucou tacheté de la Chine*, Buff. Chineſe ſpotted cuckow. Lath. Syn.

Inhabits Bengal and China; length fourteen inches.

PUNCTATUS. Tail cuneiform; body blackiſh dotted with rufous, beneath rufous ſtreaked with black; tail-feathers banded with rufous. *Cuculus punctatus*, Linn. *Coucou brun piqueté de roux*, Buff. Rufous ſpotted cuckow. Lath.

Larger than the common cuckow. The female differs in having the rufous ſpots on the upper part leſs numerous than in the male, and the under ſurface paler. The ſpecies is found in the Eaſt Indies, and in the Philippine iſlands.

PANAYUS. Tail entire; body fuſcous, with yellowiſh-rufous ſpots beneath, and tail banded with rufous and black; thorax black ſpotted with yellow. *Cuculus panayus*, Gmel. *Coucou tacheté de l'iſle de Panay*. Son. Panayan ſpotted cuckow. Lath.

Inhabits the iſland of Panay. The beak is black; irides yellow; legs lead colour.

ORIENTALIS. Tail rotundate; body black, gloſſed with green; bill fuſcous. *Cuculus orientalis*, Linn. *Cuculus indicus niger*, Briſſ. *Le Coukeel*, Buff. *Coucou noir des Indes*, Pl. Enl. Eaſtern black cuckow, Lath.

Size of a pigeon; length ſixteen inches; bill and legs greyiſh. A native of India. A variety of this bird about fourteen inches in length is found in Mindanao, and another not longer than a blackbird in Bengal.

INDICUS. Tail rounded; body black; wings, and tip of the tail with three irregular tranverſe white lines. *Cuculus Indicus*, Gmel. Eaſtern black cuckow. Lath.

Inhabits India, flies in flocks, and feeds on inſects. Length ſixteen inches. Bill ſtrong and whitiſh; legs blueiſh.

VETULA. Tail cuneated; body browniſh, beneath teſtaceous; eye-lids red. *Cuculus vetula*, Linn. *Cuculus Jamaicenſis longiroſter*, Briſſ. *Le coucou à long bec*, *Tacco*, Buff. Long-billed rain cuckow, Lath.

Found in Jamaica, where it frequents woods and hedges all the year round; and feeds on ſeeds, ſmall worms, and caterpillars, as well as the ſmaller kinds of ſerpents, frogs, lizards, and ſmall birds. This bird is of ſuch a gentle diſpoſition, as to ſuffer the negro children to catch it with their hands. Its length is fifteen inches. This bird is ſaid to be unuſually noiſy before rain, whence it has obtained the name of rain-cuckow, or long-billed rain-cuckow.

PLUVIALIS. Olive-aſh, beneath rufous; chin and throat white. *Cuculus pluvialis*, Gmel. *Cuculus Jamaicenſis*, Briſſ. *Picus major leucophæus*, Raii. *Le coucou dit vieillard*, Buff. Rain cuckow. Lath.

Inhabits the ſame country as the laſt; length from ſixteen to ſeventeen inches long, and ſings before rain. Both this and the former ſpecies are known in Jamaica by the name of Old Man.

MINOR. Olive-aſh, beneath reddiſh; chin white. Mangrove cuckow.

Length twelve inches; its general appearance much reſembling the rain-bird. It inhabits Cayenne, and lives on inſects, eſpecially thoſe large caterpillars which feed on the leaves of the mangrove.

SERRATUS. Tail cuneiform; head creſted; body black and gloſſy; on the wing a white ſerrated ſpot. *Cuculus ſerratus*, Muſ. Carlſ. Creſted black cuckow. Lath.

Inhabits the Cape of Good Hope. This bird is twelve inches and a half in length; the tail rather longer than the body; plumage of the thighs lax and long; legs black.

SENEGALENSIS. Tail cuneated; body grey, beneath white; cap and tail-feathers blackiſh. *Cuculus Senegalenſis*, Linn. *Coucou du Senegal*, Pl. Enl. *Rufalbin*, Buff. Straight-heeled cuckow. Lath. Syn.

The length of this bird is fifteen inches and a half, its bulk exceeding that of our common cuckow. This bird inhabits Senegal. The bill is black; rump and upper tail-coverts brown, with deeper ſtreaks; quill-feathers rufous, with browniſh tips; legs grey; the inner hind-claw ſtraight and longer.

BENGALENSIS. Ferruginous with white lines; beneath yellowiſh brown; tail cuneated. *Cuculus Bengalenſis*, Gmel. Lark-heeled cuckow. Brown Illuſtr.

Rather larger than a lark, and, like that bird, having the hind toe furniſhed with a long ſtraight claw. This curious ſpecies inhabits Bengal.

HONORATUS. Tail cuneated; body blackiſh, ſpotted with white, beneath barred with white, and cinereous. *Cuculus honoratus*, Linn. *Cuculus Malabaricus nævius*, Briſſ. *Cuil*, Buff. *Coucou tacheté de Malabar*, Pl. Enl. Sacred cuckow.

Inhabits Malabar, and being a great enemy to ſnakes and other noxious reptiles, is held ſacred by the natives. Its length is eleven inches and a half.

PUNCTULATUS. Tail cuneated; body brown, the tips of the feathers ſub-rufous; beneath dirty-white. *Cuculus punctulatus*, Gmel. Punctated cuckow. Lath.

Native of Cayenne; length nine inches.

GUIRA. Creſted, yellowiſh-white; tail and wings brown; head brown in the middle, yellowiſh at the ſides; neck yellowiſh in the middle, and brown at the ſides. *Cuculus guira*, Gmel. *Guira acangatara*, Raii. *Le guira cantara*, Buff. Braſilian creſted cuckow. Lath.

Found in the woods of Braſil. The bill is yellowiſh; irides fuſcous; and the legs ſea-green.

AMERICANUS. Tail cuneated; body above cinereous, beneath white; lower mandible pale yellow. *Cuculus Americanus*, Linn. *Cuculus carolinenſis*, Briſſ. *Le vieillard à ailes rouſſes*, Buff. *Coucou de la Caroline*, Pl. Enl. Carolina cuckow. Cateſby.

Length twelve inches. Inhabits Carolina, principally in woods.

PISANUS. Tail cuneated; body above varied with white and black, beneath white; head black, creſted; chin and breaſt rufous. *Cuculus piſanus*, Gmel. Piſan cuckow. Lath.

Taken at Piſa in the year 1739. Its ſize rather exceeds that of the common cuckow.

MELANOLEUCOS. Black, beneath white; tail cuneated with the tip white; wings with a white ſpot; head ſubcreſted. *Cuculus melanoleucus*, Gmel. *Jacobin huppé de Coromandel*, Buff. Coromandel creſted cuckow.

Length eleven inches. A native of Coromandel. The bill is black; legs fuſcous.

MADAGASCARIENSIS. Olive-waved with brown, beneath tawny, chin olive-yellowiſh. *Cuculus Madagaſcarienſis*, Gmel. *Coucou verdatre de Madagaſcar*, Buff. Great Madagaſcar cuckow. Lath.

Meaſures twenty-one inches and half in length. The ſpecies inhabits Madagaſcar.

CHRYSOCEPHALUS. Head yellow; breaſt and ſhoulders lead colour; quill-feathers black; tail yellowiſh-brown, with numerous black bars. Gmel.

Inhabits South America.

DOMINICUS. Tail wedged; body grey-brown, beneath whitiſh; three lateral tail-feathers white at the tip. *Cuculus dominicus*, Gmel. *Le cendrillard*, Buff. St. Domingo cuckow. Lath.

Inhabits St. Domingo, Guiana, and Louſiana. Length ten inches.

Cayanus. Tail wedged; body purpliſh-cheſnut; beneath cinereous; tail-feathers white at the tip. *Cuculus Cayanus*, Linn. *Coucou piaye*, Buff. Cayenne cuckow. Lath.

Found near rivers in Cayenne. The length is ſixteen inches: it is of a docile diſpoſition, and eaſily tamed. The legs and claws are grey-brown; quill-feathers brown at the tips; tail cheſnut, and ten inches long. There are two varieties of this ſpecies, one of which is purpliſh beneath, and meaſures only ten inches and a half long The other has the bill red; head cinereous; chin and breaſt rufous, and belly cinereous black.

Tranquillus. Black, beneath inclining to cinereous; tail cuneated, upper wing-coverts edged with white. Gmel. Cayenne black cuckow.

Length eleven inches; bill and irides red. This bird is of a ſolitary nature, and inhabits Cayenne.

Tenebrosus. Black; belly and thighs ruſt colour; rump and vent white; tail cuneated. *Cuculus tenebroſus*, Pallas. *Le petit coucou noir de Cayenne*, Buff. White-rumped black cuckow. Lath.

Inhabits Cayenne, where it frequents trees growing near the water ſide; it builds in hollow trees, or on the ground, and feeds on inſects. Length eight inches and a half.

Pyrrhocephalus. Black, beneath white; crown ſcarlet, ſurrounded by a circle of white; tail long, with the tip white. *Cuculus pyrrhocephalus*, Zool. Ind. Red-headed cuckow.

Frequent in the woods of Ceylon. The bill is curved, of a greeniſh-yellow colour; head and neck marked with ſmall white ſpots; legs blueiſh. Length ſixteen inches. This kind feeds on fruits.

Caeruleus. Tail rounded; body blue. *Cuculus cæruleus*, Linn. *Tait ſou*, Buff. *Coucou bleu de Madagaſcar*, Pl. Enl. Blue cuckow. Lath.

Size of the common cuckow; legs and feet black. Inhabits the iſland of Madagaſcar.

Sinensis. Tail long, cuneated; body blue, beneath white; tail-feathers with a white ſpot at the tips. *Cuculus ſinenſis*, Linn. *Sanhia de la Chine*, Buff. Chineſe cuckow. Lath.

Length thirteen inches; bill, irides, legs, and claws red; crown white, dotted with blue, the reſt of the head and chin blackiſh, and a round patch on the cheeks of white.

Afer. Braſſy-green; beneath ſhining grey; head and neck cinereous; crown braſſy-black; tail even, golden-green, beneath black. *Cuculus afer*, Gmel. *Le vouroudriou*, Buff. *Le grand coucou de Madagaſcar*, Pl. Enl. African cuckow. Lath.

The bill of this bird is ſtraight, blackiſh, and two inches long; legs reddiſh; claws black. The total length of the bird fifteen inches. This ſpecies inhabits Madagaſcar.

Cupreus. Golden-copper; belly and thighs yellow. Cupreous cuckow. Lev. Muſ.

Native place uncertain, ſuppoſed to be Africa. Its ſize that of a lark. Tail cuneated, with one or two of the exterior lateral feathers marked with a triangular white ſpot at the tip; bill and legs black.

Indicator. Ruſty-grey, beneath white; eyelids naked and black; ſhoulders marked with a yellow ſpot; tail cuneated and ruſty. *Cuculus indicator*, Gmel. *Le coucou indicator*, Buff. *Maroc*, Lobos Abyſſin. Honey guide, Phil. Tranſ. Honey cuckow, Lath.

The length of this bird is ſeven inches. The bill is brown at the baſe, and ſurrounded with briſtles; feathers of the thighs white, with a longitudinal black ſtreak; quill-feathers above brown, beneath grey-brown; the firſt tail-feathers are very narrow and ruſty, the next ſooty, the inner edge whitiſh.

The manners of this bird, according to Dr. Sparrman, who particularly deſcribes it, are very ſingular. The bird feeds principally on honey; and by its note, when in queſt of this favourite food, points out to the natives the hiding-places in the trees where the wild bees depoſit their ſtores. The morning and evening are the times of its feeding; and it has a ſhrill note, which the Hottentot and Dutch hunters carefully attend to, and anſwer from time to time, till the bird appears in ſight, on which they follow it, till it alights on the trees in which the honey is concealed. The hunters never fail to reward their guide with a portion of the booty. Dr. Sparrman aſſures us, that he has ſeveral times been preſent at the taking of the neſts of the wild bees in this manner; but could only obtain two ſpecimens of the birds, both which were females: the inhabitants highly valuing the bird for its uſeful habits, and conceiving it criminal to deſtroy it. A neſt was ſhewn Dr. Sparrman, with an aſſurance of its belonging to this bird: it was compoſed of ſlender filaments of bark, interwoven into the form of a bottle; the neck and opening being downwards, and a ſtring, in an arched manner, was ſuſpended acroſs the opening, and faſtened to the two ends, ſuppoſed to be contrived for the bird to perch upon.

Persa. Tail equal; head creſted; body blueiſh-green; quill-feathers blood-red. *Cuculus perſa*, Linn. *Le touraco de Guinée*, Buff. Crown bird from Mexico. Albin. *Touraco*, Edwards. Mexican cuckow.

Inhabits various parts of Africa, and feeds on vegetables.

Regius. Black, with a blue gloſs; quill-feathers crimſon; bill red, with a yellow front; back of the head purple. Royal cuckow.

Found in the interior parts of Africa.

Brasilensis. Tail nearly equal; head creſted; body red; quill-feathers yellowiſh. Linn. *Le couroucoucou*, Buff. Red creſted cuckow. Lath.

Inhabits Braſil. Length ten inches; bill pale red; creſt red, varied with black; belly mixed with yellowiſh; quill-feathers and tail yellow, with a ſhade of black.

Cristatus. Tail rounded; head creſted; body ſhining greeniſh-aſh. Gmel, &c. Madagaſcar creſted cuckow. Lath.

The length of this bird is fourteen inches. Its bill and legs black; irides orange; breaſt claret; belly whitiſh, gloſſed with rufous; wings and tail beneath cinereous; exterior tail-feathers tipped with white. Inhabits Madagaſcar.

Ægyptius. Brown, beneath tawny-white; head, neck, and cuneated tail green; wings rufous. Gmel. Egyptian cuckow.

Length from fourteen to ſixteen inches. The bill is black; irides ſhining red; upper tail-coverts rufous, inclining to green; three laſt quill-feathers rufous; legs blackiſh. This kind inhabits Egypt, and feeds on locuſts. The bird ſuppoſed to be the male is of a ſhining black colour, with rufous wings.

Poliocephalus. Tail ſomewhat cuneated; body above browniſh-aſh, beneath white, barred with grey; tail-feathers black, with duſky bars. *Cuculus poliocephalus*, Gmel. Grey headed cuckow.

Inhabits India, and very much reſembles the laſt.

Sonneratii. Banded with black; above rufous-brown, beneath white; tail-feathers ſpotted with black. *Cuculus Sonneratii*, Gmel. Sonnerat's cuckow.

Size of a blackbird. Bill, irides, and legs yellow. Inhabits India.

Hepaticus. Tail cuneated; body undulated with brown and black; rump ferruginous; bill, tips of the wings, and bands on the tail black, beneath whitiſh, waved with black; legs yellow. *Cuculus hepaticus*, Gmel. Liver-coloured cuckow.

Length thirteen inches and a half. Tail-feathers ruſty-brown, barred with black, tipped with white, and marked with a ſmall white terminal ſpot. Native place unknown.

Flavus. Teſtaceous, beneath yellowiſh; crown and chin pale grey; tail cuneated, black with white lines. *Cuculus flavus*, Gmel. Yellow-bellied cuckow.

Eight inches in length. The bill and legs yellowiſh; irides yellow. Inhabits the iſle of Panay.

Auratus. Tail cuneated; body above golden-green, beneath white; five ſtreaks on the head; wing-coverts, ſecondary quill and tail-feathers at the tip white. *Cuculus auratus*, Gmel. Gilded cuckow.

Inhabits the Cape of Good Hope. The length of this bird is ſeven inches. Bill greeniſh-brown; legs grey.

Lucidus. Above green, beneath white; each ſide a green-gold lunule; quill-feathers and tail brown. *Cuculus lucidus*, Gmel. Shining cuckow.

A native of New Zealand. Length ſeven inches. Bill and legs blue; lower tail-coverts white.

Coromandus. Tail cuneated; body black, beneath white; collar white. *Cuculus coromandus*, Gmel. Collared cuckow.

Inhabits Coromandel. Length twelve inches and a half.

Cornutus. Tail cuneated; creſt bifid; body ſooty. *Cuculus cornutus*, Linn. Horned cuckow.

The bill of this bird is greeniſh-yellow; irides red; creſt moveable, and reſembling horns; body beneath, with the legs and claws cinereous; tail tipped with white. Inhabits Braſil, and is about twelve inches in length.

Discolor. Reddiſh-brown; creſt bifid and orange; two exterior tail-feathers white, the reſt white at the tip. *Cuculus diſcolor*, Gmel. Brown cuckow.

A native of the Eaſt Indies.

Paradiseus. Two exterior tail-feathers very long and dilated at the tip; head creſted; body green. *Cuculus paradiſeus*, Gmel. *Le coucou á longs brins*, Buff. Paradiſe cuckow.

Inhabits Siam. The length of this bird is eighteen inches. The bill blackiſh; legs and claws grey.

CUCUMBER, in *Botany*. See Cucumis.

Cucumber, *ſingle-ſeeded*. See Sicyos *angulata*.

Cucumber, *ſmall creeping*. See Melothia *pendula*.

Cucumber, *ſnake*. See Trichosanthes *anguina*.

Cucumber, *ſpirting*, or *aſſes*. See Momordica *elaterium*.

Cucumber, in *Gardening*, is a well known tender plant of the exotic kind, much cultivated in hot-bed frames for the fruit. See Cucumis.

CUCUMIS, in *Botany*, (derived by Varro from curvor, alluding to the crookedneſs of the fruit. Σικυος: Theophr. ſuppoſed by ſome critics to be the קִיקָא, or gourd of the prophet Jonah.) Linn. gen. 1092. Schreb. 1479. Willd. 1741. Gært. 552. Juſſ. 395. Vent. 3. 515. Claſs and order, *monœcia ſyngeneſia*, Linn. *Monœcia monadelphia*, Willd. Nat. Ord. *Cucurbitaceæ*. Linn. Juſſ.

Gen. Cha. Males. *Cal.* Perianth one-leafed, bell-ſhaped, the margin terminated by five awl-ſhaped teeth. *Cor.* adnate to the calyx, bell-ſhaped, five-parted; diviſions egg-ſhaped, veiny-wrinkled. *Stam.* Filaments in three ſets very ſhort, inſerted into the calyx, converging; two of them bifid at the tip; anthers five, adnate, linear, ſerpentine upwards and downwards. *Receptacle* trigonous, truncated, in the centre of the flower. Females ſeparate, but on the ſame plant. *Cal.* Perianth as in the male, ſuperior, deciduous. *Cor.* as in the male. *Stam.* Filaments acuminate, very ſmall, without anthers. *Piſt.* Germ inferior, large; ſtyle cylindrical, very ſhort; ſtigmas three, thick, gibbous, two-parted, turned outwards. *Peric.* Pome (Berry; Gært; Vent. Smith.) three-celled; partitions membranous, ſoft, diſtinct. *Seeds* numerous, ovate-acute, compreſſed, ſharp-edged, generally in a double row.

Eſſ. Ch. Calyx five-toothed. Corolla five-parted. Filaments in three ſets. Stigmas three. *Seeds* ſharp-edged, without a border. In this genus are comprehended three of Tournefort's; cucumis, melo, and colocynthis, with part of his anguria.

Sp. 1. C. *colocynthis*. Bitter cucumber, or coloquintida. Linn. Sp. Pl. 1. Mart. 1. Lam. 8. Willd. 1. Woodv. Med. Bot. vol. iii. pl. 175. Blackw. tab. 441. Sabb. Hort. 1. tab. 70. (Colocynthis fructu rotundo major; Bauh. pin. 313. Tourn. 107. Rai. hiſt. 642. C. amara cathartica; Lob. Ic. 645.) "Leaves multifid; pomes globular, ſmooth." *Root* annual. *Stems* ſlender, trailing, angular, ſcabrous with ſhort hairs, branched. *Leaves* petioled, deeply and obtuſely ſinuated, green above, whitiſh and cloathed with ſhort hairs underneath. *Flowers* ſmall, yellowiſh, axillary, ſolitary. *Fruit* the ſize of an orange, globular, yellowiſh when ripe, with a thin coriaceous rind, containing a white ſpongy intenſely bitter pulp. A native of the Levant. The dried pulp ſeparated from the rind is imported into this part of Europe from Aleppo, and is the coloquintida of the ſhops, the κολοκυνθις of the Greeks, and the alhandal of the Arabs. For its medical qualities, ſee Colocynthis. 2. C. *prophetarum*. Linn. Sp. Pl. 2. Mart. 2. Lam. 9. Willd. 2. Jacq. hort. tab. 9. Blackw. tab. 589. (Colocynthis pumila; Shaw. afr. 164.) "Leaves heart-ſhaped, five-lobed, finely toothed, obtuſe; pomes globular, ſpinous-muricated." *Root* annual. *Stems* a foot and half long, trailing, ſlender, ſtriated, rough with ſhort diſtant hairs. *Leaves* petioled, greeniſh, rough underneath, cloven half way down into three lobes, the two lateral lobes more or leſs deeply two-lobed. *Fruit* variegated with alternate greeniſh and yellowiſh ſtreaks, vyeing in bitterneſs with coloquintida. A native of Arabia. 3. C. *Africanus*. Linn. jun. Supp. 423. Mart. 4. Lam. 10. Willd. 3. Herm. Par. 133. tab. 134. Rai. hiſt. 3. 334. "Leaves palmate-ſinuated, acute; ſtem angular; pomes oval, echinate." *Stems* numerous, ſlender, trailing. *Leaves* petioled, quinquefid. *Flowers* yellow, ſmall; males on filiform, ſomewhat villous peduncles. A native of the Cape of Good Hope. 4. C. *anguria*. Linn. Sp. Pl. 3. Mart. 3. Lam. 11. (Anguria americana, fructu echinato eduli; Tourn. 107. C. anguriæ folio; Sloan. Jam. 103. Pluk. tab. 170. fig. 3. C. ſubhirſutus minor; Brown. Jam. 353.) "Leaves palmate-ſinuated; pomes globular, echinate." *Root* annual. *Stems* four or five feet long, angular, hiſpid. *Leaves* petioled, deeply ſinuated, rough. *Flowers* yellow, axillary, ſmall as thoſe of bryony. *Fruit* whitiſh. A native of the Weſt Indies, where the green fruit is eaten, but is far inferior to our common cucumber. It is alſo frequently uſed, with other herbs, in ſoups, and is eſteemed an agreeable wholeſome ingredient. 5. C. *acutangulus*. Linn. Sp. Pl. 4. Mart. 5. Lam. 7. Willd. 5. Jacq. hort. 3. tab. 73, 74. (C. longus indicus; Grew.

Muſ. 229. tab. 17. fig. 2. Petola; Rumph. Amb. 5.408. tab. 149. Picinna; Rheed. Mal. 8. 13. tab. 7.) "Leaves rounded-angular; pomes with ten acute angles." β. "Fruit ſhorter, ſomewhat top-ſhaped." C. indicus ſtriatus; Pluk. Alm. 123. tab. 172. fig. 1. *Root* annual. *Stem* climbing, ſlender, pentagonal, almoſt ſmooth. *Leaves* petioled, heart-ſhaped, ſharply angular, ſerrate-toothed, green above, pale underneath, rough with very ſhort hairs. *Flowers* yellowiſh, rather large; males in a terminal raceme, bracteate; females ſolitary, axillary. *Fruit* ſix or eight inches long, leſſened towards the peduncle, terminated by a pointed deciduous operculum, ſmooth, becoming dry and woody when ripe. A native of the Eaſt Indies, China, and Tartary. Its fruit, when half ripe and tender, is eaten either boiled or pickled, but is rather inſipid. Loureiro obſerves, that the operculum attributed to the fruit is not noticed by Rumphius, nor was it found in the plants examined by himſelf in Cochinchina and China. 6. C. *conomon.* Mart. 12. Lam. 6. Willd. 6. Thunb. Flor. jap. 324. (Kwa; Kæmpf. Amæn. 811.) "Leaves angular, ſomewhat lobed, toothed; pomes ſpindle-ſhaped, ten-furrowed, ſmooth." *Root* annual. *Stem* decumbent, ſtriated, rough with ſcattered hairs. *Leaves* petioled, heart-ſhaped, nerved, green above, pale underneath, rough with hairs on both ſides, eſpecially on the nerves underneath; petioles about three inches long, hairy. *Flowers* yellow, axillary, cluſtered, on ſhort hiſpid peduncles. *Fruit* the ſize of a man's head. A native of Japan, where it is cultivated in great abundance. Its fleſh is firm, and is a common food with the Japaneſe. 7. C. *melo.* Common or muſk melon. Linn. Sp. Pl. 5. Mart. 6. Lam. 1. Willd. 8. (Melo vulgaris; Bauh. pin. 310; Tourn. 104. Rai. hiſt. 644. Blackw. tab. 329.) "Angles of the leaves rounded; pomes generally either torulous or reticulated." *Root* annual. *Stems* trailing to a great length, much branched, furniſhed with tendrils, ſcabrous. *Leaves* alternate, petioled, ſlightly toothed, rough with ſhort briſtly hairs. *Flowers* yellow, rather ſmall, axillary, ſolitary, on ſhort peduncles; calyx covered with white hairs; corolla wrinkled, ribbed, with briſtles on the ribs on the outſide; germ nearly globular, covered with white hairs. The piſtiliferous flowers have been obſerved in England to have large, apparently fertile anthers, and to be therefore really hermaphrodite, but as they are accompanied by flowers which have ſtamens only, the pollen in their anthers is probably defective. This peculiarity has not been noticed by the French botaniſts. *Fruit,* as in moſt plants which have been long in a ſtate of general cultivation, very various in its ſize, form, and other qualities; commonly roundiſh or oval, ſometimes a little flattened at both ends; in ſome varieties the ſize of a man's head; in others, of a moderate ſize; and in others, much ſmaller; the external ſurface of ſome even; of others, warted; of others, more or leſs netted; and of others, marked with rounded, protuberant longitudinal ribs; the colour either grey, yellowiſh, or green; rind thickiſh and rather hard; fleſh white, green, yellow or reddiſh, abundant, tender, ſucculent, of an agreeable taſte, and pleaſant ſmell, ſometimes a little reſembling that of muſk; the inner pulp watery, appearing to conſiſt of broken fibres ſweet-taſted. *Seeds* numerous, commonly in a double row, flattiſh-oval, covered with a tough ſkin ſimilar to parchment, which contains a ſweet oleaginous, ſaponaceous kernel. The melon is generally eſteemed one of the moſt delicious ſummer fruits, and when taken in moderate quantity is of eaſy digeſtion; but if taken to exceſs is apt to produce violent and ſometimes dangerous diſorders in the ſtomach and bowels. It is peculiarly refreſhing in hot climates, where it is of a ſuperior quality, abounds more in ſaccharine matter, and is ſaid rarely to diſagree. In Europe it is commonly eaten with ſugar, and if pepper or ginger be added, it is leſs likely to produce any unpleaſant conſequences. In France it is eaten as a ſauce to boiled beef, and, as Mr. Pinkerton aſſerts, is then perfectly harmleſs. The fleſh is alſo preſerved for the ſame purpoſe in vinegar and ſugar, which, ſeaſoned with cinnamon and cloves, makes a pleaſant wholeſome compoſition and will keep ſeveral years. The wild plant from which theſe luxurious varieties have been derived is unknown, but is ſaid by Linnæus to be a native of Tartary. For a more particular account of the principal varieties, and of the manner in which they are cultivated, ſee the article Cucumis, in *Gardening.* 8. C. *muricatus.* Willd. 7. "Leaves heart-ſhaped, angular; angles rounded, hoary underneath; pomes cylindrical, muricated." *Leaves* ſimilar to thoſe of the preceding, pubeſcent; younger ones tomentous on both ſides. *Male flowers* axillary, cluſtered, very ſhort, peduncled; females ſolitary. A native of Tranquebar, Klein. 9. C. *dudaim.* Linn. Sp. 6. Mart. 7. Lam. 5. Willd. 9. (C. orientalis; Walth. Hort. 133. tab. 21. Melo variegatus; Dill. Elth. 223. tab. 77. fig. 218. Melo puſillus; Pluk. Alm. 143.) "Angles of the leaves rounded; pomes cylindrical, with the navel retuſe." *Root* annual. *Lower leaves* roundiſh, upper ſomewhat angular; both ſlightly villous and toothed, green above, paler underneath. *Flowers* yellow, divided into five or ſix roundiſh ſegments, ſlightly crenate. *Fruit* the ſize and form of an orange; rind ſmooth, ſometimes ſparingly warted, ſlightly furrowed only at the top, variegated with green and dark orange ſtreaks, and with oblong unequal green ſpots, yellow when fully ripe, and at length whitiſh; with a whitiſh muſky ſmell, and a whitiſh inſipid pulp. A native of the Levant. 10. C. *Chate.* Linn. Sp. Pl. 7. Mart. 8. Lam. 4. Willd. 10. (C. ægyptius rotundifolius; Bauh. pin. 310. Tourn. 104. Chate; Alp. Ægypt. 114. tab. 116. Veſl. Ægypt. 47.) "Hirſute; angles of the leaves rounded, toothed; pomes ſpindle-ſhaped, attenuated at both ends, rough with hairs." *Root* annual. Whole plant villous, almoſt tomentous, whitiſh green, with the habit of the common melon, but decidedly diſtinguiſhed by the form of the fruit. *Stems* procumbent, villous, obtuſely pentagonal, zig-zag, branched. *Leaves* petioled. *Flowers* yellow, ſmall, axillary. A native of Ægypt, where it is much cultivated for the ſake of the fruit, which is eſteemed wholeſome, and eaten both raw and cooked, but when raiſed in our climate, is very indifferent. A pleaſant refreſhing beverage is alſo obtained from it in the following manner. When the fruit is quite ripe, but not ſeparated from the ſtem, a hole is made in its upper end, into which a ſtick is introduced, for the purpoſe of bruiſing the pulp; the hole is then cloſed up with wax, and the fruit, ſtill fixed to the ſtem, is placed in a hole underneath, and covered with earth. At the end of a few days the pulp becomes entirely diſſolved, and with the addition of a little ſugar, is fit for uſe. 11. C. *pubeſcens.* Willd. 11. "Leaves heart-ſhaped, ſomewhat angular, rather acute, ſharply toothed, ſcabrous; pomes elliptical, obtuſe, pubeſcent." *Root* annual. *Fruit* three inches long, near one inch thick, obtuſe at both ends; green when young, and marked with rather obſcure narrow longitudinal ſtreaks; afterwards entirely white. 12. C. *maculatus.* Willd. 12. "Leaves heart-ſhaped, obſoletely angular, roundiſh-obtuſe, finely toothed, ſcabrous; pomes elliptical, narrowed at the baſe, ſmooth." *Root* annual. *Fruit* ſomewhat ſimilar to that of the preceding, but ſmooth, and narrowed at the baſe, marked when young with broad green ſtreaks; white when ripe, and variegated with green ſpots. Native country unknown. 13. C. *ſativus.* Common cucumber. Linn. Sp. Pl. 8. Mart. 9. Lam. 2. Willd. 13. Gært. tab. 88. fig. 3. Sabb. Hort. 1. tab. 63. Black. tab. 4. Lam. Ill. 795. Bauh. pin. 310. "Angles of the leaves right; pomes ovate-oblong, ſcabrous." *Root* annual. *Stems* creeping, hiſpid, rough. *Leaves* larger, longer and thicker than thoſe of the melon, leſs rounded, with ſharper and more projecting terminating angles. *Flowers* yellow, axillary; germ oblong, obſcurely angular, not hairy, but muricated with prickles ſpringing from a ſmooth warty ſubſtance. *Fruit* elongated, almoſt cylindrical, obtuſe at both ends, ſcabrous, with warts, yellowiſh, white or green in different varieties; rind thin, coriaceous; fleſh ſpongy; primary cells three or four, each divided into two ſecondary ones, and theſe again into the proper cells of the ſeeds, filled with a pellucid jelly. Suppoſed to be a native of Tartary, cultivated in almoſt every part of the civilized world. For its moſt remarkable varieties and the mode of its cultivation, ſee the article Cucumis, in *Gardening.* 14. C. *anguinus.* Linn. Sp. Pl. 10. Mart. 10. Willd. 14. (Petola anguina; Rumph. Amb. 5. 407. tab. 148.) "Leaves lobed; pomes cylindrical, very long, even-ſurfaced, twiſted." *Root* annual. *Flowers* ſmaller than others of the genus, with a long tube. *Fruit* three feet long, or more, red when ripe, with a rank ſmell, and bitter taſte. A native of the Eaſt Indies. According to La Marck it is only a variety of trichoſanthes anguina. 15. C. *flexuoſus.* Linn. Sp. Pl. 9. Mart. 11. Lam. 3. Willd. 15. Bauh. pin. 310. Tourn. 104. (C. oblongus; Dod. Pempt. 662. C. anguinus flexuoſus; Lob. Ic. 639.) "Leaves angular, ſomewhat lobed; pomes cylindrical, furrowed, curved." *Root* annual. *Stems* ſlender, creeping, villous. *Leaves* petioled. *Flowers* ſmall, yellow, axillary. *Fruit* the ſize of a large pear, thicker at the upper end, ſmooth, even-ſurfaced, of a delicious flavour. A native of the Eaſt Indies; cultivated in Japan, where it is called by the Dutch banket melon.

Cucumis *ægyptiacus, luffa arabum.* Veſl. Moriſ. See Momordica *luffa.*

Cucumis *agreſtis;* Blackw. See Momordica *elaterium.*

Cucumis *bryonoides biſnagarica;* Pluk. } See Sicyos *an-*
Cucumis *candenſis monoſpermos;* Herm. } *gulata.*

Cucumis *maderaſpatana;* Linn. See Bryonia *maderaſpatana.*

Cucumis *minima fructu ovali;* Sloan. } See Meloth-
Cucumis *parva repens virginana;* Pluk. } ria *pendula.*

Cucumis *ſylveſtris;* Cam. } See Momordica
Cucumis *ſylveſtris aſininus dictus;* C. Bauh. } *elaterium.*

Cucumis *triphyllos;* Plum. See Anguria *trifoliata.*

Cucumis, in *Gardening,* comprehends plants of the tender trailing annual kind, of which the ſpecies moſtly cultivated are the common cucumber, (C. *ſativus*) and the common or muſk melon, (C. *melo*).

In the firſt of theſe ſpecies the roots are conſtituted of many long ſlender white fibres, the ſtems being likewiſe long, rather ſlender, and very branchy at their extremities, either trailing on the ſurface of the ground, or climbing by means of claſpers; the leaves are large and angular, on long erect footſtalks, with much briſtly roughneſs. The flowers have the ſegments of the calyx much longer, and the corolla of a deeper yellow colour, than in the melon. They are male and female on the ſame plant, in the ſame or different fruits, the latter being ſucceeded by oblong rough fruit.

In the ſecond ſpecies the roots are compoſed of a great number of very ſtout wide ſpreading fibres, the ſtems being procumbent or trailing to a conſiderable length, very much branched, and furniſhed with tendrils for climbing; the leaves are palmate-ſinuate, or entire, ſlightly toothed, having rounded corners and rough with briſtles; the flowers are pale yellow in colour, lateral and ſolitary, thoſe which are termed female having four large anthers, with the germ ſub-globular, and covered with white hairs.

It has been ſuggeſted by Martyn, that the diſcovery of what are uſually termed female flowers, being *real* hermaphrodites with fertile anthers, renders it leſs neceſſary to convey the males to them, as practiſed by ſome, than is commonly ſuppoſed.

The fruit is of a roundiſh or oval form, blunt, uſually furrowed longitudinally, occaſionally netted, and warted, or carbuncled, being from four to twelve inches in length and diameter, of a yellowiſh green, or white colour, and having a firm pulp, muſky, reddiſh, ſeldom green. It is ſaid to have been firſt introduced into Europe from Perſia.

Of the firſt of theſe ſpecies, or the cucumber, the principal varieties are, the *common rough green prickly,* which is ſix or ſeven inches long, with a dark-green ſkin, cloſely ſet with ſmall prickles, and which is hardy, a plentiful bearer, but does not fruit early. The *ſhort green prickly,* which is three or four inches long, with a rather ſmooth ſkin, but having ſmall black prickles; it is one of the hardieſt and earlieſt ſorts. The *long green prickly,* which is from ſix to eight or nine inches long, thinly ſet with prickles, and a good bearer; there is a ſub-variety alſo with white fruit. The *early green cluſter,* which is ſhortiſh, early, with the flowers in cluſters. The *long ſmooth green Turkey,* with large ſtalks and leaves, and the fruit generally from ten to fifteen inches long, with a ſmooth rind without prickles. The *long ſmooth white Turkey,* which is leſs watery, and of a better quality. The *large ſmooth green Roman,* with long large fruit, quite ſmooth. The *long white prickly* Dutch, with fruit eight or ten inches long, white, with ſmall black prickles, which is a bad bearer, leſs hardy, but the fruit not ſo watery, and with fewer ſeeds.

And of the ſecond ſort or melon, there are alſo numerous varieties, but thoſe moſt deſerving of cultivation are, the *Cantaleupe,* ſo called from a place near Rome, where it has been long cultivated. Its fleſh, when in perfection, is delicious, and may be eaten with ſafety. The outer coat is very rough, and full of knobs and protuberances like warts; it is of a middling ſize, rather round than long, and the fleſh, for the moſt part, of an orange colour. There are ſeveral ſub-varieties, ſuch as the *large black carbuncled,* or *black-rock,* which is of a blackiſh green-colour; the *large green carbuncled*; the *large white carbuncled,* and the *orange.* The *Romana,* which is forwarder in the ſeaſon than the above. The *ſuocado,* which is alſo a good ſort when cultivated for early fruit, but inferior to the cantaleupe. The *zatte* is likewiſe a good ſort, but very ſmall, ſeldom bigger than a large orange; it is a little flatted at the two ends, and the outer coat is warted like the ſmall cantaleupe. The *ſmall Portugal,* ſometimes termed the *dornier melon,* is a pretty good fruit, the plants generally producing them in plenty. It may be cultivated for an early crop. And the *black Galloway,* introduced from Portugal by lord Galloway, is likewiſe a good ſort for early cultivation, as the fruit ripens in a very ſhort time from its firſt ſetting. There are likewiſe ſome other varieties which may be cultivated.

Method of Culture.—In the raiſing and producing of theſe different fruits, much care and attention are neceſſary, as well as a conſiderable degree of ſkill in the regulation, management, and application of the heat which is required to bring them to maturity in the beſt and moſt perfect manner.

Mode of Culture in the Cucumber kind.—The common method of raiſing theſe plants is by ſowing the ſeeds annually in hot-beds covered by frames and glaſſes, for the early production of fruit, and in the open ground for the late crops. The former mode muſt, however, in general, be that which is practiſed in ſome degree or other, till the ſeaſon becomes perfectly warm and ſettled, as towards the latter end of May or beginning of June. Various are the methods of applying heat in the producing of this fruit, at early and late periods, which have been employed and recommended; but thoſe which ſeem to have had the greateſt ſucceſs are *dung hot-beds*, *bark hot-beds*, *ſteam-pans*, and *flued pits*. It is ſufficiently obvious that, in whatever manner artificial heat is made uſe of in this intention, the great point to be attended to is, that of communicating and continuing it in as regular and equal a way as poſſible. But there is another circumſtance which equally deſerves conſideration in the buſineſs; which is, that of its being accompanied with a ſuitable degree of moiſture. It is conceived to be principally on this account that ſtable-dung anſwers more completely in the raiſing of this ſort of fruit than tanner's bark, or the uſe of flued pits, which have been more lately had recourſe to for the purpoſe. The author of the Forcing Gardener has remarked that the deficiency of this gentle moiſt heat is the reaſon why bark hot beds are leſs uſeful for raiſing the early crops, but highly ſerviceable in the late ones, as they have the effect of "drying off the external damps which are then prevalent," and of courſe haſten the maturity of the fruit. In other caſes the plants "are impatient in a dry fire heat."

The moſt material, and, indeed, chief objections to the employing of the ſteam of boiling water in the forcing of cucumbers, are the great difficulty of keeping the heat up in a regular manner, and the vaſt trouble that attends the uſe of it.

The great and principal inconveniences that have been met with in the forcing of this fruit on dung hot-beds, are the danger of injuring the plants by too much heat, and that of their being blanched by the rank ſteam that moſtly abounds. In order, therefore, to obviate theſe inconveniences, it has been attempted to raiſe theſe fruits on the beds of the preceding year by means of linings of freſh dung; but in practice it has not only been found that ſuch beds are equally liable to damps; but at the ſame time expoſed to much riſk and inconvenience from the frequent loſs of heat in the linings, which are made uſe of for the purpoſe.

On theſe different accounts it is therefore conceived probable that, until ſome more convenient mode of applying and keeping up a regular moiſt heat be diſcovered, than has hitherto been made uſe of, the practice of procuring this ſort of fruit on freſh made dung hot-beds, muſt be had recourſe to as the beſt and moſt certain method for the early crops in all caſes.

In the raiſing and cultivating of the cucumber in this way, the apparatus and materials which are principally neceſſary in carrying it to any conſiderable extent, are a ſufficient number of frames or pits of different ſizes, with glaſs lights for covering them, ſo as to prevent the entrance of water and air. And it is uſual, where this culture is much attended to, and practiſed in the moſt perfect manner, to have a one-light frame for the ſeed-bed; a two-light one for pricking out the young plants, and nurſing them in; and two or more two-light frames for their fruiting in: but they may be cultivated very well, on a ſmall ſcale, with one or two ſmall frames, or proper pits. See *Forcing* FRAME and FRAME.

In order to the conſtructing of the hot-beds, the principal material is that of freſh horſe-dung in neither too long or too ſhort a condition, but ſuch as is proper for taking on the proceſs of fermentation. It ſhould be had in the proportion of about one cart-load to each light, and be prepared for the purpoſe by being well ſhaken together into a heap, ten days or a fortnight before it is made uſe of; as by this means a regular heat will be brought on, and the rank heat and ſteam, as well as the diſagreeable ſmell, be removed. Some gardeners, in order to promote theſe intentions, and render the preparation more perfect, have the whole turned over once or twice. Care, however, ſhould be taken, that the reduction of the dung be not carried too far before it is put on the bed; as, where that is the caſe, too little heat will afterwards be produced, and there will be want of regularity in its being ſupplied.

In caſes where this ſort of material is ſcarce, and there is bark at hand, beds for the purpoſe may be made with it, having only dung for the outſides; but care muſt be taken, that they be ſo covered as that the roots of the plants never reach the bark, as it cankers and deſtroys them in a very ſhort time, by which much loſs and diſappointment muſt be ſuſtained.

In reſpect to the manner of making beds for this ſort of culture, ſome gardeners, where proper forcing grounds are not provided, with a view of neatneſs, ſink the foundations of them; but this ſhould never be practiſed, except where the ſoil is very dry and gravelly, as the ſtagnation of moiſture is very prejudicial in the bottoms of ſuch beds. If the ſoil be of a moiſt retentive nature, it will indeed be highly beneficial to have the bottoms raiſed to ſome height above the ſurface of the natural ground. Beſides, where they are not ſunk, the heat from the linings is more beneficially applied, and, at the ſame time, with greater facility and convenience.

In all caſes where proper forcing grounds are not made uſe of for the culture of theſe plants, open, dry warm, ſheltered ſituations, which decline to or have ſouthern aſpects, ſhould be choſen for the purpoſe.

The earthy material, or mould for covering the beds with, ſhould be of a light, good, rich quality, prepared by being thrown into a heap for ſeveral months before it is employed. The author of the Scotch Forcing Gardener adviſes three-fourths of the richeſt black loam that can be procured from a paſture, and one-fourth of vegetable mould from decayed tree-leaves, mixed and incorporated well with a due proportion of good ſtable-dung, as the beſt for this purpoſe. The rotten dung of old hot-beds is, however, moſt commonly employed with ſuch earthy ſubſtances as thoſe juſt mentioned.

But the mould made uſe of for the more early crops ſhould be laid up in ſome open place, where it may be kept in a rather dry condition, to render it more fit for the purpoſe, when it may be wanted.

And when it is to be made uſe of, it ſhould not be rendered fine by ſifting; as when made too fine, it is apt to be too cloſe and compact, and by that means not only to prevent the roots of the plants from perfectly eſtabliſhing themſelves, but confine the heat too much, and endanger the plants in that way in a conſiderable degree.

In addition to theſe, ſome ſmall pots will be wanted, where this ſort of culture is attempted at an early period, both for the purpoſe of ſowing the ſeed in, and that of pricking the young plants out into, that they may be removed and tranſplanted with greater eaſe, certainty, and convenience, and with leſs danger of being injured in their growth. It is uſual for each pot to contain two or three plants, which are generally ſufficient for a one-light frame.

Pots of the ſizes denominated thirty-twos and forty-eights are commonly made uſe of in this intention.

In addition to theſe requiſites, baſs mats are neceſſary to cover the glaſſes in the nights with, and when the weather is cold and bad. Straw, and other ſimilar ſubſtances, may be employed for the ſame uſe; but they are much leſs convenient than mats. The periods of ſowing and beginning the works of forcing, in order to have this ſort of fruit in the early ſeaſon, muſt vary according as it is wanted; but for the very early crops, as thoſe to be cut in the end of December, and the following month, and in February, March, and April, it ſhould, for the former, be done towards the end of October and beginning of the following month; and for the latter, in December, January, and the beginning of February. But for later crops, ſuch as thoſe to come in in June and the following month, it ſhould be in April and May; and ſtill later crops are often produced on ridges, in the open ground, without artificial heat being employed.

The common and general practice is, however, chiefly to have only three crops: the firſt in March or April, on hot-beds under glaſſes; the ſecond in May and June, under hand-glaſſes; and the laſt on ridges, as juſt mentioned.

But in order to have the crops come in regularly, an exact attention ſhould be paid to the periods of putting in the ſeed, and beginning the work of forcing; as without this there muſt be great uncertainty.

In reſpect to the choice of ſeed for the different crops, the early ſhort and long prickly ſorts are moſtly made uſe of for the firſt or early crops; but the latter for the general ones, and thoſe of the other larger kinds for the later crops. The ſeed ſhould be taken from the earlieſt fruit, and at the firſt or ſecond joints, and be perfectly well ripened. And, in order to prevent its running too luxuriantly into vine, it ſhould be kept two years or more before it is made uſe of; or, when employed while freſh, be kept ſome weeks or months in a dry, warm ſituation, as by this means the plants fruit better, from their growth being in ſome meaſure reſtricted.

Method of forming the Beds and raiſing the Plants.—In the early and more forward culture of this vegetable, it is moſtly the practice, where there are ſufficient conveniences, and plenty of dung or other materials, to have recourſe, as has been ſuggeſted above, to two or more hot-beds under frames; as a ſmall one for ſowing the ſeeds upon, and a large one for growing the plants upon; or, ſometimes the ſecond is made of a more moderate ſize, and uſed for nurſing the plants in, previous to their being ſet or ridged out in the large one, for the purpoſe of producing fruit. However, by making the beds of a good ſize, and in a ſubſtantial manner, with due attention to linings, they may be grown very well on one or two hot-beds. When cultivated on a ſmall ſcale, ſeldom more than one is indeed employed in the raiſing of this ſort of fruit.

In regard to forming the beds, attention muſt be paid to the ſize of the frames, and to making them conſiderably larger than the boxes. Some gardeners adviſe only a few inches; but Mr. Nicol thinks they ſhould extend beyond the frames, at leaſt eighteen inches all round the frame.

In the buſineſs of building the beds, the dung, prepared as mentioned above, ſhould be uſed in the following manner, beginning with the moſt littery part, and afterwards uſing that which is more reduced. The different parts ſhould be well ſhaken and mixed together, and beaten down with the fork, or trodden equally in, where very littery, once or twice as the work proceeds, till they are made up to the full height of five feet in the back, and four in the front of the frame. Some gardeners ſuppoſe two feet and a half, or three feet, to be ſufficient, when the beds are merely intended for juſt raiſing the plants; but the former practice is probably always the beſt, where plenty of materials can be eaſily procured. When thus prepared, it is the cuſtom of ſome to let them remain with the frames and glaſſes upon them for a few days, that the rank heat may be brought up; and when it begins to go off, to cover them over with mould, prepared in the manner already deſcribed, to the depth of five or ſix inches, ſowing the ſeed in little drills half an inch deep, when the mould is a little warmed. Others cover them almoſt immediately with dry earth, tan, or other ſimilar material, to the depth of five or ſix inches, ſowing the ſeeds in ſmall pots filled with mould, plunging them previouſly for a little time in the beds; cautiouſly guarding againſt too much heat at firſt, by drawing up the pots when neceſſary.

The author of the Scotch Forcing Gardener, however, directs that when the beds have been made to the height mentioned above, they ſhould be turfed over in a careful manner, as in forcing aſparagus, and the frames then placed upon them; laying dry fine ſea or pit-ſand in a ſloping direction, according to the frames, over the whole, to within ſix inches of the lights, and above that two inches in thickneſs of light ſandy loam. The ſeeds ſhould then be ſown in ſmall garden pots or pans, filled with entire vegetable mould from decayed tree-leaves, and covered to the depth of half an inch; plunging them to the brims in the centres of the beds endways, and a foot from the backs. The glaſſes ſhould then be placed over them in the common manner; when, in the courſe of twenty-four hours, the beds will in general take on heat, when a little air ſhould be conſtantly admitted, by lifting the backs of the lights an inch or more in height, and the fronts about half that height, except when there is froſt, in order to diſcharge any rank heat or vapour that may be produced in ſuch circumſtances.

It is neceſſary that the frames ſhould be carefully matted up every night, when the ſun begins to decline, and be uncovered before eight o'clock in the morning, when the ſeaſon will permit: as perfect a regard ſhould be had to this as thoſe of air and water. And Mr. Nicol ſays, that "a little kindly ſteam in the morning is a good ſymptom, but it ought never to be encouraged to any great extent." He never wiſhes to ſee more ſteam in the beds at this time of the day, than what is entirely diſpelled in the firſt hour after the frames are uncovered and expoſed.

It is proper that the bottoms of the pots or pans ſhould be occaſionally continued to be examined, to ſee that the heat is not too violent; raiſing and watering them, with water brought to a proper temperature, in the beds when neceſſary. And as ſoon as the plants have attained about two inches growth, they ſhould be pricked out into other ſmall pots, filled with the ſame ſort of mould, three or four in each, putting them as far diſtant in each as poſſible, the mould being ſettled to their roots by a little water; replunging them in the beds to their brims, the ſurfaces of which being previouſly wrought over to the full depth of the ſandy covering, and another ſtratum of ſandy loam applied as before. They ſhould be carefully nurſed in theſe ſituations, by due attention to the admiſſion of air, the giving of water, and the regulation of ſteam; continuing occaſionally the examination of the bottoms of the pots, to guard againſt too much heat being applied to the roots of the plants.

And while the plants are thus carefully brought forward to the proper ſtate for being ſet or ridged out in the fruiting hot-beds, which is the caſe when they have acquired a vigorous growth, and put forth three or four rough leaves, ſome ſtable dung, in proportion to the extent of the frames, ſhould be got ready in the manner directed above for forming the fruiting beds, which ſhould be made up in the ſame way as the former. The frames and lights ſhould then be placed over the beds, in order to bring up the heat, and protect them from being injured by wet: and when the heat has become moderate, which will require time in proportion to the extent of the framing, the beds ſhould be earthed or moulded over, the ſurfaces of them being previouſly rendered even. In performing this buſineſs, the earth ſhould be applied in ſuch a manner as to form a ſort of hillock in the middle of each light, within about a foot or eighteen inches from the backs of the frames; the whole of the other parts being covered equally to the depth of two, three, or more inches. The author of the Scotch Forcing Gardener, however, directs, that when the dung is ſuſpected of heating to too great a degree, the beds ſhould be turfed all over, as mentioned above: but where this is not the caſe, a large round turf placed in the middle of each light, exactly under the parts where the plants are to be placed, may be ſufficient; the ſurface of the dung, in this caſe, being previouſly covered over to the depth of ſix inches with light ſand, or well rotted old tan, which ſhould be firſt made perfectly dry. The turf is, however, rejected by many as wholly unneceſſary.

But whichever practice is made uſe of, the beds will in general be in a proper ſtate for putting the plants in in about twenty-four hours; but before this is done, the mould or earth ſhould be drawn up, ſo as to raiſe the hillocks to within five or ſix inches of the glaſſes, exactly over the turfs, where they are uſed, leaving them ten inches or a foot in breadth at the tops or upper parts.

In the operation of planting or ridging out the plants, a hole ſhould be formed in each hillock, ſufficiently large for the complete reception of the plants, with the entire balls of earth about their roots, up to the level of the ſurfaces of the hills, covering them over with a little mould; the whole being then ſettled with a little water, previouſly brought to the proper ſtate of warmth, and the glaſſes put on. It is the practice with ſome, in order to promote the adheſion of the mould about the roots of the plants, to have recourſe to watering the pots before they are turned out of them.

When the plants have been thus ſet out, they ſhould be carefully attended to in reſpect to air, water, covering in the nights and bad weather, the ſtate of heat of the beds, linings, the occaſionally moulding of the ſpaces between the hills, and the ſtopping and training of the plants; in all which much care is requiſite.

In regard to regulating the firſt, the ſtate of the ſeaſon and the beds ſhould be fully conſidered; and air admitted accordingly, by raiſing the back part of the lights. The waterings ſhould be cautiouſly given in the winter and early ſpring, but more freely as the warmth of the weather advances; ſhutting down the frames for ſome time after each application. In the more early crops, much leſs water will be requiſite than in thoſe in which the ſeaſon is more advanced; and the former will ſtand in need of much leſs frequent waterings over head than thoſe of the latter. In theſe latter, ſhade is likewiſe occaſionally neceſſary, when the weather is ſunny. The glaſſes ſhould be carefully covered up with mats every evening, before the influence of the ſun is wholly gone, and when the weather is very ſevere, more than one mat may often be found neceſſary. Theſe ſhould conſtantly be removed the firſt thing in the morning, or as ſoon as the ſun is upon the frames, when the ſtate of the weather will admit; but in very ſevere weather, not removed at all, or but a very little in the middle of the day.

And the heat of the beds is likewiſe to be particularly regarded at firſt, by a frequent examination of the trying-ſticks; and regulated in ſuch a manner as to promote the healthy growth of the plants. When it continues too great, it ſhould be let off, by making holes in the ſides of the beds, and the uſe of freſh earth on the ſurfaces.

But when the heat of the beds begins evidently to decline, recourſe muſt immediately be had to the application of linings of freſh dung round them, ſo as to keep up a due degree of heat; care being conſtantly taken to repeat them as frequently as may be neceſſary, and, at the ſame time to guard againſt the prejudicial effects of too great heat.

And theſe linings Mr. Nicol adviſes to be covered by turf or mould, and to have the ſides and ends of the beds cut off, and formed with them.

But the buſineſs of earthing the beds between the hillocks ſhould be gradually performed, as ſoon as the heat is become perfectly moderate; the mould for the purpoſe being previouſly laid in ſome part of the frame. Mr. Nicol conſiders fifteen inches as a good medium for the earth above the ſand or tan, and thinks the buſineſs ſhould be done either a few days before or after the application of the linings.

And the buſineſs of pruning or ſtopping is by ſome begun while the plants are in the nurſery-beds; but others defer it till after the plants are ridged out in the fruiting-beds.

The author juſt noticed does not think it at all material to pick out the heart-buds, as ſoon as the plants have formed their rough leaves; as, from the moſt accurate trials, and the moſt minute obſervation, he is convinced "it is of no manner of conſequence whether the buds are picked out or not." He "ſeldom thinks of picking or pinching, till the plants begin to put forth runners or vines; nor even then, unleſs they happen to put forth too few to furniſh their ſides of the frames, till he preſerves the rudiments of the fruit."

But it is then, he ſuppoſes, time to ſtop thoſe vines which have fruit *ſhewn*; but the others may be ſuffered to run to the length of ſix or eight joints, and be then ſtopped, to cauſe them to put out fertile ones, which they ſeldom fail to do, when the plants are in a healthy ſtate of growth.

In caſes in which an extraordinary quantity of male bloſſoms appears, it is recommended that part of them be rubbed off in a gentle manner with the finger and thumb; as the knife ſhould never be made uſe of, unleſs in cutting out old vines. But this ſhould never be attempted where there is not a very full blow, as it is proper to aſſiſt nature without either ſpurring or thwarting her. And when the female bloſſoms are in a ſtate of ſufficient forwardneſs, they may be carefully impregnated with the ſtrongeſt and moſt healthy of the males, by which the ſwelling of the fruit may be greatly promoted; for though the fruit may be formed, ſwell to a tolerable ſize, and be fit for the table without, it will not ripen its ſeed. And though the *farina* of the male bloſſoms may often be depoſited on the females by means of the wind and inſects, it is the ſafeſt mode, in the early culture of theſe plants, to have it performed by the hand, as handſome ſet fruit may be ſet apart for ſeed with more certainty. In the execution of this work, which ſome ſuppoſe the moſt properly performed the day or day after the flowers of both ſorts are fully open, the beſt way is to gather the male bloſſom with a ſhort ſtem, removing the petal or *corolla* carefully from about the *ſtamina* and *antheræ*, and then take the ſtalk of the bloſſom betwixt the finger and thumb, and apply the top of the ſtamina to the centre of the three ſtigmas of the female bloſſoms, and, by giving it a ſlight twirl, diſcharge a portion of the farina into the ſtigmata of the female; making uſe of a freſh male bloſſom for each impregnation.

As ſoon as this has been performed, the plants begin to grow vigorouſly, and produce large quantities of fruit. Great care ſhould therefore be taken to keep the vines in due order, and not too thick or croſſing one another; all the withered and decayed leaves being removed, as well as the others, when too numerous or too irregularly placed.

And air ſhould now be admitted more freely; increaſing the proportion daily, as the ſeaſon advances. More large and repeated waterings ſhould likewiſe be given from the roſe of the pot; and the advantage of warm ſhowers may be taken, as the weather becomes more warm. Few plants require more of this fluid than theſe, at this period of their growth. When the ſeaſon becomes fine in May, the glaſſes may be wholly removed during the day-time. About the middle of the following month, a lining, when neceſſary, may be applied to the fronts of the frames, in the ſame way as adviſed for the other parts; which will continue a due degree of heat, as long as it will be requiſite to attend to the ſtate of the bottom heat in the beds.

It may be obſerved, that in the early culture of the cucumber, it is a good practice never to depend for raiſing the plants upon the firſt ſowing; but to continue ſowing occaſionally, both in the nurſery and fruiting hot-beds, in pots, managing the plants in the ſame way as thoſe in the ſeed-bed; as by this means plants of different growths will be conſtantly at hand, for the ſupplying of accidents, as well as for ſucceſſion crops or other purpoſes.

Method of Culture under hand or other Glaſſes.—In this method of cultivating the cucumber, the ſeed ſhould be ſown towards the latter end of March, or beginning of the following month, on an old hot-bed; having the plants in a proper ſtate for being ſet or ridged out about the beginning of May, which is in general ſufficiently early for their ſucceeding well in this mode of culture. The moſt proper ſort of ſeed for this purpoſe is that of the *long prickly green* cucumber.

The beds for this purpoſe ſhould be prepared of hot dung, ſomewhat in the manner directed for the early crops; being made from two to three feet in thickneſs, and about three in width, along the ground in a ſtraight line, having the diſtance of from three to four feet from each other. The moſt uſual method is to form them in long trenches, or in holes of a foot and half in depth; but they may be made on the level ſurface, where this mode is attempted at an early period. In either method the beds ſhould be directly earthed over, raiſing the mould into little hillocks for the reception of the plants, the hand-glaſſes being immediately placed over them; and in the courſe of a day or two, the earth will be in a ſuitable condition for receiving the plants. Theſe ſhould be put in, in the middle of the hills, three or four in each, with balls of earth about their roots, in the ſame manner as practiſed in the other crops; a little water being given at the time, and the glaſſes put on, proper ſhade being had recourſe to when neceſſary, from the great heat of the ſun.

Beſides, air and water ſhould be afforded in due proportion, according to the ſtate of the weather and the heat of the beds; keeping the glaſſes covered well with mats in the nights, and when the ſeaſon is ſevere.

As ſoon as the heat in theſe beds begins to decline, more earth ſhould be applied between the hills of plants, and ſome freſh dung externally, by way of linings, to preſerve and keep up the due degree of heat as much as poſſible, when the weather continues cold. And as the warmth of the ſeaſon advances, air and water ſhould be given more freely, as there may be occaſion.

As ſoon as the glaſſes have become pretty full with the plants, they ſhould be raiſed a little, that the runners may extend themſelves without, and be properly trained and pegged down; continuing to attend them carefully in reſpect to covering in the nights, and admitting air and water, the laſt being frequently applied all over the beds in theſe caſes.

By this mode of culture, cucumbers may be provided from about the latter end of May till the beginning of September, and ſometimes a little longer.

Method of Culture on Ridges in the open Ground.—In this method of raiſing cucumbers, a warm ſheltered ſituation, which is open to the ſouth, and where the ſoil is dry, good, and rich, ſhould be fixed upon; the land being well dug into a trench, and a ſuitable proportion of rotten dung covered in; the ſurface being formed into a ſort of ridge or bank, ſloping towards the ſouth. Some gardeners, however, divide the ground, after being neatly dug over, into beds five or ſix feet in width, with alleys of a foot or a foot and a half between them, which is alſo a neat and good method.

In either method of management, the ſeed ſhould be put in as ſoon as the beds are ready; in the former, towards the back parts, and in the latter, along the middle, to the depth of about half an inch, ſix or ſeven ſeeds in a place, an inch or two apart; ſlight ſprinklings of water being occaſionally given afterwards, till the plants begin to appear.

The moſt ſuitable and proper ſeaſon for performing theſe ſowings is about the end of May, or firſt part of June, according to the ſtate of the weather, and other circumſtances.

The principal management and culture which is neceſſary, during the growth of theſe crops, is that of keeping the vines perfectly free from all ſorts of weeds, thinning the plants out to proper diſtances, directing the runners in a regular manner along the ſurface, and keeping them properly watered, according to the ſtate of the ſeaſon, and other circumſtances.

Theſe kinds of crops chiefly come in about the middle of Auguſt, and are principally employed as picklers; for which purpoſe the beds ſhould be carefully looked over two or three times every week, on dry days, and all ſuch collected as are in a proper ſtate, as about one or two inches in length, and the thickneſs of the finger.

Whenever the weather proves wet, they ſhould be guarded as much as poſſible from the moiſture, as under ſuch circumſtances they are very apt to become ſpotted, and to have a bad appearance.

In the buſineſs of ſaving cucumber ſeed, ſome of the beſt and moſt early cucumbers of the general frame crops ſhould be reſerved till perfectly ripened; when they muſt be ſeparated from the vine, and be laid in a proper place to dry; the ſeeds being then ſeparated from the pulp, and rendered more perfectly dry, when they may be put up for uſe, for which they are, as has been ſeen, in the moſt proper condition, after they have been kept two or three years, and are in a perfectly dry condition.

The chief and moſt prejudicial inſect that infeſts crops of this ſort is the aphis, which is ſhewn to be preſent by the curling up of the leaves, and is readily deſtroyed by fumigating with tobacco, or in the manner which has been adviſed for the peach. See AMYGDALUS.

Method of Culture in the Melon kind.—In the buſineſs of raiſing this ſort of fruit, the ſame kind of contrivances and apparatus is neceſſary as in the culture of the cucumber; but it is better if the frames or pits have rather more depth, and are ſomewhat larger in their other dimenſions. But in the view of having melons ripe at an early period, as in May or the following month, brick pits without any croſs flues through them, have been found in practice highly uſeful by Mr. M'Phail. The pit in each frame being about three feet ſix inches in width, ten feet in length, and three feet deep below the ſurface of the flues. In the conſtruction of theſe pits, it is conſidered the beſt and cheapeſt method to carry up brick walls four inches in thickneſs, to a proportionate height above the flues, ſecuring them at the top with a proper light frame of wood for the lights to reſt upon.

Some adviſe that the beds (for the early crops eſpecially) ſhould be prepared in the ſame manner, and with materials of the ſame kind as for the cucumber; but that the later ones may be produced in hot-beds formed of tanners' bark, either wholly or in great part.

In the brick pits, the author of the "Gardener's Remembrancer" makes uſe of well fermented dung in firſt filling of them, being ſo worked as that the noxious particles may have paſſed off by evaporation. Upon the ſurface of this well prepared dung, about a foot in depth of good rich earth is depoſited. That which is of a loamy pliable quality is conſidered the beſt. Such as is procured from the ſurface of a common which has been long ſubject to the paſturage of ſheep, after being laid in a heap until it becomes rotten, and then well broken down and pulverized, is likewiſe well ſuited for this purpoſe. But mould from a good quarter of the kitchen garden will anſwer.

When theſe ſorts of pits are employed, it is ſuggeſted that the dung in the pits may continue ſeveral years, and that it is not neceſſary for the earthy material which is intended for the plants to grow in, to be renewed every ſeaſon, as it will be ſufficient to add each year, by incorporating it with the ſurface mould, about a foot in depth of ſome rich good earth, with a proper quantity of well rotted dung or vegetable mould.

For the ripening of this fruit at a late period, as in July and the two following months, the ſame practical writer has recourſe to beds made of dung, from two to three feet in height; that which has been previouſly employed for linings in early forcing, being made uſe of, as being beſt ſuited to the purpoſe in conſequence of its not being liable to heat violently, and from its noxious vapours having been diſcharged.

It is likewiſe ſtated, that the leaves of trees, where they can be provided in ſufficient quantity, are very proper for forming beds of this ſort, provided dung is provided for making linings round them.

Where pits are made uſe of for early forcing, the flues which ſurround the bed of earth in each frame are kept clear of earth to admit the heat to paſs freely from them to warm the air in the frames, till the weather becomes ſuitably fine; and with dung beds a ſimilar ſpace is left unfilled up next the inſides of the box frames, cloſe to the linings, for the ſame purpoſe, being cloſed with earth when the ſeaſon becomes fine.

Mr. M'Phail further ſtates, that ſuch beds of dung, or of the leaves of trees as are formed in the winter ſeaſon for forcing aſparagus or lettuce, and in the ſpring for bringing forward at a more early period, than by the natural climate, plants of the cauliflower and lettuce kinds from ſeeds will be ſuitable for planting melons upon, at the latter end of May or beginning of the following month; as by theſe, and the aſſiſtance of linings of hot dung, heat enough is produced at this ſeaſon, to bring melons of the beſt quality to a ſtate of maturity. It is further ſuggeſted, that of whatever ſorts of materials the beds for this purpoſe be formed, the air which is afforded by them ſhould be perfectly ſweet, which in practice is readily known by the ſmell, but which is ſometimes difficult to produce, as when the materials of which the beds are formed are too moiſt, they become ſour by ſtagnation, and till that be removed, which often requires time, the plants will not have a proper growth; but beſides this, ſuch foul air has the tendency of producing various prejudicial inſects.

The ſame writer conceives, that in covering beds of theſe kinds, eight or ten inches in depth of earth or mould, are quite ſufficient for the roots of the plants to run in, as their roots do not naturally run deep, but ſpread out horizontally near the ſurface, eſpecially by the forcing heat of the beds.

But Mr. Nicol thinks that theſe beds in the early culture ſhould be turfed all over in a rather ſtronger manner than in thoſe of the cucumber, and be covered with a compoſt conſiſting of one half of ſtrong brown loam, a quarter light black loam, an eighth vegetable mould, and the ſame quantity of ſtable-dung.

The moſt proper ſeaſon for ſowing the ſeed for the very early crops, is about the middle of January; but the beginning of February is probably a better period: and ſowings ſhould be made twice in March for ſucceſſion crops. Theſe different ſowings ſhould be made on hot-beds, or in pots of light mould plunged in hot-beds prepared for the purpoſe, as in the cucumber; or the pots may be placed in ſuch old hot-beds of that ſort as are at work, the ſame care and management being employed in the raiſing and nurſing of the plants as in thoſe of the cucumber kind. Mr. M'Phail, however, either ſows them in the bed of earth where they are to remain and fruit without being tranſplanted, or in pots in a hot-bed to be afterwards tranſplanted, when the rudiment of the firſt rough leaf begins to appear, into ſmaller ſized pots to the number of two or three plants in each; being, when they have made two or three rough leaves planted out, where they are to produce fruit, about a foot from the glaſs, and the earth well preſſed round the ball.

As ſoon as the plants have attained five or ſix weeks growth, or have two or three rough leaves, and are beginning to ſend forth runners, they are in general in a proper ſtate for being planted or ridged out in the fruiting beds, which ſhould be prepared in the above manner, or as in thoſe for cucumber plants: and after being well moulded over, the pots of plants put in with the full balls of earth about their roots exactly in the ſame way as was practiſed for cucumbers, immediately placing the glaſſes over them. Where the beds are ſweet, Mr. M'Phail adviſes that the lights ſhould be kept ſhut down nearly cloſe from the time they are planted out till they have made good roots which is ſhewn by the ſhoots, in order to raiſe as great a heat as a warm lining and the ſun could afford, carefully covering in the nights when neceſſary, as is ſometimes the caſe in May and June.

After this, the plants ſhould have air admitted pretty freely, and be kept in a moderate ſtate of moiſture till they begin to ſhow fruit, great care being taken that the heat is not too great, and to keep the beds as free from ſteam as poſſible; but from that period until the fruit is fully ſet, and has begun to ſwell, the waterings ſhould be very ſparing, eſpecially when the ſeaſon is moiſt and rainy.

As the heat in the beds begins to decline, it ſhould be refreſhed by the application of linings, in the ſame manner as practiſed for cucumbers ; and the ſpaces between the hills of plants muſt be gradually filled up with mould nearly the ſame height.

And as the runners proceed in their growth, they ſhould be trained in a regular manner ; and when they have three joints length they muſt be ſtopped. Some, however, ſtop them before, when they firſt begin to put forth runners. By theſe ſtoppings, the vines are induced to throw out lateral runners which afford fruit. Mr. Nicol directs, that the vines that have fruit on them ſhould be ſhortened at the ſecond joint above it, and that ſuch as have none ſhould be trained regularly to the length of ſeven or eight joints, and then ſtopped, to induce them to put forth new vines, which moſtly ſhow fruit at the ſecond or third joint. It is of much importance in this ſtate of the plants to keep up a due degree of heat, as they not only ſet the fruit much better and more plentifully where it is the caſe, but continue their growth in a more perfect manner. The young fruit moſtly ſhows itſelf with numerous male bloſſoms ; theſe ſhould not be picked off as is ſometimes the practice, as their farina is neceſſary for fecundating the female flowers, which in the early crops may be performed in the manner directed for the cucumber. While the fruit is ſetting, air ſhould always be pretty freely admitted when the weather is ſuitable.

And when the fruit is perfectly ſet, water ſhould be given in larger proportions till it has done ſwelling and begins to become ripe, when it ſhould be very ſparingly employed ; as where given in too great abundance, the flower of the fruit is not only much impaired, but it is often burſt, and rendered leſs valuable by ſuch means.

It is alſo neceſſary, that in proportion as the melons increaſe in ſize, pieces of ſlate or tile ſhould be placed under each of them, as it not only prevents them being injured by the damp, but prevents their acquiring an earthy flavour. It is the practice with ſome to cover the whole ſurface with tiles, or ſome ſtrawy or other ſimilar ſubſtance, but this is not by any means judicious, as the firſt cauſes too much heat by the reflexion that is produced, and the latter not only confines the moiſture, but has a tendency to generate and harbour noxious inſects of different kinds.

With regard to the management of the vines, as the fruit approaches to the ſtate of maturity, they ſhould not be ſuffered to retain too many leaves, nor theſe permitted to ſhade it from the influence of the ſun. It is neceſſary to look over and examine them frequently, but never to prune them too greatly at one time, as where that is done the plants are apt to ſuſtain much injury by bleeding too much. Freſh air ſhould be continued to be admitted freely whenever the ſtate of the weather will allow of its being done with propriety.

This is a ſort of fruit which generally becomes ripe in the courſe of ſix or ſeven weeks from the time of its ſetting, and ſhould be cut as ſoon as ever it has obtained that ſtate, as when delayed much of the fineneſs of flavour is loſt. The ſigns of maturity are a ſort of cracking at the baſe about the ſtem, having a fine yellow colour, and affording a fine fragrant ſmell with a degree of ſoftneſs about the top. It ſhould be cut with a portion of the ſtem, and laid in a dry airy ſituation till wanted for uſe or ſale.

It has been obſerved by the author of the "Scotch Forcing Gardener," that many of the early ſown kinds are capable of "producing a ſecond crop, equal both in quantity and quality to the firſt." With this intention he adviſes, that after the firſt crop has been cut, the vines be "ſhortened back to the laſt live joint on each ; the beds being well watered, and protected from the effects of the midday ſun for eight or ten days, at which time the plants will begin to puſh forth afreſh, and ſhow fruit in plenty." We believe, however, that this practice is but ſeldom found to anſwer well.

Method of Culture under Hand or other Glaſſes. It is occaſionally the practice with gardeners to raiſe melon crops on ridges under hand, or other ſorts of glaſſes, eſpecially when the ſeaſon is fine and ſufficiently warm.

The ridges in theſe caſes muſt be formed with good prepared ſtable dung, in the ſame manner as practiſed in forming thoſe for cucumbers ; and alſo moulded or earthed into ſmall hillocks in the ſame way, only rather more earth ſhould be employed in the caſe of the melon. The plants may be raiſed in the ſeed or other beds, and be carefully nurſed in a ſimilar method, till they are in a proper ſtate of growth to be ſet out, which in this ſort of culture ſhould not be done till towards the middle or latter end of May, according to the ſtate of the ſeaſon, and the nature of the climate.

The plants ſhould be turned out of the pots, and ſet or ridged out, one on each hillock, in the ſame way as thoſe of the cucumber kind ; ſhade and a ſlight watering being given at the time, and the glaſſes immediately put over them.

And after being thus planted out, the ſame care and management are neceſſary as in the other crops, in reſpect to air, water, covering in the nights, and bad weather, training and ſtopping the plants, as well as in moulding up the ſpaces between the hills, and the application of linings when required. As ſoon as the vines begin to fill the glaſſes, they ſhould be trained on the outſide of them, the glaſſes being raiſed upon blocks, but ſtill left upon the plants protecting the vine on the outſide as much as poſſible from wet, when the ſeaſon is bad and rainy.

And the ſame directions are applicable after the ſetting of the fruit, until it becomes in a ſtate proper for cutting, as in the frame crops or thoſe in pits.

Method of Culture in flued Pits.—This is a method which, as has been already remarked, is principally made uſe of for raiſing late crops of this ſort of fruit, but is capable of being made uſe of in the early crops likewiſe. It is practiſed and recommended both by Mr. Nicol and Mr. M'Phail.

The plants for this purpoſe may be raiſed in hot-beds, or under hand or other glaſſes, until they are of a ſuitable growth to be planted in the pits, which is as deſcribed above.

It is ſufficiently early, in general, to commence this ſort of culture about the middle or latter end of June, as at this period but little bottom heat will be wanted ; and the old beds that have produced other crops may be converted to this uſe. The Scotch Forcing Gardener directs that one-third new be mixed with the old tan or dung in order to renew the heat, levelling the whole to the bottom of the flues quite round. Turfing is conſidered by him as unneceſſary, but mould ſhould be applied to the thickneſs of about fifteen inches, ſo as to raiſe the whole ſurface to the height of the tops of the flues.

And when the beds are thus prepared, the plants ſhould be put in, in a line along the middle of them in the pits, at the diſtance of about two feet from each other, care being taken to keep their roots as much as poſſible from reaching the tan or bark. See Bark-*pit*.

In this way in their after-management, the plants require the ſame care according to the ſeaſon, both in regard to air, water, training, ſtopping, and impregnating, as has been directed for the crops in the frames and other methods.

But towards the latter end of Auguſt or beginning of the following month, when the heat of the beds in the pits begins to be deficient, and there is much moiſture and cold, it will moſtly be requiſite to have recourſe to the aid of fire heat, in order to fully maturate ſuch fruit as is not already thoroughly ripened. The fires ſhould, however, at firſt be ſlow, and only made in the evenings; but afterwards increaſed, as the ſeverity of the ſeaſon demands, ſo as that it may raiſe the heat of the air in the pits to about 70 degrees of Fahrenheit's thermometer, in the evenings and mornings, about eight o'clock. Mr. Nicol, indeed, directs, that in order to admit air ſufficiently, and keep up a proper degree of heat in dull hazy weather, a little fire ſhould be made in the mornings; and that as the growth of the plants is now over, water ſhould be made uſe of with much caution, being wholly diſcontinued as ſoon as the fruit has attained its full growth and perfection.

In reſpect to the ſeed employed in the culture of this ſort of fruit, it ſhould be ſuch as is taken from the beſt plants of the moſt curious varieties, and which has been perfectly ripened, and preſerved for one or more years in ſome dry place, as new ſeed ſeldom anſwers well in the cultivation of this ſort of fruit.

There are many inſects which do great damage to theſe plants. The *acarus*, or *red ſpider*, is one that frequently does much injury to the melon, when the ſeaſon is dry and there is a dry heat in the beds. Its attacks are ſhewn long before it becomes viſible, according to Mr. Forſyth, by the "leaves curling and cracking in the middle."

And as a remedy in this ſituation, he adviſes, when the weather is warm and ſunny, the watering them all over the leaves from a watering-pot with the roſe upon it, or an engine, about ſix o'clock in the morning, and about eight to ſhade them with mats, when the ſun ſhines, ſhutting the frames down cloſe till towards eleven, then to admit air in a ſmall proportion, continuing the mats till about three in the afternoon, and then removing them. In this way the leaves are prevented from injury by the ſun while wet. And when there is a ſouth or ſouth-weſt wind, the waterings may be repeated about three in the afternoon, ſhutting up the frames to produce a ſtrong exhalation, and deſtroy the inſects. In the operation, as much water as poſſible ſhould be thrown on the underſide of the leaves, gently turning the vines for the purpoſe. The lights and ſides of the boxes ſhould likewiſe be well watered; and before the frames are made uſe of again they ſhould be well waſhed inſide and out, firſt with water, and then ſoap-ſuds and urine in a ſtate of mixture. Where melons have been infeſted with the ſpider the preceding ſeaſon, none of the earth or mould ſhould be made uſe of again, as it may do much injury.

In the buſineſs of ſprinkling the leaves, water that has been ſeveral days expoſed to the ſun, or made ſoft by wood-aſhes, ſhould be employed if poſſible.

But the author of the Scoth Forcing Gardener obſerves, that water at ſome periods cannot be thus applied without much injury to the plants, and that the leaves and vines are ſo brittle and tender, that they cannot be bruſhed or touched without harm being done. It is of courſe obvious, that much care and circumſpection is neceſſary in extirpating theſe inſects by the uſe of water. Mr. M'Phail, after ſuggeſting that the plants ſhould "be duly attended to in giving them plenty of heat and water," adds that, "late in the ſpring, and in the ſummer months, they ſhould be occaſionally watered all over their leaves, till the earth in which the roots of the plants grow, be perfectly ſoaked, and then the frames ſhut down with a great heat in them." This he conſiders as only imitating and aſſiſting nature, as in his method, by means of pits, there is nothing to obſtruct the ſuperabundant water, as it oozes through the beds freely. He further ſuggeſts that "in hot dry weather the plants ſhould be ſprinkled frequently with clean water about four o'clock, and the lights ſhut down immediately for the night."

CUCUMIS *capparis*, in the *Botanical Writings* of the Arabians, a name given by Avicenna, and others, to the plant which produced the fruit called bel. This fruit was like the capers in ſhape, and had a hard ſhell over its kernel, like that of a hazel-nut. Such is the deſcription they give of it, and of the fel and ſel, two other fruits as like it in ſhape, and other reſpects, as in virtue.

CUCUPHA, an ancient form of *Medicine*; being a cap, or cover for the head, with cephalic powders quilted in it; worn in many nervous diſtempers, and particularly ſuch as more immediately affect the head: as againſt catarrhs, defluxions, &c. It is now much out of uſe.

CUCURBIT, CUCURBITA, in *Chemiſtry*; an earthen, or glaſs veſſel, called alſo body; of the figure of a gourd, or a pear; wherein are put the matters to be diſtilled.

It is ſometimes alſo made of tin, and ſometimes of braſs, tinned. When a diſtillation is to be made, they fit on to it a glaſs head with an aperture, and a neck proportional. Thus fitted, it is called an *alembic*; which ſee.

CUCURBITA, in *Botany*, (ſo called, according to Scaliger, from the curvature of the fruit.) Linn. gen. 1091. Schreb. 1478. Willd. 1740. Gært. 554. Juſſ. 396. Vent. 3. 516. Claſs and order, *monœcia ſyngeneſia*; Linn. *Monœcia monadelphia*; Willd. Nat. Ord. *Cucurbitaceæ*, Linn. Juſſ.

Gen. Ch. Male flowers. *Cal.* Perianth one-leafed, bell-ſhaped, the margin terminated by five awl-ſhaped teeth. *Cor.* monopetalous, adnate to the calyx, ſomewhat bell-ſhaped, five-parted; ſegments veiny-wrinkled. *Nectary* a ſmall concave triangular gland in the centre of the flower. *Stam.* Filaments united, in three ſets, adnate to the calyx; anthers five, ſerpentine upwards and downwards, linear. Females. *Cal.* Perianth as in the male, ſuperior, deciduous. *Cor.* as in the male. Nectariferous gland concave, ſpreading. *Stam.* Filaments barren, very ſhort, united into a ſlender ring at the baſe. *Piſt.* Germ large, inferior; ſtyle conical, ſhort, trifid (quinquefid; Gært.) ſtigmas dilated, turned outwards in a zig-zag manner. *Peric.* Pome (Berry; Gært. Vent. Smith.) generally three-celled; partitions membranous, ſoft, diſtinct. *Seeds* numerous, compreſſed, with a tumid border, obtuſe, placed in a double row.

Eſſ. Ch. Calyx five-toothed. Corolla five-parted. Filaments in three ſets. Piſtil three-cleft. Seeds with a tumid border.

This genus includes four of Tournefort, cucurbita, pepo, melopepo, and anguria.

Sp. 1. C. *lagenaria*. Bottle gourd, or calebaſh. Linn. Sp. Pl. 1. Mart. 1. Willd. 1. "Leaves heart-ſhaped, ſomewhat angular, tomentous, with two glands underneath at the baſe; pomes woody." A native of moiſt ground in America. 2. C. *idololatrica*. Willd. 2. "Leaves heart-ſhaped, cuſpidate, generally obſoletely three-lobed, pubeſcent, with two glands at the baſe; pomes pear-ſhaped." A native of Guinea. 3. C. *ſiceraria*. Willd. 3. Molina Chil. ed. germ. 316. "Leaves angular, ſomewhat lobed, tomentous; pomes woody, globular." A native of Chili. 4. C. *aurantia*. Willd. 4. "Leaves ſomewhat heart-ſhaped, generally three-lobed, cuſpidate, ſharply and finely toothed, ſcabrous; pomes globular, even-ſurfaced." 5. C. *ovifera*. Linn. Mant. 126. Mart. 3. Willd. 5. "Leaves lobed;

ſobed; pomes inverſely egg-ſhaped; tendrils with ſeven digitated diviſions." Linn. "Leaves heart-ſhaped, angular, five-lobed, finely toothed, pubeſcent; pomes inverſely egg-ſhaped, marked longitudinally with linear ſtripes." A native of the country about Aſtrachan. 6. C. *umbellata.* Willd. 6. "Leaves heart-ſhaped, angular, five-lobed, finely toothed, ſcabrous; male flowers umbelled; pomes tomentous." A native of the Eaſt Indies. 7. C. *hiſpida.* Mart. 2. Willd. 7. Thunb. Fl. jap. 322. "Leaves angular; ſtem and petioles hiſpid." A native of the Eaſt Indies and Japan. 8. C. *pepo.* Pompion or pumpkin. Linn. Sp. Pl. 2. Mart. 4. Willd. 8. "Leaves lobed; pomes even-ſurfaced." Linn. "Leaves heart-ſhaped, obtuſe, ſomewhat five-lobed, finely toothed; pomes roundiſh or oblong, even-ſurfaced." Willd. A native of the Eaſt Indies, Cochinchina, and China. 9. C. *verrucoſa.* Linn. Sp. Pl. 3. Mart. 5. Willd. 9. "Leaves lobed; pomes knobby-warted." Linn. "Leaves heart-ſhaped, deeply five-lobed, middle lobe narrowed at the baſe, finely toothed; pomes roundiſh-elliptical, warted." Willd. 10. C. *ſubverrucoſa.* Willd. 10. "Leaves heart-ſhaped, deeply five-lobed, middle lobe narrowed at the baſe, finely toothed; pomes club-ſhaped-elliptical, ſomewhat warted." 11. C. *melopepo.* Squaſh. Linn. Sp. Pl. 4. Mart. 6. Willd. 11. "Leaves heart-ſhaped, obtuſe, generally five-lobed, finely toothed; pomes with depreſſed knobs tumid at the edge." 12. C. *citrullus.* Water melon. Linn. Sp. Pl. 5. Mart. 7. Willd. 12. "Leaves many-parted." Linn. "Leaves five-lobed; lobes ſinuate-pinnatifid obtuſe; pomes elliptical, even-ſurfaced." Willd. A native of the ſouth of Italy and Sicily. 13. C. *mammeata.* Willd. 13. Molina Chil. 316. "Leaves many-parted; pomes ſpheroidical, with paplike elevations." A native of Chili.

This genus is very nearly allied to cucumis, being diſtinguiſhed from it chiefly by the tumid border of the ſeeds. Its ſpecies, like thoſe of cucumis, are annual, with herbaceous ſtems, furniſhed with tendrils, and, according to circumſtances, either procumbent or climbing. Like all other plants which have been long cultivated in different climates; it has branched out into innumerable varieties, which are the glory of the horticulturiſt; but generally prove a provoking ſtumbling block in the way of the ſyſtematic botaniſt, and often baffle his moſt laborious reſearches.

Ducheſne, a French naturaliſt, in a courſe of ſeveral years, made numerous experiments on the plants of this genus with a view to determine which are really diſtinct ſpecies and which are merely varieties. The reſult of his labours was a conviction that there are three original races which do not naturally propagate with each other, and from no two of which a croſs breed can be artificially produced. La Marck has adopted his general ideas, and has publiſhed them, with a few alterations, in the Encyclopedie Methodique. He is of opinion that there are four original ſpecies. As this arrangement has not appeared in our language, we ſhall lay it before our readers, though much abridged, to bring it within our proper limits, and ſhall retain the French names when correſponding Engliſh ones do not occur.

I. The calebaſh, or white-flowered gourd. Cucurbita leucantha; Ducheſne. C. lagenaria; Linn. "Corollas widely ſpreading, ſomewhat ſtellated; ſeeds truncate-emarginate at the tip." Lam. *Leaves* almoſt round, pale green, ſoft, woolly, ſlightly viſcid and odorous, with two ſmall conical glands underneath near the inſertion of the petiole. *Flowers* white, almoſt wheel-ſhaped. *Fruit,* at firſt, pale green; when fully ripe, dull yellow, varying greatly in form and ſize; fleſh ſpongy, very white. *Seed* with a border not entirely ſurrounding it, but forming a kind of appendicles at its ſides, giving it a ſquare, not an oval form. The varieties of this original ſpecies may be reduced to three principal families. 1. The *cougourde,* or *proper bottle-gourd.* C. lagenaria; J. Bauh. 2. 216. Tourn. 107. C. lagenaria; flore albo, folio molli; Bauh. Pin. 313. Moriſ. Hiſt. 2. 23. § 1. tab. 5. fig. 1. C. prior; Dod. Pempt. 648. This variety is diſtinguiſhed by the form of the fruit, having, next the peduncle, a long tail, like the neck of a bottle, which, in one ſub-variety, is ſwollen near the bottom, and joined, by a contraction, to the upper part of the fruit. 2. The *proper gourd.* C. latior, folio molli, flore albo; J. Bauh. 2. 215. C. major ſeſſilis, flore albo; Bauh. Pin. 312. C. latior; Dod. Pempt. 669. Moriſ. § 1. tab. 5. fig. 2. *Fruit* large, tumid, with a hard ſhell. The young negroes fix one of the dried fruits under each of their arms, to aſſiſt them in ſupporting themſelves, when they are learning to ſwim. It is from a reſemblance in the form of the fruit, and the purpoſes to which it is applied, that the Weſt Indians have called the creſcentia of Linnæus the calabaſh-tree. (See Crescentia.) Hence alſo the cucurbits of the chemiſts are ſaid to have received their name. 3. The *trumpet,* or *long gourd.* C. longa, folio molli, flore albo; J. Bauh. 2. 214. Rai. Hiſt. 638. Moriſ. Hiſt. 2. 24. § 1. tab. 5. fig. 3. Rumph. Amb. 5. 397. tab. 144. C. longior; Dod. Pempt. 669 and 707. C. americana teres & bicubitalis; Tourn. 107. The great length which the fruit of this variety ſometimes acquires, depends, in a conſiderable degree, on its poſition. When it lies on the ground, it is often curved in the ſhape of a creſcent, and ſometimes becomes tumid at both ends, like a piſtil. It differs alſo much in ſize. The thickeſt have the tendereſt rind, and the moſt fleſhy pulp. They are eaten in America, and in the South of Europe. The laſt two varieties differ chiefly in ſize, and are united by ſeveral intermediate ones. They are conſidered by Sauvages as properly one, diſtinguiſhed from the firſt by having toothed, not entire leaves.

The firſt variety is ſaid by Haſſelquiſt to grow in all parts of Egypt, and in Arabia, wherever the mountains are covered with a rich ſoil. The poor people eat it boiled with vinegar; or fill the ſhell with rice and meat, making it into a kind of pudding. The rind of all three, eſpecially of the firſt, is hard, and almoſt woody, when dry, and is made into drinking cups, bottles, and other domeſtic utenſils, for the uſe of the lower ranks of people. This ſpecies appears to be a native of Aſia, Africa, and America; and it is only ſince the diſcovery of the latter, that many of its numerous varieties have been obtained.

II. The potiron, or large-fruited gourd. C. maxima; Ducheſne. Melopepo fructu maximo albo; Tourn. 106. C. aſpera, folio non fiſſo, fructu maximo albo ſeſſili; J. Bauh. 2. 221. Pepo maximus indicus compreſſus; Lob. Ic. 641. Pepo compreſſus major; Bauh. Pin. 311. Rai. Hiſt. 642. Cucurbita pepo α; Linn.? "Flowers bell-ſhaped, broadiſh internally at the baſe; border reflexed; fruit round, compreſſed." Lam. Ducheſne doubts whether this be really an original ſpecies. Sauvages, the firſt botaniſt who called it potiron, pronounces it diſtinct from the next, and characteriſes its fruit in conciſe but lively terms, as a ſphere with compreſſed poles, and furrowed meridians, well delineated in Tournefort's figure, tab. 34. La Marck agrees with him, and obſerves, that it differs from the following in the form of the flowers, in its roundiſh heart-ſhaped leaves, on nearly horizontal petioles, and in the greater ſtrength and ſize of all its parts. The fruit, in particular, is ſometimes not leſs than thirty pounds in weight;

with a fine rind, and a firm but juicy melting fleſh. La Marck obſerves, that its enormous ſize is probably the effect of cultivation. It was not known before the ſixteenth century, and no account of its origin has been preſerved, a circumſtance which ſeems to us to ſtrengthen the doubt, with reſpect to its being an original ſpecies. There are three principal varieties: the common yellow, with a fine yellow fleſh, which is the largeſt; the large green, with an orange-red fleſh; and the ſmall green, which is much eſteemed on account of its continuing in a ſtate fit for eating longer than the other kinds.

III. The pepo, or pumpkin gourd. C. pepo; Ducheſ. C. ovifera, C. pepo β, C. verrucoſa, and C. melo-pepo; Linn. "Flowers bell-ſhaped, narrowed within at the baſe; border erect." This ſpecies, like the preceding, has bell-ſhaped yellow-flowers; but its corolla is narrowed at the baſe, ſo as to be almoſt funnel-ſhaped, and its border is always erect. Both have whitiſh elliptical, not truncated or emarginate ſeeds. The preſent may be divided into two principal families. 1. The *melon gourd*, or *muſk gourd*. This family is rather of an ambiguous nature, and has been little noticed by botaniſts. The oval form of its ſeeds, the ſize, ſhape, and colour of its flowers, the angular figure of its leaves, and the diſpoſition of its branches, pronounce it a gourd: but its ſoft woolly leaves, its pale-coloured and nearly wheel-ſhaped flowers, the long green points of its calyx, and the muſky taſte of its fruit, indicate its alliance to the calabaſhes. In the French Weſt India iſlands it is called citrouille melonnée, and is cultivated in the ſouth of France and Italy, under the name of citrouille muſquée. Like the next family, it has numerous varieties, diſtinguiſhed by the ſhape and colour of the fruit, as it is either flattened at the ends, ſpherical, oval, cylindrical, or piſtil-ſhaped, is greater or leſs in ſize, and more or leſs ribbed; is of a deeper or paler green on the outſide, and has its flowers varying from a very pale yellow to a deep orange. 2. The *polymorphous gourd*. The common character of this family depends on the ſize and regularly conical ſhape of its flowers, the oblique, or almoſt erect, never-horizontal direction of its leaves, and their brown colour and roughneſs, reſulting partly from the dryneſs and brittleneſs of their ſurface, though their nerves and veins are very ſucculent; and partly from their hairs, which are ſtiff and tumid at the baſe. In all other reſpects it is variable, without end. It may, however, be divided into five ſubordinate families; α the falſe oranges and falſe coliquints. C. polymorpha colocyntha; Ducheſ. Pepo rotundus aurantii forma; Bauh. Pin. 311. C. minima lutea amara; J. Bauh. 2. 231. Cucurbitula pilâ palmariâ non multo major rotunda; J. Bauh. 2. 218. Pepo fructu minimo ſphærico; Tourn. 105. C. magnitudine aurantii; J. Bauh. 2. 226, &c. Colocynthis pomiformis cortice maculato; Bauh. Pin. 314. This family, of which the falſe oranges may be conſidered as the principal, and the falſe coloquints as a variety, is, from the following characters, ſuppoſed by Ducheſne and La Marck to approach neareſt to the primitive ſtate of the gourd. *Leaves* about the length of the petiole, moderately cut. *Male and female flowers* equally diſtributed over the whole plant, making it very fertile. *Fruit* ſpherical, with a diameter only double that of the flower, regularly three-celled; rind forming a rather ſolid ſhell, at firſt dark green, at length of a lively orange; fleſh yellowiſh, fibrous, bitteriſh, ſoon becoming dry, and then acquiring ſomewhat of a muſky flavour. *Seeds* very numerous, rather large. β. The coucourdette, falſe pears, or milky coloquints. C. polymorpha pyridaris; Ducheſ. Colocynthis pyriformis, ſive pepo amarus; Bauh. Pin. 313, and C. oblonga; Bauh. Pin. 313. Tourn. 108. C. ſive colocynthis amara pyriformis variegata et oblonga viridis et parva alba; J. Bauh. 2. 230. 229. C. ovifera; Linn. Mant. 126. This diviſion is very conſtant in its principal characters; and though it has many varieties, they diverge from each other very little, ſo that it almoſt ſeems to claim the rank of an original ſpecies. Its leaves are rather more cut, and it is altogether commonly more ſlender than the preceding. Its flowers are the ſmalleſt in the whole genus; its ſeeds are ſmall, and very much elongated; its fruit alſo is ſmall, often pear-ſhaped, or at leaſt egg-ſhaped; the rind generally browniſh-green, marked with milk-white bands and ſpots; the fleſh very white, at firſt moiſt, afterwards fibrous and friable. γ. The barbarine. C. verrucoſa; Bauh. Pin. J. Bauh. Linn. Melopepo verrucoſus; Tourn. C. Turbinatæ majores albæ, & variegati coloris; J. B. The fruit of this diviſion is diſtinguiſhed by the remarkable warts or tumours on its ſurface; it is ſometimes about the ſize of an orange, but in moſt of its varieties larger; its ſhell hard and woody, generally entirely yellow or ſpotted, but ſometimes marked with green bands. δ. The giramous and citronilles. Oblong-fruited cucurbita. Pepo oblonga; Bauh. pin. 311. Tourn. 105. C. foliis aſperis ſive Zuccha; J. Bauh. 2. 218. C. pepo β. Linn. Pepo vulgaris, Rai. hiſt. 639. Pepo virginianus; Bauh. pin. 311. Macocks virginiani; Rai. hiſt. 641. This diviſion takes its chief character from its oblong fruit. The giramous are diſtinguiſhed from the citronilles by their fleſh, which is commonly paler, and always of a finer texture; and by their leaves, which are generally more deeply cut, thoſe of the latter being often only angular; but their moſt ſtriking difference is in the ſize and colour of the fruit; which in the former is often very large, and generally of a dark green colour; in the latter ſmall, pale green, yellow, or even white. There are, however, intermediate varieties which bring them together. One of theſe has long been known in the ſouth of Europe by the name of Malta or Barbary cucumbers. ε. The Patiſſon, or ſquaſh, melopepo clypeiformis; Bauh. pin. 312. Tourn. 106. Lob. ic. 643. C. melopepo; Linn. C. clypeiformis ſive ſiciliana; J. Bauh. 2. 224. Alſo C. clypeatæ & affines omnes, J. Bauh. &c. The plants of this diviſion affect a kind of contraction in all their parts, an hereditary malady, which has been continued more or leſs ſtrongly marked through ſeveral ages, and may always be reproduced at pleaſure by ſowing the ſeeds of the moſt deformed plants. The ſtems and branches are peculiarly ſtiff and ſtrong, in conſequence of their knots being placed near together; hence inſtead of extending themſelves eaſily along the ſurface of the ground, they riſe abruptly on one ſide or the other, ſometimes almoſt perpendicularly, and do not touch the earth till they are weighed down by the increaſing heavineſs of their fruit. The ſmall flowers have, in conſequence, peduncles more than double the uſual length, without which they would not find room to expand; the petioles alſo are ſimilarly lengthened, and not being able to ſupport the leaves, are ſeveral times curved, as if they were about to become twining. The ſtems, it is obſerved by Linnæus, are furniſhed with tendrils, though they are neither climbing nor procumbent; but Loureiro aſſerts that in China and Cochinchina they always climb, whenever they meet with any proper ſupport. The fruit has a fine rind, like that of the falſe coloquints, but generally ſofter with firmer, white, and rather dry fleſh. It is generally four or five-celled, and varies much in its form, being ſometimes round, ſometimes pear-ſhaped, and frequently appearing as if it was ſqueezed in by the nerves of the calyx; its fleſh ſwells into various protuberances, which ſometimes form ten longitudinal ribs, and ſometimes ſurround either its apex or its baſe; ſometimes it is contracted in the middle, and ſuddenly expands into a large head, like that of a young muſhroom; ſometimes it is entirely flattened like a buckler, and either regularly or more frequently irregularly plaited. The ſeeds are ſhort and roundiſh, with an uneven ſurface. This variety is common to both hemiſpheres, and is much cultivated in the warmer climates, as a wholeſome eſculent. The fruit is commonly gathered in America when half grown, and eaten boiled as a ſauce to meat. It is of great uſe in long voyages, as it may be kept for ſeveral months freſh and ſweet.

IV. The paſteque and water melon. C. anguria; Duches. C. citrullus; Linn. Anguria citrullus dicta; Bauh. pin. 312. Tourn. 106. Citrullus folio colocynthidis ſecto; J. Bauh. 2. 235. Anguria indica; Rumph. amb. 5. 400. tab. 146. fig. 1. Citrullus officinarum; Lob. ic. 640. Jacé ſive anguria, Piſ. Braſ. 263. "Corollas ſomewhat wheel-ſhaped; ſeeds coloured; leaves laciniated." Lam. The deeply divided leaves of this ſpecies are ſtated by Linnæus and other botaniſts to be its peculiar character. This, however, is not perfectly correct; ſome of the varieties of the gourd having their leaves almoſt, if not quite as much laciniated. But thoſe of the water melon may always be diſtinguiſhed by the firmneſs and brittleneſs of their ſubſtance, and their much more nearly vertical direction. The corolla is leſs ſpreading than that of the calabaſhes; and ſmaller, leſs bell-ſhaped, more deeply cut, and of a paler yellow than that of the gourds. The fruit is roundiſh or oblong, with a fine, thin, even rind, remarkable for its ſpots, ſtellated like thoſe of the ſea urchin, not parallelogram, as in the gourds. The ſeeds are conſtantly of a deeper colour than the fleſh; while in the three other ſpecies they are always much paler. Ducheſne mentions three principal varieties, α, with firm fleſh, β, with reddiſh fleſh, γ, with whitiſh fleſh. The firſt is particularly diſtinguiſhed in the ſouth of France by the name of paſteque, and is eaten only in fricaſſees, or baked with ſweet wine, like Burgundy pears. The two latter are the true water melons, ſo much eſteemed in all hot countries for their pleaſant, cool, refreſhing fleſh, which is always of a deep colour, and ſo ſucculent that it melts in the mouth; the central pulp is ſo fluid, that, like the milk of the cocoa nut, it may be ſucked or poured out through a hole in the rind, and affords an agreeable beverage; but this muſt be done when the fruit is firſt gathered, otherwiſe it will ſoon decay; the fruit is therefore generally brought to the market with the hole plugged up. It is a native of the Eaſt Indies, Cochinchina, and China, and is mentioned by Marcgrave as growing in Brazil, but may have been brought thither by the Portugueſe. On account of its excellent qualities, it is much cultivated in all the warmer countries of the four quarters of the globe, and is ſaid by Haſſelquiſt to ſerve the Egyptians for meat, drink, and phyſic, as long as it continues in ſeaſon, which is from the beginning of May to the end of July, or the beginning of Auguſt.

Propagation and Culture.—The calabaſhes and the gourds may be propagated by ſowing their ſeeds on a hot-bed in April. When the plants are ſprung up, they ſhould be tranſplanted into another moderate hot-bed, where they ſhould have a great deal of air, and be treated hardily; as ſoon as they have got four or five leaves, they may be tranſplanted into holes made in an old dunghill, and be allowed a good deal of room to ſpread. They are ſometimes for the ſake of ornament faſtened to walls, pales, or hedges; and ſometimes trained over harbours, which they ſoon entirely cover, affording a pleaſant ſhade. The orange-ſhaped gourd is generally preferred for this purpoſe, on account of its handſome fruit. None of the kinds are cultivated in this country as eſculents. The calabaſhes are more tender than the gourds, and require a more careful treatment; but if covered with hand-glaſſes when young, they will flower and fruit in the open air. The water melons may be raiſed in the ſame manner, and on the ſame beds with melons and early cucumbers, only they muſt have more room, and muſt be conſtantly kept in a good heat, with a free admiſſion of air in favourable weather. The beſt ſorts to cultivate in our climate are thoſe with ſmall round fruit, which come from Aſtrachan; for thoſe with large fruit ſcarcely ever ripen: but in the beſt ſtate to which they can be brought here, they are not much eſteemed, and are very ſeldom raiſed.

CUCURBITA *ſinenſis, fructu longo anguino vario, flore candido*; Till. Sabbat. See TRICHOSANTHES *Anguina*.

CUCURBITA, in *Gardening*, compriſes plants of the trailing herbaceous annual kind; of which the ſpecies principally cultivated are, the bottle, or long gourd, (C. *lagenaria*;) the pompion, or pompkin gourd, (C. *pepo*;) the warted gourd, (C. *verrucoſa*;) the ſquaſh gourd, (*C. melopepo*;) and the water melon, (C. *citrullus*.)

The firſt ſpecies has a thick, trailing, downy ſtem, branching into numerous ſpreading runners, extending along the ſurface of the ground, fifteen or twenty feet in length. The leaves are large, roundiſh, heart-ſhaped, and woolly; the flowers large and white, ſucceeded by whitiſh-yellow fruit, ſhaped ſimilar to a bottle, having a large roundiſh belly, and ſmooth neck, two or more feet in length, and from nine to eighteen inches or more round, with a ligneous durable ſhell.

In the ſecond ſpecies the ſtem is thick, angular, extremely hiſpid, branched, climbing by means of bifid tendrils, or extending to the diſtance of forty feet. The leaves cordate, large, roundiſh angular toothed, wrinkled and hairy on both ſides. The flowers are of a yellow colour; and the fruit roundiſh, ovate-globular, or oblong-ovate, being pale green on the outſide, having within a ſpongy inſipid white pulp or fleſh. Its ſeaſon of flowering is from June to Auguſt.

The ſtalks in the third ſpecies are trailing, very branchy and ſpreading, running on the ground as in the laſt ſort; the leaves are large and lobated, and the flowers yellow, being ſucceeded by fruit of a roundiſh, knobby, warted appearance, white, and of a middling ſize.

In the fourth ſpecies the ſtem is roundiſh, hairy, procumbent, or climbing. The leaves lobed-angular, and the flowers yellow: the fruit large, reddiſh-yellow, or yellowiſh-white both within and without, moſtly roundiſh, but often flat at both top and bottom, conſtantly toruloſe, but rarely warted. It is common in North America.

The ſtem in the fifth ſpecies is round and ſtriated, long, branched, and hairy; the flowers are yellow; and the fruit large, ſmooth, round, or oblong, a foot and a half in length, within watery, ſweet, very red or pale. It is a native of South America.

There are numerous varieties in all theſe different ſpecies.

In the firſt ſpecies the chief of theſe are, the common long-fruited, the long protuberant-bellied, the long ſickle-ſhaped, the long-taper, and the long-turbinated bottle-gourd.

Of the ſecond ſort there are ſeveral varieties, as the common large round-fruited yellow, the oval yellow, the oblong yellow, the whitiſh-fruited, the ſtone-coloured, the fleſh-coloured, the parti-coloured, the marbled ſmall round, the orange-ſhaped, the pear-ſhaped, the turbinated, the hemiſpherical or ſemi-globular, the egg-ſhaped, the ſtriped roundiſh, the ſtriped egg-ſhaped, the ſtriped turbinated, and the ſtriped pear-ſhaped pompion, &c.

Of the third kind the principal varieties are, the roundiſh-warted, the oblong-warted, the flat-warted, the bottle-ſhaped-warted, the orange-ſhaped-warted, the lemon-warted, and the yellow-fruited.

Of the fourth ſort the varieties are, the common broad flat, the buckler-ſhaped, the conical citron-ſhaped, the flat-ſided, the turbinated, the hemiſpherical, the depreſſed, the ſtar-ſhaped, the white-ſtriped, and the yellow-ſtriped ſquaſh-gourd.

And of the fifth ſpecies the chief varieties are, the large round red fleſhed, the large round white fleſhed, the large oblong, and the ſmall round water melon.

Method of Culture.—In the manner of raiſing of moſt of theſe plants, as well as in that of their after culture, the aid of artificial heat and ſhelter is generally requiſite, eſpecially when to be forward at an early period.

Method of Culture in the Gourd kind.—This is always effected by ſowing the ſeed annually, either on ſlight hot-beds, or in the open ground, in the ſpring months; but the former is probably the beſt mode, as the plants are more early. In the firſt method, it ſhould be performed about the latter end of March, or the middle of April; and when the plants have attained a pretty ſtrong growth, and been hardened by the free admiſſion of air, they ſhould be carefully removed into the ſituations where they are to remain in the open ground with balls of earth about their roots, as unleſs this be done they do not ſucceed ſo perfectly.

In the latter mode of raiſing the plants, the ſeed may be ſown in the natural ground where the plants are to remain, about the middle of May; open ſunny ſituations being provided for the purpoſe. The mould ſhould be made fine, and the ſeed put in to the depth of about half an inch, three or four ſeeds in a place being ſufficient.

Some gardeners properly adviſe the putting in a little dung in the ſituations where the ſeeds are to be ſown, in order to forward the plants, and when they come up, to protect them by hand-glaſſes. This is particularly uſeful for the more tender kinds, and, in all the ſorts, renders them conſiderably more forward.

When the plants are of ſome conſiderable growth, they ſhould be thinned out to one or two good plants, and be plentifully ſupplied with water when the ſeaſon is hot and dry, eſpecially after they have begun to run or ſpread; as by this management they will extend very conſiderably, and grow with much greater vigour.

Where any of the ſorts are cultivated for the purpoſe of ornament, they ſhould be trained to ſtrong ſtakes in order to ſhow their flowers more fully, and appear more ornamental.

The ſeed ſhould always be ſaved from the beſt and moſt perfectly ripened fruit of the different kinds, being carefully freed from the pulp, and preſerved in a dry ſituation till the period at which it is wanted.

Method of Culture in the Water Melon kind.—The uſual mode of culture in theſe plants, is by ſowing the ſeed annually about the latter end of February or beginning of the following month, on pretty ſubſtantial hot-beds, keeping them protected by the glaſſes when the weather is bad; after the plants have attained a little growth, they ſhould be pricked out into ſmall pots, two plants in each, being replunged in the hot-bed. When they begin to throw out runners, they ſhould be removed into the fruiting hot-bed in the ſame manner as practiſed for cucumbers and melons, only one pot of plants being employed for a two or three light frame; the beds being previouſly earthed over, and hillocks raiſed to the height of twelve or fifteen inches in order to receive them.

The neceſſary after-management in regard to ſtopping the plants, the admiſſion of air, the giving of water, covering the glaſſes in the nights, and keeping up the heat in the beds by linings, muſt be regulated in the ſame manner as for the melon. The ſpaces between the hills ſhould be gradually earthed up, and the vines be trained ſo as to fill the frames without croſſing, or being too much crowded. When the vines begin to ſhew and ſet fruit, the heat ſhould be well ſupported and kept up, that they may be ſo brought forward as to ripen in due time. When the fruit has attained the ſtate of maturity, it turns rather yellow, and becomes ſomewhat ſoft at the top, as in that of the melon.

In the cultivation and management of all the ſorts and varieties of theſe plants, where the object is the fruit, ſuch ſeed as has been kept ſome years ſhould conſtantly be employed, as new ſeed is apt to grow too luxuriantly, and the vines of courſe afford but a very ſcanty ſupply.

CUCURBITACEÆ, in *Botany*, the forty-fifth natural order in the Philoſophia Botanica of Linnæus, and the thirty-fourth in the Poſthumous Prælections publiſhed by Giſeke. In the Philoſophia Botanica it contains the following genera: paſſiflora, feuillea, momordica, trichoſanthes, cucumis, cucurbita, bryonia, ſicyos, melothria, gronovia? In the Prælections, anguria and elaterium are added, and the whole placed in the following ſucceſſion; gronovia, anguria, elaterium, ſicyos, melothria, bryonia, cucurbita, cucumis, trichoſanthes, momordica, feuillea, paſſiflora. In this order there are no proper trees, but ſome have a perennial, woody, climbing ſtem; in others the ſtem is herbaceous, but the root perennial; the reſt are annual. The leaves in all are alternate and ſimple. The ſtipules always at the origin of the leaves. The glands are generally on the petioles, or at the baſe of the leaves, or in the leaf itſelf. All have tendrils by which they climb whenever they find ſuitable ſupports, without which they are more or leſs procumbent. The calyx is five-cleft or five-parted. The corolla is one-petalled, five-parted, but in many is ſo deeply cut as to ſeem five-petalled. The ſtamens are inſerted, not on the receptacle, but on the inſide of the calyx, to which the corolla is attached. The filaments are generally five, but ſo connected as to ſeem only three. The anthers are often united, ſo as to form one ſerpentine body, the apex of one growing to the baſe of another. The ſtyle is rather thick, and the ſtigmas moſt commonly three, often bifid. The fruit is generally fleſhy, three-celled, having its ſeeds bedded in pulp, and on that account rather a berry than a pome. Moſt of the genera are either monoicous or dioicous. The fruit of none is poſitively wholeſome, and of ſome highly pernicious, but of others is generally thought pleaſant, and if eaten with caution, and not in too great quantities, is at leaſt innocent.

The cucurbitaceæ are alſo the ſecond natural order in the fifteenth claſs of Juſſieu, of which he has given the following character. *Flowers* monoicous, or more rarely dioicous, or very rarely having in each perfect ſtamens and piſtils, as in gronovia and melothria. *Calyx* (the corolla of Linnæus and Tournefort) ſuperior, contracted, juſt above the germ, dilated beyond, quinquefid, ſhrivelling, falling off late, with five green appendages on the outſide at the baſe of the bell-ſhaped expanſion, (the calyx of Linnæus and Tournefort,) which may be called exterior ſegments of the calyx, ſince they fall off with it. *Corolla* none. *Stamens* of the barren flowers moſt frequently five, inſerted into the contracted part of the calyx; filaments and anthers, in ſome diſtinct, in others entirely or partially united; anthers one-celled, oblong, fixed to the top of the filaments, often running into a twice-curved line, four of them generally in pairs, and the fifth ſolitary. *Germ* abortive, or barren. *Filaments* of the fertile flowers barren, or none. *Germ* inferior. *Style* one, or rarely ſeveral. *Stigma* moſt frequently divided. *Fruit* inferior, berried, often with a ſolid rind or ſhell, one-celled, with one or many ſeeds, or many-celled with many ſeeds; receptacles of the ſeeds lateral, or affixed to the inner ſurface of the fleſhy part. *Seeds* cartilaginous or cruſtaceous; corculum flat, without a periſperm.

Root moſt commonly tuberous. *Stem* herbaceous, climbing or proſtrate, zig-zag. *Leaves* alternate, furniſhed with axillary tendrils, ſimple, heart-ſhaped, or palmate, or rarely digitate, often rough, or ſtudded with callous points. *Flowers* axillary, one or more on a peduncle. The genera are thus arranged by Juſſieu. I. Style ſingle. Fruit one-celled, with one ſeed. Gronovia, ſicyos. II. Style ſingle. Fruit one-celled, with numerous ſeeds. Bryonia, elaterium. III. Style ſingle. *Fruit* many-celled, with numerous ſeeds. Melothria, anguria, momordica, cucumis, cucurbita, trichoſanthes, ceratoſanthes. IV. Styles ſeveral. Dubious cucurbitaceæ. Feuillea, lanonia. V. Allied to the cucurbitaceæ, diſtinguiſhed chiefly by a ſuperior germ. Paſſiflora, murucuia, tacſonia, papaya.

Ventenat has the ſame genera, only adding luffu from Cavanilles, and omitting feuillea and lanonia, without taking them up in any other part of his work.

CUCURBITIFERA *arbor, ſubrotundis foliis confertis;* Pluk. See CRESCENTIA *cucurbitina.*

CUCURBITIFERA *trifolia ſpinoſa medica;* Pluk. See CRATÆVA *maſmelos.*

CUCURBITINI LUMBRICI, in *Zoology*, are broad worms that breed in the inteſtines, like the ſeed of a gourd.

CUCURBITULA, in *Surgery*, a cupping-glaſs, or inſtrument, uſed in the operation of cupping. See CUPPING-*Glaſs.*

CUCURI, in *Ichthyology*, the Braſilian name of a fiſh of the ſhark kind, but not miſchievous, called *caſſaon* by the Portugueſe.

It is about two feet and a half long. The head ends in an hyperbolic figure, and the mouth is placed far below its end; it has only one row of teeth, and thoſe very ſmall; its eyes are of the ſize of a large pea; its belly is of a ſilver white. Willughby.

CUCURON, in *Geography*, a ſmall town of France, in the department of Vaucluſe; 9 miles S. of Apt.

CUCURUCU, in *Zoology*, the name of a ſerpent found in America, growing to ten or twelve feet long. It is very thick alſo in proportion to its length, and is of a yellowiſh colour, ſtrongly variegated with black ſpots, which are irregularly mixed among the yellow, and often have ſpots of yellow within them, and are plainly black. It is a very poiſonous ſpecies, and greatly dreaded by the natives; but its fleſh is a very rich food, and greatly eſteemed among them, when properly prepared. Ray.

CUD, in *Rural Economy*, a term applied to the imperfectly maſticated food in animals of the cattle and ſome other kinds, which is brought back from the firſt ſtomach, to be chewed over again in a more gradual and deliberate manner, at the leiſure of ſuch ſorts of beaſts; being, after this proceſs, tranſmitted into the ſecond ſtomach to be digeſted more perfectly. When this proceſs is loſt, or the power of the animal to perform it ſuſpended, it is ſuppoſed by ſome to be in a morbid condition, and to require the uſe of ſtrengthening remedies of the acid and aromatic bitter kinds: whence, to chew the cud, ſignifies to ponder, think, or ruminate upon a thing.

CUD-*Weed*, in *Botany*. See ATHANASIA, GNAPHALIUM, and FILAGO.

CUDA, in *Ancient Geography*, a river of Spain, in the territory of the Luſitanians, which ran from the S. to the N., and diſcharged itſelf into the Durius.

CUDDALORE, in *Geography*, a town of Hindooſtan, on the coaſt of Coromandel, in the Carnatic, ſituated near where St. David ſtood, now belonging to the Engliſh. It was taken by the French, under the command of general Lally, in the year 1758; and again in 1781; but in 1783 it underwent a ſevere ſiege by the Britiſh forces, under the command of general Stuart. At this time it was become the principal place of arms held by the enemy on that coaſt, who had made great exertions in fortifying it; and it was garriſoned by a numerous body of the beſt forces of France, well provided with artillery, and every neceſſary for a vigorous defence. The conteſt was ſevere, and at length the Britiſh forces proved victorious. Peace between the belligerent powers of Europe terminated the diſpute. Cuddalore, where the French have had a factory, and within ſight of Pondicherry, is naturally a very ſtrong ſituation; and would have been the moſt commodious, perhaps, for the chief Britiſh ſettlement; ſince the ſecurity of Tanjore, and the conveniency of ſupplies from it, muſt ever be a capital object. Beſides, as the S.W. monſoon is the ſeaſon of naval warfare, Pondicherry has the advantage of being to windward of Madras; and the French, at the ſame inſtant, accompliſh the double purpoſe of keeping to windward, and of protecting their capital ſettlement; and receive aſſiſtance from it in return. The Britiſh fleet, in order to watch the enemy, retires 100 miles from their principal ſettlement, and receives only a precarious aſſiſtance from the ſhore; that is, from Cuddalore, or its neighbourhood, their uſual ſtation. N. lat. 11° 41′. E. long. 79° 45′ 45″.

CUDDAPAH, a town of Hindooſtan, and capital of a province which bears the ſame name; belonging to the Nizam of the Deccan, through which paſſes the river Pennar. The town is ſituated on the route from Pondicherry and Arcot to Canoul; diſtant from Hydrabad S. 230 miles, from Madras N.W. 153 miles, from Nagpour S.W. 551 miles, and from Seringapatam N.E. 220 miles. N. lat. 14° 32′. E. long. 78° 54′.

CUDDAPAH, a country of Hindooſtan, bounded on the N. by the country of Golconda, on the E. by the Carnatic, on the W. and S.W. by the Myſore; ceded to the Nizam of the Deccan by Tippoo Sultan. The principal towns are Cuddapah, Gandicotta, and Combam.

CUDDY, in a *Firſt-rate Man of War*, is a place lying between the captain lieutenant's cabin and the quarter-deck; and divided into partitions for the maſter, and other officers.

It denotes alſo a kind of cabin near the ſtern of a lighter, or barge of burden.

CUDRESIN, in *Geography*, a town and bailiwick of Swiſſerland, in the canton of Berne, on the N.E. borders of the lake of Neuchatel. This town was taken by aſſault, in 1475, by the Swiſs cantons, and allotted to the cantons of Berne and Friburg, who reſtored it to the duke of Savoy. In 1536 the inhabitants ſurrendered to the Bernois without reſiſtance, under which canton it remains; 5 miles S.E. of Neuchatel, on the other ſide of the lake, and 26 W. of Berne. N. lat. 46° 59′. W. long. 0° 44′.

CUDUPARITI, in *Botany*, Rheed. See GOSSYPIUM *arboreum.*

CUDWORTH, RALPH, in *Biography*, the well-known author of the "Intellectual Syſtem," was born at Aller, in Somerſetſhire, in the year 1617. He was educated at firſt under his father, who was a man of ſome celebrity in the church; but at his death, which happened while our author was only about eight years old, he was transferred to the tuition of his father-in-law, Dr. Stoughton. He made ſo rapid a progreſs in grammar learning, that at the age of 13 he was deemed fit for, and actually admitted, a penſioner of Emanuel College, Cambridge. Here he took his degrees, and about 1639, or 1640, he was elected fellow of his college, and became ſo eminent as an inſtructor of youth, that at one and the ſame time he had 28 pupils; a circumſtance which, at that time, had never been known in the largeſt colleges in the univerſity. Among the young men committed to his care were Mr., afterwards ſir William Temple, and the celebrated Tillotſon. He was ſhortly after preſented to the rectory of North Cadbury in Somerſetſhire; and in 1642 publiſhed a treatiſe on the Lord's Supper, which gave riſe to a long controverſy, that ſeems to have been completely ſet at reſt by an able work on the ſame ſubject, by Dr. Bell, prebendary of Weſtminſter. In 1645 he was unanimouſly elected Regius profeſſor of Hebrew; an office for which his great learning, and ſkill in the Oriental languages, peculiarly qualified him. He now devoted almoſt all his time to his academical purſuits and ſtudies. In 1647 he printed a ſermon, which he had preached before the houſe of commons: the dedication contained ſome admirable ſentiments upon the nature of religion, and the value and importance of learning; which reflect much honour on the liberality of his principles, and was a well-timed reproof to the prevailing bigotry and fanaticiſm of his contemporaries. In 1651 he took the degree of doctor of divinity; and, becauſe his income at the college was not adequate to his wants, he left the univerſity; but was ſhortly after ſolicited to return, to which he conſented, and was choſen maſter of Chriſt's College, Cambridge. Here he ſpent the remainder of his days. In 1656–7 he was appointed, by the grand committee for religion, to confer about a new tranſlation of the Bible; whoſe labours were terminated by the diſſolution of the parliament. Shortly after he obtained the vicarage of Aſhwell in Herts; and in 1678 he was inſtalled prebendary of Glouceſter. In the ſame year he publiſhed "The true intellectual Syſtem of the Univerſe;" a work full of capital reaſoning, and containing much curious learning. The object of this publication was to confute the principles of atheiſm, which had been but too prevalent, as an oppoſite extreme to the cant and hypocriſy ſo common in the times of the commonwealth. Many excellent divines lifted up their voice, and exerted their pens againſt the atheiſm, profaneneſs, and irreligion, which was encouraged by the licentious court of Charles II.; but none with more vigour and ſucceſs than Dr. Cudworth. "None better knew," ſays the learned Moſheim, "how to uſe the arms of reaſon and learning, to conquer the preſumptuous ignorance of Hobbes, who had acquired a great reputation at court." The Intellectual Syſtem was only a part of what Dr. Cudworth had intended; but death prevented the completion of a labour, which, in its preſent unfiniſhed ſtate, has acquired for the author a large ſhare of ſolid reputation. The candid critic will, however, ſee and acknowledge defects in this ſyſtem. Dr. Cudworth was attached to the Platonic philoſophy, and frequently, like his maſter, enveloped truth with myſtery. In his phyſics he has adopted the corpuſcular ſyſtem, adding, to the doctrine of atoms, that of a certain middle ſubſtance between matter and ſpirit: to this he gave the appellation of "plaſtic nature," which he ſuppoſed to be the immediate inſtrument of the divine operation. This hypotheſis was the foundation of a controverſy between Bayle and Le Clerc. Dr. Cudworth died in 1688, at Cambridge, in his 71ſt year. He left behind him other works, publiſhed, and in MS.; the latter, after many revolutions, have found a place in the Britiſh Muſæum. They were left by the author to lady Maſham, his daughter, who preſerved them with pious care ſo long as ſhe lived. They were afterwards ſold to Mr. Davis, a bookſeller in Piccadilly, who parted with them, as the MSS. of Mr. Locke, to the proprietors of a Bible that was edited by Dr. Dodd. This, ſays Dr. Kippis, was the origin of Dr. Dodd's Bible. Such extracts having been made as were deemed neceſſary for the purpoſe, the originals were returned, when Mr. Davis ſold them outright for 40 guineas, as the MS. of Locke. The deception was ſoon diſcovered, and their proper owner traced. The purchaſer claimed a return of his money; and they were at length negociated for by the curators of the Britiſh Muſæum, as the remains of the excellent Dr. Cudworth. Of their author it may with ſtrict juſtice be affirmed, that he was not only diſtinguiſhed by very extenſive learning and profound knowledge in metaphyſics and philoſophy, but by exemplary piety, and great moderation and rectitude of character, which rendered him an honour to the inſtitutions where he preſided, to the univerſity of Cambridge which he adorned, and to the church and age in which he lived. Mr. Granger obſerves, that Dr. Cudworth held the ſame rank in metaphyſics that Dr. Barrow did in ſublime geometry; and his daughter he ſtyles the learned and accompliſhed lady Maſham, whoſe memory deſerves to be held in high honour, both for her own attainments, and her unſhaken friendſhip to Mr. Locke. Biog. Brit. Moſheim.

CUE, or Queue, the hair tied in form of a tail. Military men, and particularly ſoldiers, have been made to wear queues of different forms, at different times.

Cue, an *item*, or *innuendo*, given to the actors on the ſtage, what, or when, to ſpeak. See Prompter.

Cue, in *Geography*, a town of Perſia, in the province of Adirbeitzan; 100 miles S.S.W. of Tauris.

CUENCA, a juriſdiction or province of the vice-royalty of New Granada, or Santa Fé, in South America, bordering on the ſouthern parts of Riobamba, and divided into two departments, of which the capital is one, and that of Alauſi the other, which reaches to Riobamba, is governed by a deputy of the corregidor, and beſides the Aſſiento, contains four villages; but that of the city of Cuenca includes 10. This diſtrict, which is ſituated on the table land of Quito, is of benign temperature, producing abundance of cattle, ſugar, cotton, and grain, and has conſiderable manufactures of cotton cloths. The terrible earthquake in 1797, which totally ruined the city of Riobamba, ſo that of 9000 perſons, only about 400 eſcaped, ſeems not to have extended ſouth ſo far as Cuenca. Among the great variety of mines in this province, thoſe of gold and ſilver are not, according to the common opinion, the leaſt numerous. From a ſtory, which is of ancient date, and which has deſcended from one generation to another, related by Ulloa, it is inferred, that a hill in this diſtrict, called "Supayurca," or the Devil's-hill, contains an inexhauſtible treaſure.

Cuenca, the capital of the above-mentioned juriſdiction, ſituated in S. lat. $2^{\circ} 53' 49''$, and long. $29' 25''$ W. of the meridian of Quito, on a ſpacious plain, along which, at about half a league N. of it, runs a little river, called Machangara; and cloſe to the S. ſide of the town runs another, known by the name of Matadero. Beſides theſe, at the diſtance of a quarter of a league, runs another, called Yanuncay; and about the ſame diſtance is another, named Los Banos, from a village of that name through which it runs. All theſe rivers are in ſome ſeaſons fordable; but at others, can only be croſſed with ſafety over the bridges.

The plain in which Cuenca ſtands extends about ſix leagues from N. to S.; and the four rivers form, at a ſmall diſtance, by the conflux of their ſtreams, a very large river. To the S. of the town is another plain, about two leagues in extent, and exhibiting, by its great variety of regular plantations of trees, a very delightful appearance through the year. The ſtreets of this town are ſtraight, and of a convenient breadth; the houſes of unburnt bricks, are tiled, many of them being of one ſtory; and the ſuburbs, inhabited by the Indians, are mean and irregular. The town is ſupplied with water by ſeveral ſtreams; and on account of its admirable ſituation, and the fertility of the adjacent ſoil, it might be rendered the paradiſe, not only of the province of Quito but of Peru itſelf; but its advantages are, either through ignorance or indolence, not duly improved. Cuenca was founded in the year 1557, by Gil Ramirez Davalos. It contains three pariſhes; that of the great church conſiſts of Spaniards and Meſtizos; the two others, called San Blas and San Sebaſtian, are appropriated to the Indians. Here are convents of Franciſcans, Dominicans, Auguſtins, and the fathers of Mercy; a college of Jeſuits, and two nunneries. Here is alſo an hoſpital, though ſo ill managed as to be in ruins. The magiſtracy is compoſed of regidores and ordinary alcaldes, choſen annually; and their head is the corregidor. Here is alſo a chamber of finances; the revenues of which conſiſt of the tribute of the Indians of this department, together with that of Alauſi, the juriſdiction of Loja, and the government of Jean de Bracamoros; the duties on proviſions, and the cuſtoms collected at Naranjal. The inhabitants are of a very indolent temper; and the vulgar are rude, vindictive, and very profligate. The women, however, are generally very induſtrious: they ſpin and weave bays, famous for their quality and brilliancy of colour, in every part of Peru. They alſo buy and ſell, and manage the whole of the little commerce, by which their families are ſupported; whilſt the males ſurrender themſelves to ſloth, and its concomitant vices. The whole number of inhabitants in this town is computed at 20 or 30,000 perſons; and thoſe both of the town and juriſdiction are commonly known by the name of Morlacos. The adjacent country is finely interſperſed with farm-houſes and plantations of ſugar-canes; ſome parts are cultivated for corn, others appropriated to ſheep and horned cattle, from the milk of the laſt of which they make great quantities of good cheeſe.

Cuença, a town of Spain, in New Caſtile, anciently called *Conça*, the ſee of a biſhop, ſuffragan of Toledo, ſituated between two lofty mountains and two ſmall ſtreams, which form the Xucar; taken by the earl of Peterborough in 1706, and ſoon retaken by the duke of Berwick; 75 miles E. of Madrid, and 100 W.N.W. of Valencia. N. lat. 40° 10′. Long. 14° 35′ E. of the Peak of Teneriffe.

CUERA, or Zuera, a town of Spain, in Arragon, on the Gallega; 10 miles N. of Saragoſſa.

CUERENHERT, or Coornhaert, Dirick, or Theodore Volkhart, in *Biography*, an engraver and a literary character, was born at Amſterdam in the year 1522. He reſided a long time at Haarlem, where, in concert with other artiſts, he engraved many ſubjects from the ſcriptures, from the deſigns of Martin Hemſkerk, Francis Floris, and other maſters. His plates are wrought in a careleſs negligent manner, imitating pen-drawings. They are chiefly middling-ſized, lengthways, and marked ſometimes with his name, at others with a cypher, compoſed of D. V. & C.

Cuerenhert is no leſs remarkable for his engravings than for the ſingular adventures of his life, which was publiſhed at Amſterdam at the head of his works in 1630. The ſtrange opinions which he maintained, in his ſeveral religious diſputes, occaſioned him to be frequently impriſoned, and at length baniſhed his native country, when he retired to Gouda, where he died in 1590. He had the honour to count the celebrated Henry Goltzius amongſt his diſciples. Huber. Manuel des Arts.

CUERNABACA, or Cornavaca, in *Geography*, a town of N. America, in the province of Mexico; 20 miles S.S.W. of Mexico.

CUERPO. *To walk in cuerpo*, is a Spaniſh phraſe for going without a cloke; or without all the formalities of a full dreſs.

CUERS, in *Geography*, a town of France, in the department of the Var; 12 miles N.E. of Toulon, and 9 miles N. of Hiéres. It is the chief place of a canton, in the diſtrict of Toulon, with a population of 4890 individuals. The canton itſelf has 14,899 inhabitants, in 9 communes, upon a territorial extent of 307½ kiliometres.

CUEYTE, a river in the iſland of Cuba, which abounds with alligators.

CUFA, or Cupha, a town of Aſiatic Turkey, in the Arabian Irak, near the frontiers of Arabia Deſerta, on the branch of the Euphrates called Nahr-Iſa; 60 miles from Bagdad. The *Cufic* characters, which prevailed among the Arabians for about 300 years, were denominated from this place, where they are ſaid to have been invented. The Cufic alphabet, which continued to be uſed in writing ſo late as the 10th century, and on coins down to the 14th century, is now found only in the oldeſt Mahometan MSS. About the year 920, a new ſyſtem of writing, called "Nikki" was formed and introduced, which, with ſome variation, ſtill continues to be the general hand-writing of the Eaſt. See Arabic *Language*.

CUFF, or Cuffe, Henry, in *Biography*, a diſtinguiſhed ſcholar, and ſecretary to the unfortunate earl of Eſſex, was born at Hinton in Somerſetſhire, where he received the early parts of his education, and from thence removed to Trinity College, Cambridge. He was greatly diſtinguiſhed among his contemporaries, and became fellow of the college. The impetuoſity of his temper led him into difficulties, and a diſplay of his wit cauſed him to be baniſhed from his college. His reputation was, however, ſo conſiderable, that he was invited to, and admitted a member of, Merton College, where he took his degree of M.A., was made fellow, and afterwards promoted to the Greek profeſſorſhip; and was choſen proctor of the univerſity. When the earl of Eſſex was appointed to the lord lieutenancy of Ireland, Mr. Cuffe was appointed his ſecretary, obtained the noble lord's confidence, and was probably regarded more as a friend than a ſervant in this high ſtation. The earl was charged with projects of ambition very unſuitable to the views of any ſubject. Conſcious, perhaps, of his maſter's innocence, or indignant at the treatment he had met with, Cuffe repelled the idea of that ſubmiſſion which was recommended by ſome of his other and more prudent friends. The earl at length fell a victim to his imprudence; was tried, and convicted, and ſuffered death. Previouſly to the execution of the ſentence, he charged his ſecretary with being not only acceſſary to, but author of, all his misfortunes. On this charge, which was aggravated by other circumſtances, he was brought to trial, convicted, and ſuffered death at Tyburn. He acted with great firmneſs and heroiſm, repelling with becoming indignation the ſeveral inſinuations made againſt him. By Camden, lord Bacon, and ſir Henry Wootton, his memory was treated with a ſeverity, which later writers have thought in a great meaſure unmerited.

He left behind him ſome MSS.; of theſe one was publiſhed about ſix years after his death, entitled, "The Differences of the Ages of Man's Life, together with the original Cauſes, Progreſs, and End thereof." Biog. Brit.

CUFRATENSIS, in *Ancient Geography*, an epiſcopal town of Africa, in the Byſacene territory.

CUGUACUARA, or CUGUACUARANA, in *Zoology*, the name of an American beaſt of prey, the brown Patagonian cat, uſually confounded with the tyger, and deſcribed by Marcgrave as one of the three ſpecies of American tygers, the *jaguara* and *jaguarete* being the two others. It is the *Cougouar* of Buffon, and the FELIS *Concolor* of Gmelin; which ſee.

CUGUACUETE, and CUGUACUAPARA, the Braſilian names of an animal of the *Cervus* kind, ſeeming to be the male and female of the ſame ſpecies, and not diſtinct animals. The former, according to Marcgrave, has no horns; but the cuguacuete of Piſo has palmated horns, and is probably the male; the horns are compoſed of three branches; they ſend out one near the inſertion, and from this they run up ſingle to the extremity, where they are bifid. As in the roe-deer, the female has no horns, it is probable that the individual pointed out by Marcgrave was the female. Upon the whole, the deſcriptions given of theſe animals, by both theſe writers, demonſtrate that they are roe-bucks, ſimilar to thoſe of Europe. Marcg. Braſ. 235. Piſo Ind. p. 97, 98. Smelley's Buffon, vii. 31.

We have not ſeen the animal in England; but its horns, which are very ſingular in their ſhape, are preſerved in the muſeum of the Royal Society. This is the animal which Johnſon has figured under the name of the *capreolus marinus*. *Tab.* 33.

CUGUPUGUACU, a name by which Marcgrave calls a Braſilian fiſh of conſiderable ſize, and a very good taſte, the PERCA *guttata* of Gmelin; which ſee.

CUI *ante Divortium*, in *Law*, a writ, which a woman divorced from her huſband hath, to recover lands or tenements from him to whom her huſband alienated them during marriage; becauſe during the marriage ſhe could not gainſay it.

CUI *in Vita*, is a writ of entry, which a widow hath againſt him to whom her huſband alienated her lands or tenements in his life-time; ſpecifying, that, during his life, ſhe could not withſtand it.

CUJAS, JAMES, in *Biography*, a celebrated French juriſt, was born at Toulouſe in 1750. His origin was low, but his talents and induſtry overcame every obſtacle to his riſing greatneſs. He attained a ſpeedy and a deep knowledge of the learned languages. Ferrier was his preceptor in the law; but the progreſs which he made in ancient juriſprudence was the reſult of his own reſearches. He took for his guides, and as handmaids to the ſcience, the analogy of words, and the facts in hiſtory. He became a public profeſſor in his native city; from thence he was invited to the univerſity of Cahors; and, after ſome other changes, he became, at the urgent requeſt of Emanuel Philibert, duke of Savoy, profeſſor at Turin. He finally returned to Bourges, where he died in 1590, at the age of 70. His memory has been honoured by the notice and applauſe of Joſeph Scaliger and De Thou. The former ſpeaks of him as a man of a ſocial and moſt friendly diſpoſition, who not only lived on familiar terms with his pupils, but might truly be denominated their father. Under Cujas ſome of the moſt celebrated magiſtrates in France were educated; and from him they imbibed liberal and patriotic principles. De Thou inſinuates that his life had been threatened by the bigots of the time; and to his deep regret for the ſubverſion of all juſtice, and regard to the public good, that writer imputes the death of Cujas, at an age beyond which he might have been expected, from the ſoundneſs of his conſtitution, to have laſted. His works are ſtill in conſiderable reputation. They were firſt printed together in 5 vols. folio, at Paris, 1584. Moreri.

CUJAVIA, in *Geography*, a province of the grand duchy of Warſaw, which, ſince the peace of Tilſit, belongs to the king of Saxony, and had formed a part of the laſt acquiſitions of Pruſſia from Poland. It is irrigated by the Viſtula; has a biſhop, who reſides at Inowladiſlaw; and contains the two palatinates of Brzeſc or Kujawſki and of Wladiſlaw or Ino Wladiſlaw, Young Wladiſlaw. This country is uncommonly fertile, and has many lakes which abound with fiſh.

CUJAVUS, in *Botany*, *agreſtis;* Rumph. See PSIDIUM *pomiferum.*

CUJAVUS *domeſtica;* Rumph. See PSIDIUM *pyriferum.*

CUICHOCA, in *Geography*, a lake of S. America, in the province of Quito and juriſdiction of Otabalo, about a league in length, and half a league in breadth; ſituated in a plain, on the ſide of a mountain of the ſame name. Near the middle of this lake are two iſlands, abounding with wild cuyes, a ſpecies of rabbits, and deer, which often ſwim to the main land; but, when purſued by the hunters, diſappoint them by gaining the lake, and ſwimming back to their retreat.

CUICULUM, or CUICULI, in *Ancient Geography*, an epiſcopal town of Africa, marked in the Itinerary of Antonine; 25 miles from Sitifi.

CUJETE, in *Botany*, Plum. See CRESCENTIA.

CUIL, in *Ornithology*, a name given by Buffon to the CUCULUS *honoratus* of Gmelin; which ſee.

CUILLE', in *Geography*, a ſmall town of France, in the department of the Mayenne; 21 miles N.W. of Chateau Gontier.

CUILLER *a Canon*, *Fr.* a ſort of ſheet of copper or braſs, rounded, and one-third open. It is of different ſizes, and ſerves for drawing or taking out the powder of the charge of a cannon.

CUILLI. See CULLY.

CUILLIER, in *Ornithology*, a name given by Buffon to the CANCROMA *cancrophaga* of Gmelin.

CUIRASSE, a piece of defenſive armour, made of an iron plate well hammered; ſerving to cover the body, from the neck to the girdle, both before and behind.

Some derive the word, by corruption, from the Italian *cuore*, *heart*; becauſe it covers that part: others from the French *cuir*, or the Latin *corium*, *leather;* whence *coriaceous:* becauſe defenſive arms were originally made of leather.

The cuiraſſe was not brought into uſe till about the year 1300, though they were known both to the ancient Greeks and Romans in different forms.

Hence, *cuiraſſiers*, the cavalry armed with *cuiraſſes*.

In the Roman calendar, we find the name of St. Dominic the *cuiraſſed;* a title given to a ſaint of the eleventh century, from his conſtant wearing of an iron *cuiraſſe*, by way of penance.

CUIRASSIERS, are a ſort of heavy cavalry armed with cuiraſſes. The different German powers had regiments of cuiraſſiers, and have now troops under this denomination. The late king of France had alſo one regiment of them; and Napoleon Buonaparte has cavalry now that go by that name, and are eſteemed the beſt that he has.

We have had none, however, in England ſince the revolution.

CUIRIRI, in *Ornithology*, the name of a Braſilian bird of the *Lanius* or ſhrike kind, in no reſpect differing from the *pitanguaguacu*, but that it has a yellow ſpot upon its head. Probably this is the male of the ſame ſpecies. See Lanius *Pitangua*.

CUISSARS, or *Cuiſſards*, Fr. were plates or ſcales made of beaten iron, which were put on below the under part of the cuiraſſe, and ſerved for covering and protecting the thighs. This armour was called *Cuiſh*.

CUIT, in *Ornithology*, a name given by Buffon to the Coracias *Bengalenſis*.

CUITE, Fr. a technical term to expreſs the preparation of ſaltpetre for the making of gun-powder. See Saltpetre.

CUITPALLI, in *Natural Hiſtory*, the American name of a very beautifully variegated ſtone, found in New Spain, and ſome other places: its name expreſſes the painted ſtone. It is a ſpecies of jaſper of a beautiful green, variegated with very beautiful lines, and clouds of black, and is in ſome parts tranſparent.

CUIZEAUX, in *Geography*, a ſmall town of France, in the department of Saône and Loire, 30 miles S.E. of Chalons. It is the chief place of a canton, in the diſtrict of Louhans, with a population of 1694 individuals. The canton itſelf contains 10 communes and 9760 inhabitants, upon a territorial extent of 150 kiliometres.

CUIZERY, a ſmall town of France, in the department of Saône and Loire, with 1301 inhabitants, 18 miles S. of Chalons. It is the chief place of a canton, which reckons a population of 8816 individuals, in eleven communes, upon a territorial extent of 122½ kiliometres in the diſtrict of Louhans.

CUL de Chandron, Fr. the rounded bottom of the funnel, or the excavation of a mine after it has produced its effect.

Cul *de Cobe*, in *Geography*, a bay of the iſland of Martinico, on the N. part of the Cul de Sac Royal.

Cul *de four*, a ſort of low, ſpherical vault, oven-like.

Coul de four of a niche, denotes the arched roof of a niche on a circular plan. See Mem. Acad. Scienc. an. 1719, p. 363.

Cul *de lamp*, a French term, properly ſignifying the bottom of a lamp. It is applied in architecture to ſeveral decorations, both of maſonry and joinery, uſed, in vaults and ceilings, to finiſh the bottom of works, and wreathed ſomewhat in manner of a *teſtudo*; particularly a kind of pendentive in Gothic vaults.

Cul *de Sac*, in *Geography*, a general term for a bay in the Weſt India iſlands.

Cul *de Sac des Anglois*, a bay of the iſland of Martinico, on the S.E. coaſt, a little to the ſouth of Cape Ferrar.

Cul *de Sac François*, a bay of the iſland of Martinico. N. lat. 14° 34′. W. long. 60° 53′.

Cul *de Sac, Grand*, a bay in the W. coaſt of the iſland of St. Lucia.—Alſo, a bay on the N. coaſt of the iſland of Guadaloupe. N. lat. 16° 30′. W. long. 62° 53′.

Cul *de Sac Marin*, a bay on the S. coaſt of the iſland of Martinico. N. lat. 14° 31′. W. long. 60° 45′.

Cul *de Sac, Petit*, a bay of Guadaloupe, 7 miles S. of Grand Cul de Sac.

Cul *de Sac, Robert*, a bay of the iſland of Martinico, on the eaſt coaſt. N. lat. 14° 34′. W. long. 60° 59′.

Cul *de Sac, Royal*, a bay on the W. coaſt of the iſland of Martinico. N. lat. 14° 30′. W. long. 60° 59′.

Cul *de Sac, Vache*, a bay of the iſland of Martinico. N. lat. 14° 31′. W. long. 60 57′.

CULANT, a ſmall town of France, in the department of the Cher; 15 miles E. of Châtres, and 12 miles S.W. of St. Amand.

CULARO, in *Ancient Geography*, a town of Gallia Narbonnenſis, which ſeparated the Allobroges from the Vocantiani. It was rebuilt by Gratian, and called Gratianopolis; now Grenoble.

CULATE, is the part beyond the vent, or inner mould of a piece of ordnance, and which terminates in a large knob or button of metal.

CUL-BLANC, in *Ornithology*, a name given by Buffon to the Motacilla *Oenanthe*.

CULBUTE, in *Midwifery*, a ſuppoſed evolution of the fœtus in the womb, occurring about the end of the ſeventh month of pregnancy. See Birth; alſo Foetus, *poſition of*, in the womb.

CULBUTER une Colonne, Fr. To overthrow a column. This phraſe is frequently made uſe of when cavalry attack infantry, and throw them into confuſion by a briſk and rapid charge.

CULCASIA, in *Botany*, a name given by ſome of the old writers to an Egyptian plant growing near the ſea-ſhores. It is by many ſuppoſed to have been the *colocaſia*, but improperly. The reſemblance of the name was the only thing that gave the idea of its being this plant; but the virtues attributed to it, and the uſes it was put to in the common affairs of life, ſhew that it was the *kali* or *cali*, the plant of whoſe aſhes they made a ſalt uſeful in many arts, and ſtill the baſis of the glaſs and ſoap manufactures, and called by Avicenna *uſnen*.

CULCITÆ, Lat. Beds which, of ſome kind or other, have been in uſe from the higheſt antiquity. They were firſt of herbs or graſs, then of feathers, and afterwards of wool. (See Bed.) In proportion as the Romans departed from the ſeverity of their original mode of living, they wiſhed to have beds with them when embodied as ſoldiers and on actual ſervice, in ſpite of prohibitions to the contrary. Scipio Africanus Numantinus obſerving the prohitions to be uſeleſs, ſet himſelf an example of ſubmiſſion and ſelf-denial, by forbidding a bed to be prepared for him, and repoſing on a bundle of hay only. When a general ſuch as Scipio gave ſo fine an example of ſelf-denial, even the ſofteſt and moſt effeminate muſt have accuſtomed themſelves to the ground. It does not from thence follow, however, that the commander of an army ſhould ſleep on the bare ground. It is ſufficient that he has once ſet the example. For he in general ſtands more in need of reſt than any other man, as his ſleep is ſometimes frequently interrupted during the night; and his ſpirits, exhauſted by the fatigues of watching, require to be recruited, to enable him to reſume his labours and attend to the duties of next morning.

CULCITANUS, in *Ancient Geography*, an epiſcopal ſee of Proconſular Africa.—Alſo, a ſee in the Byſacene territory.

CULCUA, a Roman colony of Africa, placed by Ptolemy in Numidia.

CULCUL, a ſort of grain brought from Egypt to Conſtantinople, where it is much eſteemed, eſpecially when freſh. Authors are not agreed what plant it is produced from.

CULDEES, or Kuldees, in *Church Hiſtory*, a deſignation given to the monks, or prieſts, in Scotland, in the firſt ages of Chriſtianity, whence the term paſſed into Ireland.

They were called *culdees*, quaſi *cultores dei*, from their great piety and devotion. Others, however, derive their name from the kills or cells in which they lived. This monaſtic order commenced, both in Scotland and Ireland, about the middle of the 6th century: and St. Columba is acknowledged to be its founder. This eminent perſon, diſtinguiſhed by a greater degree of uſeful knowledge and rational piety, than thoſe which generally prevailed at that early period, arrived from Ireland and ſucceeded Palladius, at a conſiderable interval after his departure or death; and ſoon gained ſuch an aſcendant both over princes and people, that he became a kind of dictator among the Scots and Picts, in civil as well as religious matters, for more than 30 years. Having obtained a grant of the ſmall iſland Hü, Hu, or Iona, one of the Ebudæ or Hebrides, he there built a monaſtery, which was long conſidered as the mother and queen of all the monaſteries in Scotland; and its abbots, though only preſbyters, were reſpected as the chief eccleſiaſtical perſons among the Scots, out of regard to its founder St. Columba, who, as Bede informs us, was a preſbyter, and not a biſhop. In this monaſtery many excellent perſons received their education, and were ſent from thence, not only to inſtruct the Scots and Picts, but even to convert the Saxons. Theſe miſſionaries were a kind of preſbyters, who lived in ſmall ſocieties, and travelled over the neighbouring countries, preaching and adminiſtering the ſacraments. To each of their cells there was one who had ſome kind of ſuperintendency over the reſt, managed their affairs, and directed their miſſions; but whether or not he enjoyed the title and authority of a biſhop in this period, is not certainly known. The council of Ceale-hythe, held A. D. 816, decreed, that no Scotch prieſt ſhould be allowed to perform any duty of his function in England; and it therefore ſeems to have ſuſpected that they had no biſhop; for, indeed, the chief reaſons aſſigned by that council for refuſing to keep communion with theſe Scots Culdees were, that they had no metropolitans amongſt them; that they paid little regard to other orders; and that the council did not know by whom they were ordained, *i. e.* whether they were ordained by biſhops or not. (Spelm. Concil. t. i. p. 329.) The rectors or biſhops of the ſeveral cells of Culdees were both choſen, and ordained, or conſecrated, by the members of theſe ſocieties; and this was probably the ground of the diſſatisfaction expreſſed by the council of Ceale-hythe. When the cells or monaſteries of Scotland came to be enlarged, better built, and better endowed, they were long after this poſſeſſed by theſe Culdees, or ſecular clergy, who had the privilege of chooſing the biſhops in thoſe places where ſees of biſhops were eſtabliſhed. (Boeth. Hiſt. Scot. l. 10.)

Few writers have done juſtice to the Culdees. They ſeem to have been too much attached to ſimple truth and pure Chriſtianity, to find favour with thoſe who aimed at wealth and power, and enjoyed the benefit of human impoſitions and prevailing ignorance. Even Bede, venerable as he was, though he beſtows upon them great and juſt commendation, cannot avoid paſſing ſome cenſure upon them, and ſeems to have regarded them as ſchiſmatics, in the worſt ſenſe of that word. "They followed," ſays this ancient writer, "uncertain rules in the obſervation of the great feſtival; only practiſing ſuch works of charity and piety as they could learn from the prophetical, evangelical, and apoſtolical writings;" thus inſinuating ſome reflection both on Columba and his ſucceſſors. Ledwich, in his "Antiquities of Ireland," pronounces upon them an high eulogium. "It is true," ſays he, "they did not adopt the corruptions of the Anglo-Saxon church, or the ſuperſtitions which had contaminated Chriſtianity for centuries. They preſerved their countrymen from the baleful contagion, and at length fell a ſacrifice in defence of their ancient faith. Superſtition found them her moſt determined foes. The Culdees continued, until a new race of monks aroſe, as inferior to them in learning and piety, as they ſurpaſſed them in wealth and ceremonies, by which they captivated the eyes, and infatuated the minds of men. The conduct of the Romaniſts towards them was in every place uniformly perſecuting. The Romiſh emiſſaries were obliged to exert all their cunning to remove the prejudices in their favour, and where force could not, ſeduction often prevailed: at laſt they loſt all their privileges, their old inſtitutions, and retained barely the name of their priſtine celebrity." The overthrow of the Culdean worſhip was finally effected by pope Adrian, A.D. 1155, when he claimed the ſovereignty of theſe iſlands, and, in the plenitude of his preſumption, beſtowed Ireland on Henry II. Mr. Ledwich informs us, that in Mondincha, an iſland of Ireland, in the county of Tipperary, ſtood a Culdean abbey and church, where ſeveral of the order reſided; and it appears that, in 1185 they "had not conformed to the reigning ſuperſtition; they devoutly ſerved God," ſays this hiſtorian, "in this wild and dreary retreat, ſacrificing all the flattering proſpects of the world for their ancient doctrine and diſcipline."

CULE'E D'UN PONT, Fr. the arch of a bridge next to the land. The phraſe is alſo uſed by ſome writers to denote the butment of maſonry which ſupports that arch.

CULEMBACH, in *Geography*, a diſtrict or marquiſate of the circle of Franconia, in Germany; bounded on the W. by the biſhopric of Bamberg; on the S. by the territory of Nuremberg; on the E. by the palatinate of Bavaria and Bohemia; and on the N. by Voegtland and part of the circle of Upper Saxony. It is about 50 miles long, from N. to S., and 30 broad from E. to W. It abounds with foreſts and high mountains; the moſt conſiderable of the latter are thoſe of Fichtelberg, which are covered with pine-trees. From theſe mountains ſpring four large rivers, *viz.* the Maine, the Sala, the Eger, and the Nago. See BAREITH.

CULEMBACH, a town of Germany, the capital of the above-deſcribed marquiſate. It is well fortified, and is ſituated at the confluence of two branches of the river Maine. It was pillaged and burnt by the Huſſites in 1430, and by the inhabitants of Nuremberg in 1573. N. lat. 50° 12'. E. long. 11° 28'. See BAREITH.

CULEMBURG, a town of the United States, in Guelderland, ſituated on the S. ſide of the Leck. The lords of Culemburg were very powerful in the year 1150. In the year 1555 it was erected into a comté by Charles V. in favour of Florent de Pallant, one of the confederate nobles, who preſented the remonſtrance againſt the inquiſition, and in favour of liberty of conſcience, to the ducheſs of Parma, April 5, 1566. During the ſucceeding troubles, he retired to Culemburg, where he lived peaceably, and died in the year 1598. As he died without children, the comté deſcended to the comte de Waldeck, who had married the heireſs by a collateral line; 27 miles miles S.S.E. of Amſterdam, and 16 N. of Bois-le-Duc.

CULERA, CAPE, a cape of Spain, on the coaſt of Valencia. N. lat. 39° 8'. Long. 16° 28' E. of the Peak of Teneriffe.

CULEVRAS, CAPE, a cape of America, on the N. coaſt of the iſthmus of Darien. N. lat. 9° 36'. W. long. 78° 52'.

CULEUS, the name of a meaſure of liquids, the greateſt of all the meaſures among the Romans: it contained twenty amphoræ. Columella reckons the culeus of wine, at the vineyard, to be worth three hundred nummi, or ſeventy-five denarii, that is, according to the Engliſh rate, a hundred and forty gallons, three pints and a half, for two pounds eight ſhillings, and fivepence farthing, which is about a halfpenny the pint. Columella, lib. iii. cap. 3.

The culeus is by others deſcribed to contain 160 congii, or 960 ſextarii. We read of *dolia culearia*, and *ſeſquiculearia*, the latter of which muſt have been very large, being about $3\frac{1}{7}$ hogſheads, and therefore larger than our pipes.

The word culeus is uſed alſo by ſome Roman authors for a leather ſack.

CULEX, in *Entomology*, a genus of the dipterous order. The mouth is furniſhed with a ſingle-valved exſerted flexile ſheath incloſing five briſtles; feelers of two or three joints; antennæ approximate and filiform.

Theſe inſects are of the gnat tribe, and ſubſiſt on the blood and juices of larger animals, which they ſuck by means of their proboſcis. In the larva ſtate they live in ſtagnant waters; they have a ſmall cylindrical reſpiratory tube near the tail, and the head armed with hooks by means of which they ſeize upon and ſecure their prey. The pupa is incurvated and ſubovate with reſpiratory tubes near the head. The genus contains many ſpecies not deſcribed by authors.

Species.

Pipiens. Cinereous with eight brown rings. Linn. Fn. Suec. &c.

Inhabits Europe and the greater part of Aſia and America, about watery places, and is every where known by its ſhrill buzzing noiſe, and ſevere puncture. It appears in immenſe numbers in Lapland during their ſummer. This is the common gnat of our country. The antennæ of the male are pectinated.

According to Kalm the Muſquetoes are a variety of this inſect.

Annulatus. Brown; abdomen and legs annulated with white; wings ſpotted with brown. Fabr.

Found in Europe, chiefly in Germany and Denmark. It is the ſame ſize as the former; the proboſcis is half the length of the body; ſegments of the abdomen edged with white, and the firſt ſegment marked with a white dorſal line.

Trifurcatus. Brown, with pale lines on the thorax. Reaum.

Inhabits ſwamps and marſhes of Europe.

Ciliaris. Brown-teſtaceous; wings fringed. Gmel.

A rare ſpecies found in Europe; its ſize is half that of the common gnat; the antennæ black with verticillate hairs; abdomen browniſh.

Cutescens. Yellow; wings hyaline; rib yellowiſh. Fabr.

Found in marſhes in Denmark.

Hæmorrhoidalis. Brown; abdominal margin fringed with rufous hairs. Fabr.

The largeſt of the gnat tribe. The ſpecies is a native of Cayenne. The antennæ are beſet with thick verticillate hairs, the firſt joint naked, and of a ſhining blue colour; head brown, with the crown ſhining blue; legs blue, thighs teſtaceous beneath; wings white, with a brown rib.

Ciliatus. Black, with two yellow dorſal lines on the thorax; legs yellow. Fabr.

Smaller than the laſt, and inhabits Carolina.

Pulicaris. Brown; wings white with three duſky ſpots. Linn.

Inhabits Europe and America.

Reptans. Black with hyaline wings; legs black with a white ring. Linn.

Very abundant in the north of Europe, and is extremely troubleſome.

Morio. Black, with white wings; hind-thighs clavate and ſerrated. Fabr.

A ſpecies found in England; the antennæ are beſet with tufted hairs, and the anterior thighs are pale at the baſe.

Equinus. Black; abdomen brown; front white. Linn.

Inhabits Europe, and is often found ſecreted among the hairs of horſes.

Stercoreus. Teſtaceous; wings reticulated; line on the thorax, and three on the abdomen blackiſh.

Native of Europe; frequent on the dung of quadrupeds.

Variegatus. Cinereous; legs varied, black and white. Schranck.

Found in Auſtria. Head and poiſers black; wings fringed.

Argenteus. Back covered with ſilvery ſcales. Poiret.

Deſcribed in Journ. de Phyſique as a native of Barbary, which country it infeſts in great abundance.

CULIACAN, in *Geography*, a province of Mexico, in the domain of New Biſcay, lying on the gulf of California, and bounded on the N. by Cinaloa, on the E. by New Biſcay, on the S. by the Pacific Ocean, and on the W. by the fore-mentioned gulf, or Vermilion ſea; about 240 miles long, and 200 broad. The ſoil is fertile, and the air ſalubrious. It has ſome ſilver mines. The chief towns are Culiacan, Petatlan, and St. Miguel.

Culiacan, the capital of the above-mentioned province, ſituated on a rivulet which runs into the river Umaya, called alſo the river of Culiacan; 481 miles N.W. of Mexico. N. lat. 24° 32′. W. long. 106° 23′.

CULINARY, an epithet frequently added to *fire*; determining it to be a common fire, excited in wood, coals, or other ordinary fuel; in contradiſtinction to ſolar fire, or that raiſed by the action of a burning glaſs; alſo to central fire; to animal fire, &c.

The word is formed from the Latin *culina*, *kitchen*; this being the chief place of ſuch fires. See Fire.

Culinary *Plants*, in *Gardening*, are all ſuch plants as are made uſe of in the art of cookery, as articles of food, or for the purpoſe of garniſhing and ornamenting various kinds of diſhes.

CULL, anciently *Collops Magnus*, or *Cullu*, in *Geography*, a poor ſea-port town of Africa, ſituated at the bottom of the gulf of Stora, in the eaſtern province of Algiers, with a tolerable port, into which flows the river Zeamah. The French African company has a ſmall factory in this place, where they purchaſe, as they do at Bona, corn, oil, leather, wax, and wool, and conſtantly keep a reſident agent, who has charge of the correſpondence between Bona, Algiers, La Calle, and Marſeilles. N. lat. 36° 50′. E. long. 6°40′.

CULLEN, William, in *Biography*, an eminent practitioner, and teacher of medicine, was born at Lanerk, in Scotland, in the year 1712. His parents, who were reſpectable, but not wealthy, after giving him the uſual ſchool education of the country, put him apprentice to a ſurgeon and apothecary at Glaſgow. At the concluſion of the term of his apprenticeſhip, he was engaged as ſurgeon to a veſſel trading to the Weſt Indies, in which he made ſeveral voyages. Quitting at length this ſituation, he ſettled as ſurgeon and apothecary at a village in the pariſh of Shotts, whence, after a ſhort ſtay, he removed to Hamilton. He here formed a connexion with Mr., afterwards Dr. William Hunter. As they had not ſufficient buſineſs to employ the whole of their time, with a view of turning their leiſure to advantage, and of improving themſelves in their profeſſion, they agreed, each of them in their turn, to paſs a winter at ſome univerſity. Mr. Cullen went the firſt winter to Edinburgh, and entered himſelf as pupil in the ſeveral claſſes. That he attended diligently to his ſtudies while here was manifeſt, by his being ſoon after able to commence teacher. The following winter Mr. Hunter came to London, and entering into the ſervice of Dr. William Douglas, as aſſiſtant in his diſſecting room, he ſoon made himſelf ſo uſeful as to induce the Dr. to offer him a ſhare in his lectures, an offer too advantageous to be rejected by the young adventurer; though by this means the partnerſhip engagement between Mr. Cullen and Dr. Hunter was diſſolved, it made no breach in their friendſhip. They continued to correſpond with each other during the remainder of their lives. Cullen, while he remained at Hamilton, had the good fortune to be introduced to the duke of Argyle, while on a viſit in the neighbourhood, and to aſſiſt him in ſome chemical purſuits. But a more fortunate circumſtance was his being ſent for to the duke of Hamilton, who had been ſuddenly ſeized with a complaint, ſufficiently violent to alarm his family for his ſafety. The method adopted by Cullen was ſo judicious as to give relief to his noble patient, and to gain him the entire approbation of Dr. Clarke, who lived at ſome miles diſtance, and had alſo been ſent for. About the ſame time he married Miſs Johnſon, the daughter of a neighbouring clergyman, by whom he had ſeveral children. In the year 1746, he took the degree of doctor in medicine, and was appointed teacher of chemiſtry in the univerſity of Glaſgow, to which place he had removed a ſmall time before. He had now an opportunity of diſplaying his talents, which in a particular manner fitted him for the office of a teacher. His fondneſs for method and arrangement, his diſtinctneſs of enunciation, his vivacity of manner, and his knowledge of the ſcience he taught, made his lectures peculiarly intereſting to his pupils. In the mean while his reputation, as a practiſing phyſician, kept pace with his fame as a teacher, ſo that there were few caſes of difficulty in which he was not conſulted. In 1751 he was appointed profeſſor in medicine to the univerſity; and in 1756, on the death of Dr. Plummer, chemical profeſſor at Edinburgh, he was invited to accept that chair. This offer was too advantageous to be refuſed. Quitting, therefore, his engagements at Glaſgow, he went to Edinburgh, and in October in the ſame year, commenced his lectures. He ſoon became as great a favourite there as he had been at Glaſgow, and found his courſe attended by a greater number of pupils than any of the other profeſſors, excepting the teacher of anatomy. For this he was indebted not only to the great attention he paid to the buſineſs, and his complete knowledge of the ſubject, but to his addreſs, in managing his pupils, whom he treated with kindneſs and familiarity, inviting them to his houſe, allowing them the uſe of his library, and readily giving his advice and aſſiſtance in all their difficulties. Some ſhare of his popularity may alſo be attributed to the novelty of his opinions, or to a new theory on the cauſes of diſeaſes, which he occaſionally introduced into his lectures. Dr. Alſton, lecturer on the Materia Medica, dying in the year 1760, Dr. Cullen was appointed to fill his place; the duties of which he continued to perform until the year 1766, when, in conjunction with Dr. Gregory, he was appointed lecturer on the practice of medicine in the place of Dr. Rutherford. He now reſigned the chair of chemiſtry to Dr. Black, who had been his pupil, and who in that line more than rivalled his teacher. The year following, Dr. Gregory dying, Dr. Cullen had the ſole poſſeſſion of the practical chair, which he held to within a few months of his death. This happened on the 5th of February, 1790, he being in the ſeventy-ſeventh year of his age. Though he lived to this great age, yet no deficiency was obſerved in his memory, or in the diſtinctneſs and clearneſs of his delivery. His lectures were not written, but given from ſhort notes; they were therefore conſtantly varied, and the illuſtrations frequently entirely new. Finding his lectures on the Materia Medica were printing, he obtained an injunction againſt their being iſſued, until he had corrected them; and they were permitted to appear in 1772. In 1789 he gave an enlarged and improved edition of them, in two volumes, in 4to. Fearing a ſimilar fate to his "Lectures on the Practice of Medicine," he publiſhed them in 1784, in four volumes 8vo., but his moſt eſteemed work is his "Synopſis Noſologiæ Practicæ," in two volumes 8vo. It has paſſed through ſeveral editions. The fourth impreſſion, publiſhed in 1785, contains his laſt corrections. The firſt volume contains the noſologies of Sauvages, Linnæus, Vogel, Sagar, and Macbride: the ſecond his own, manifeſtly an improvement on thoſe of his precurſors. A ſmall publication concerning the recovery of perſons drowned, and ſeemingly dead, completes the works of this eminent profeſſor. General Biography.

CULLEN, in *Geography*, a royal borough in the county of Banff, Scotland. At one period this place was under the juriſdiction of an hereditary conſtable, which office was held by the earls of Findlater, when it was termed *Inverculan*, "from its ſituation at the mouth of the burn of Culan, or Cullen, which at the north end of the town falls into the ſea." The preſent earl of Findlater is almoſt ſole proprietor of the town, and hereditary provoſt, under whom the government is adminiſtered by three bailies, a treaſurer, dean of guild, and 13 counſellors. Cullen labours under two ſerious diſadvantages, the want of a harbour, and that of water for domeſtic purpoſes; the latter is confined to one ſolitary ſpring, but the former might be obtained for the expenditure of a few hundred pounds. The exertions of an earl of the above family eſtabliſhed a manufacture of linen and damaſk about 50 years paſt, which ſtill flouriſhes, and yet the general appearance of the houſes is mean, and the ſtreets filthy. Two villages, named Cullen and Portknockies, near the town, are inhabited by fiſhermen, who poſſeſs 14 or 15 boats, and ſupply Cullen and the country plentifully with fiſh, beſides which, they ſalt and dry large quantities of cod, ling, ſkate, and haddock, which they export in open boats to Leith, Montroſe, Arbroath, and Dundee.

The ſoil of the pariſh of Cullen varies conſiderably; a large portion is a deep rich loam, other parts are of ſtrong clay, and as it approaches the ſhore, there is a mixture of ſand and gravel. The diſtrict extends about four miles ſouthward from the ſea, and is three miles in breadth; the ſurface generally declines towards the north and eaſt, and Bin-hill is the only eminence entitled to the term of mountain, which is ſituated two miles from the ſea, and one ſouth-weſt of Cullen; this grand hill is 1050 feet above the level of the ocean, and has recently been planted with various ſpecies of trees to the ſummit; Cullen-houſe, the ſeat of the earl of Findlater, is ſurrounded with plantations formed about 25 years paſt by the earl, during which period 8000 Scots acres of land have been ſet with upwards of 30,000,000 of trees. The manſion ſtands upon a perpendicular rock 50 feet higher than the burn of Cullen, and the communication with the parks and woods is formed by a handſome ſtone-bridge over the burn, the ſingle arch of which is 64 feet high, and 84 in width; the nature of the ſurface of this domain produces the richeſt deſcription of landſcape; and the view from the houſe commands a fine circuit of country to the ſouth; nor is that to the north, including the frith of Moray, leſs beautiful. The antiquities of this pariſh are confined to the ruins of a caſtle ſituated on an eminence cloſe to the ſea, near the town of Cullen, and thoſe of a houſe where Elizabeth, queen of king Robert Bruce, is ſaid to have died. The farms of the diſtrict are generally ſmall, incloſed, and in a ſtate of high cultivation, and the population amounted to 1718 in 1791. Sinclair's Statiſtical Account of Scotland.

Cullen, a fair town of the county of Tipperary, Ireland; at a bog near which was found a golden crown, weighing ſix ounces, and many other ancient curioſities, of which an account is given in the Philoſophical Survey of the South of Ireland.

CULLIAGE, or Cullage, a right uſurped by the ancient lords, and eſtabliſhed by a ſhameful cuſtom, which gave them the firſt night with their vaſſals' brides.

The word is formed from the French *col, podex*, the *breech*.

It is ſaid this right was eſtabliſhed by Evenus III. king of Scotland, and finally aboliſhed by Malcolm III. a compenſation being ſettled in its ſtead; as occaſioning frequent revolts of the vaſſals againſt their lords. See Marcheta.

CULLION, in *Botany*. See Orchis.

CULLODEN, in *Geography*, a heath of Scotland, in the county of Inverneſs, about nine miles diſtant from Inverneſs, ſurrounded with hills, except on the ſide that lies open to the ſea, and celebrated by the victory obtained in April 1746, on the part of the duke of Cumberland, over Charles Stuart, the Pretender, which completely terminated the hopes of this family and its friends. In leſs than half an hour after the commencement of the action, the rebels were totally routed. The French piquets, after covering the retreat of the highlanders, retired to Inverneſs, and ſurrendered themſelves priſoners of war. An entire body of the rebels marched off the field in order, with their pipes playing, and the Pretender's ſtandard diſplayed; the reſt were defeated with great ſlaughter, and the field was covered with the dead and wounded. The road, as far as Inverneſs, was ſtrewed with the bodies of the ſlain. Twelve hundred, or as ſome ſay, 3000 rebels were ſlain or wounded in the field and in the purſuit. The earl of Kilmarnock was taken, and in a few days lord Balmerino ſurrendered; and was conveyed, with other leaders of the rebellion, by ſea to London, there to await their fate. The glory of this victory, in which the duke of Cumberland acquired great honour by his ſkill and valour as a commander, was unhappily ſullied by the barbarity of the ſoldiers, who thirſted for revenge. It is ſaid, that they traverſed the field of battle, and maſſacred thoſe miſerable wretches who lay maimed and expiring. The vanquiſhed adventurer rode off the field accompanied by a few horſemen; and having conferred with the old lord Lovat, diſmiſſed his followers, and wandered about, a wretched and ſolitary fugitive, among the iſles and mountains, for about four months, enduring ſuch a variety of hardſhips and ſufferings, as no other perſon ever ſurvived. In leſs than an hour, his hope wholly vaniſhed, and the rebellion was completely extinguiſhed. When the news of this battle arrived in England, the nation was tranſported with joy, and extolled the duke of Cumberland as a hero and deliverer. Both houſes of parliament congratulated his majeſty on the auſpicious event. They decreed, in the moſt ſolemn manner, their public thanks to his royal highneſs, which were tranſmitted to him by the reſpective ſpeakers; and the commons, by bill, added 25,000*l. per annum* to his former revenue.

CULLITON. See Colyton.

CULLOOR, a town of Hindooſtan, in the country of Golconda; 15 miles W. of Rajamundry, and 100 E. of Hydrabad.

CULLUMPTON, or Collumpton, a town of England, in the county of Devon, with a weekly market on Saturday. Here are manufactures of ſagathies, ſerges, and other woollen goods; 11 miles N. of Exeter, and 159 W. of London.

CULLY, or Cuilli, a ſmall but handſome town of Swiſſerland, in the canton of Berne, diſtrict of Lauſanne, delightfully ſituated on the banks of the Leman, or lake of Geneva, and remarkable for its excellent wine, which is reckoned one of the beſt of the famous wines *de la Vaux*. From an inſcription which has been found here, in honour of Bacchus, with the epithet *Libero Patri Coclienſi*, this town is ſuppoſed to be very ancient. In 1440 Louis de la Palu, biſhop of Lauſanne, gave the inhabitants leave to encloſe it within walls, and to ſurround it with ditches.

CULM, in *Botany*. See Culmus.

Culm, in *Agriculture*, is a term ſometimes applied to the haulm, trunk, or ſtraw of ſuch plants of the graſs kinds as elevate their leaves, flowers, and fruits according to the definition of Linnæus; and in which the trunks or ſtems are tubular or hollow; having in many caſes knots or joints diſtributed at ſuitable lengths or diſtances throughout their whole extent; the leaves being long, ſleek, and ſituated either near the roots in large numbers, or proceeding ſingly from the different joints of the ſtalk, which they embrace at the baſe, like a ſheath or glove. The haulm is moſt commonly garniſhed with leaves; ſometimes, however, it is naked, or devoid of leaves, as in a few ſpecies of cypreſs-graſſes. Moſt graſſes have a round cylindrical ſtalk or ſtem, but in ſome ſpecies of cypreſs-graſs, and others, it is triangular. The ſtalk is ſometimes entire; that is, has no branches; ſometimes branching, as in the *ſchœnus aculeatus* and *capenſis*; and not ſeldom conſiſts of a number of ſcales, which lie over each other like tiles. And laſtly, in a few graſſes the ſtalk is not interrupted with joints, as is the caſe in the greater part of them. The ſpace contained betwixt every two knots or joints is termed by botanical writers *internodium* and *articulus culmi*. This ſort of trunk often affords certain marks of diſtinction in diſcriminating the ſpecies of the plants. Thus, in ſome kinds the ſpecies are ſcarcely to be diſtinguiſhed, except by the angles of the *culmus* or ſtalks. Theſe, in ſome of the ſpecies are met with to the number of five, in others to ſix, and in others to ſtill more, as ten.

Culm, or Kulm, in *Geography*, a town of the grand duchy of Warſaw, which, ſince the peace of Tilſit in 1807, belongs to the kingdom of Saxony, and formerly belonged to Pruſſia, was built in 1239, on an eminence near the banks of the Viſtula, 90 miles S. of Dantzic. It was bequeathed by one of the ancient dukes of Mazovia to the knights of the Teutonic order. The inhabitants afterwards withdrew themſelves from the dominion of the latter, and ſubmitted to Poland. While the Teutonic knights had the ſovereignty of Culm, the high tribunal of Pruſſia was held in this city. Hence the law of Culm was in ſuch reputation that there were few places in Pruſſia where it was not received.

Culm is a large city, but thinly inhabited. It was anciently one of the Hanſeatic towns, carried on an extenſive trade, and contained conſiderable warehouſes, built by Engliſh merchants. Its commerce, however, began to decline in the beginning of the fourteenth century, when Dantzic roſe into notice. It alſo ſuffered conſiderably during the wars in Poland. In the year 1457 the knights of the Teutonic order, from whom Culm had revolted, made themſelves maſters of it again; but in a few years after it was retaken by the Poles, who raiſed it to a biſhopric. In 1544 Culm ſuffered greatly by fire. In 1678, biſhop John Malachowſky attempted to repeople the town, by attracting ſettlers from all parts; and it is worth recording, that, though a Roman Catholic dignitary, he was ſufficiently enlightened to grant the coloniſts the free exerciſe of the religious worſhip to which they might be attached.

The trade of Culm was once more reviving, and commencing to flouriſh under the dominion of Pruſſia, when the ſhort war of 1806 and 1807 annihilated again its fair proſpects. There was at Culm a Pruſſian military academy, for ſixty young noblemen. Culm has five Catholic convents, and a Catholic college, which, however, is hardly deſerving of that name.—Alſo, a hill of conſiderable magnitude in the midſt of the Saxon village of Reichenau, in the circle of the Ertzgebirge.

Culm, in *Mineralogy*, a variety, according to Kirwan, of the native mineral carbon, but leſs pure, differing from it chiefly in being more brittle, and emitting, when ignited, a diſagreeable ſmell. Its colour is black; luſtre from three to four; not eaſily kindled, but when ignited burns a long time without flame or ſmoke, does not cake, and leaves but little aſhes. The ſpecific gravity is 1.396. It ſeems to be the glanz-kohle of Werner. It is found in Wales. See Coal-*balls*.

CULMAIN, in *Geography*, a town of Germany, in the circle of Bavaria, and Upper Palatinate; 14 miles E. of Bayreuth.

CULMBACH, or Culembach, Hans Von, in *Biography*, a painter, and an engraver on copper and on wood. He is ſaid to have been a diſciple of Jacob Wolch, and afterwards to have received inſtructions from Albert Durer. He died in 1545.

This artiſt marked his plates with J. C. or H. v. C. We ſhall only notice the following, which are in a dry, ſtiff manner:

"A Soldier armed, converſing with a female Peaſant," 1517. "The Crucifixion of our Saviour, with the Virgin and St. John, one on each ſide the Croſs." "St. Michael killing the Dragon," copied from M. Schoen. Heinecken.

Culmbach, in *Geography*, a town of Germany, in the circle of Franconia, in the margraviate of Bayreuth, which, till the year 1806, belonged to Pruſſia. It was anciently the principal town of the margraviate, which went likewiſe by the ſame name. The town is ſeated on the river Mayne, near the old caſtle of Plaſſenbourg, 27 miles S.E. of Coburg, and 30 N.E. of Bamberg. E. long. 11° 28′. N. lat. 50° 12′.

CULMIFEROUS Plants, in *Agriculture*, are all ſuch as have ſmooth jointed or knotted ſtems, and in which the ſeeds are enveloped or wrapped up in a ſort of chaffy huſks or coverings. All the grains, and moſt of the graſſes, as well as many other plants, are of this kind.

CULMINATING Point, in *Magnetiſm*. See Magnet.

CULMINATION, in *Aſtronomy*, the tranſit of a ſtar or planet over the meridian, or that point of its orbit wherein it is at its greateſt altitude.

Hence, a ſtar is ſaid to *culminate*, when it paſſes the meridian.

To find the culmination *of a ſtar, or the time wherein it paſſes the meridian.* On a meridian line A B (*Plate* V. *Aſtronomy*, *fig.* 43.) ſtretch a thread, DC, perpendicularly; and from D to E, another DE, cutting the meridian obliquely, at any angle: the triangular thread, DCE, will cut the plane of the horizon in the meridian line, or at right angles; and conſequently will be in the plane of the meridian.

The eye, therefore, being ſo placed, as that the thread DE may cover the thread DC; wait till the ſtar be biſected by the triangle DCE; for then the eye and the ſtar will, together with the triangle DCE, be in the ſame plane; conſequently the ſtar is in the meridian.

To find the culmination of a ſtar by the globe, ſee Globe.

There are few days when one or more ſtars do not come to the meridian with the ſun, and then they have the ſame right aſcenſion with him:—alſo, at ſome time of the year, the ſun muſt have the ſame right aſcenſion which any propoſed ſtar has; though at other times he may have a leſs, and ſo precedes, or comes to the meridian before that ſtar; or a greater, and ſo follows that ſtar, and comes to the meridian later. Hence is derived the following method *of finding the culmination of the ſtars. Rule.* Subtract the ſun's right aſcenſion for the propoſed day, from the right aſcenſion of the given ſtar; the difference will be the time of the ſtar's culmination, nearly. Then ſay, as 24^h is to the daily change of the ſun's right aſcenſion, ſo is the time of culminating, nearly, to a fourth number, which, being ſubtracted from the time of culminating, nearly, will give the true time of the ſtar's culmination. If this time be leſs than 12^h it happens in the afternoon; but if more than 12^h, the exceſs above 12^h will ſhew the time next morning. N.B. 24^h muſt be added to the ſtar's right aſcenſion, if the ſun's right aſcenſion be greateſt.

If the time of the ſtar's culmination be wanted for any other meridian beſides that of Greenwich, or London, add the longitude in time to the time of culmination nearly, if the longitude be weſt, or take their difference if it be eaſt, and uſe that ſum or difference inſtead of the time of culmination nearly; obſerving only in the latter caſe, that if the longitude in time be greater than the time of culminating nearly, the minutes and ſeconds reſulting from the proportion muſt be added to the time of culmination nearly, inſtead of being ſubtracted from it.

To find the time of the culmination of the moon, or any planet. Mr. Keith has given the following rule in his "Trigonometry," b. iii. c. 2. Take the difference between the ſun's and planet's motion in right aſcenſion in 24 hours, if the planet be progreſſive, or their ſum, if retrograde. Then, as 24 hours diminiſhed by this ſum or difference, when the planet's motion is greater than the ſun's, or increaſed by it when the ſun's apparent motion is greater, is to 24 hours; ſo is the planet's right aſcenſion at noon, diminiſhed by the ſun's, to the time of its tranſit. Note. If the ſun's right aſcenſion be greater than the planet's, 24 hours muſt be added to the planet's right aſcenſion before you ſubtract.

CULMITZSCH, in *Geography*, a ſmall town of Saxony, in the circle of Neuſtadt, remarkable for a rich quarry of ſlate in its neighbourhood.

CULMORE Fort. See Londonderry.

CULMSEE, or Culmensee, a ſmall town of the grand duchy of Warſaw, which, ſince the peace of Tilſit, belongs to the kingdom of Saxony. It was built in 1251, and contains the cathedral church of the biſhopric of Culm.

CULMUS, in *Botany*, a Culm or Straw, is the peculiar ſtem of the graſs, corn, and reed tribe. It bears both leaves and flowers, though ſometimes the former are ſituated only about the lower part of the Culm. There are alſo many ruſhes which have none but radical leaves; yet their ſtem is by analogy called a *Culmus*, and not a *Scapus*. The nature of this kind of ſtem is better underſtood than defined. It is almoſt always cylindrical, rarely triangular, never ſquare. It is moſtly ſimple, rarely branched; generally conſiſting of ſeveral joints or knots, but ſometimes, as in ruſhes, uninterrupted. For the moſt part it is hollow, and lined with a fine brilliantly white film; ſometimes it is filled with pith. Its cuticle is hard, and contains flinty earth. This ſort of ſtem is not found in any dicotyledonous plant, but only in ſuch as have either one cotyledon, or none at all. S.

CULPABILIS. See Non *eſt culpabilis*.

CULPÆUS Canis, &c. in *Zoology*, the Arctic fox, or Canis Vulpes Lagopus; which ſee.

CULPEPPER, Nicholas, in *Biography*, ſtudent, as he calls himſelf, in phyſic and aſtrology, was the ſon of a clergyman, by whom he was ſent, after receiving a preparatory education, to the univerſity of Cambridge. There making but a ſhort ſtay, he was put apprentice to an apothecary, under whom he appears to have acquired a competent knowledge of the Materia Medica, and of the method of preparing and compounding medicines. On completing the term of his apprenticeſhip, he came to London, and ſettled in Spital Fields. This was about the year 1642. By the whole tenor of his writings we find he joined, or, at leaſt, favoured the Puritans, and thoſe who were engaged in thoſe unhappy times in overturning the conſtitution of the country. But his warfare was with the college of phyſicians, whom he accuſed of craft and ignorance. Like the popiſh clergy, he ſays, they endeavoured to keep the people in ignorance of what might be uſeful either in preſerving or reſtoring health. To counteract their endeavours, he publiſhed, in 1649, a tranſlation of the "Diſpenſary of the College of Phyſicians," in ſmall 4to., adding to the account of each drug and preparation a liſt of their ſuppoſed virtues, and of the complaints in which they were uſually given. He alſo publiſhed an Herbal, which has paſſed through ſeveral editions, and is ſtill in repute as a ſort of family guide. He tells you in this book under what planet the plants are to be gathered, which he thinks eſſential in preſerving their virtues. He intended, he ſays, treating of the diſeaſes incident to men, at the different periods of their lives, and as a beginning, gave a directory to midwives, treating in it of the method of inſuring a healthy progeny, and then of the management of new-born children. Though this book is of very ſmall value, it paſſed through many editions. He died at his houſe in Spital Fields in 1654.

Culpepper, in *Geography*, a county of Virginia, in America, between the Blue Ridge and the Tide-Waters, which contains, by the cenſus of 1800, 18,700 inhabitants, of whom 7348 are ſlaves. The court-houſe of this county is 45 miles from Frederickſburg, and 95 from Charlotteſville.

CUL-PRIT, in *Law*, a term uſed by the clerk of the aſſiſe, or clerk of the arraigns, on behalf of the crown, when a perſon is indicted for a criminal matter.

After the indictment is read in court (which is the crown's charge againſt the priſoner at the bar), he is aſked if guilty, or not guilty? If he anſwers *not guilty*, there is next a replication from the crown, by continuing the charge of guilt upon him; which is expreſſed by pronouncing the word *cul-prit; cul* being an abbreviation of the Latin word *culpa, guilt*, or *culpabilis, guilty*, and *prit* (now *pret*) the old French word for *ready;* or, as others rather think, the Latin *apparet, appears:* or rather, *qu'il paroit*, let it appear ſo, *i. e.* not guilty.

From this formula, therefore, of the clerk of the arraigns, the priſoner is deemed guilty of the crime charged on him; and that the crown is ready to prove it upon him: this ſenſe of the term *prit* being deduced from the year-books, and other ancient repoſitories of law.

That this is the true explanation of the term, ſeems evident from the form of the entry of the record of the trial, when drawn at large.

By this replication, the king and the priſoner are at iſſue. How our courts, ſays judge Blackſtone, came to expreſs a matter of this importance in ſo odd and obſcure a manner, "*rem tantam tam negligenter*," can hardly be pronounced with certainty. It may, perhaps, however, be accounted for by ſuppoſing, that theſe were at firſt ſhort notes, to help the memory of the clerk, and remind him what he was to reply; or elſe it was the ſhort method of taking down in court, upon the minutes, the replication and averment; "*cul-prit*," which afterwards the ignorance of ſucceeding clerks adopted for the very words to be by them ſpoken. But, however it may have ariſen, the joining of iſſue, (which, though now uſually entered on the record, is no otherwiſe joined in any part of the proceedings) ſeems to be clearly the meaning of this obſcure expreſſion; which has puzzled our moſt ingenious etymologiſts, and is commonly underſtood as if the clerk of the arraigns, immediately on plea pleaded, had fixed an opprobrious name on the priſoner, by aſking him, "*culprit*, how wilt thou be tried?" for, immediately upon iſſue joined, it is inquired of the priſoner, by what trial he will make his innocence appear. This form has, at preſent, reference to appeals and approvements only, wherein the appellee has his choice either to try the accuſation by battel or by jury. But upon indictments, ſince the abolition of ordeal, there can be no other trial but by jury, *per pais*, or by the country; and, therefore, if the priſoner refuſes to put himſelf upon the inqueſt in the uſual form, that is, to anſwer that he will be tried by God and the country, if a commoner; and if a peer, by God and his peers; the indictment, if in treaſon, is taken *pro confeſſo;* and the priſoner, in caſes of felony, is adjudged to ſtand mute, and if he perſeveres in his obſtinacy, ſhall now be convicted of the felony. Stat. 12 Geo. III. c. 20. When the priſoner has thus put himſelf upon his trial, the clerk anſwers in the humane language of the law, which always hopes that the party's innocence, rather than his guilt, may appear, "God ſend thee a good deliverance."

CULROSS, in *Geography*, a royal borough and ſea-port, in the county of Perth, Scotland, is ſituated on the north ſhore of the Frith of Forth, whence it appears to great advantage, elevated on an abrupt aſcent. The town conſiſts of two ſtreets, interſecting each other at right angles. It received its charter from James VI. in 1588, and is ſtill in poſſeſſion of all the original privileges granted by that royal act. James IV. and Charles II. granted the inhabitants the excluſive privilege of making *girdles* of iron, an utenſil uſed in Scotland for baking unleavened bread; but the girdles caſt at Carron having ſuperſeded them, the town has evidently declined; nor has their hitherto conſiderable trade in ſalt and coals been more ſucceſsful lately than was an attempt to extract tar, naphtha, and volatile ſalt, from pit-coal, commenced by the earl of Dundonald, who expended large ſums in erecting works for this purpoſe at Culroſs. The harbour is perfectly ſafe; but ſeveral ſunk rocks obſtruct the entrance, and thus prevent the admiſſion of ſhips of conſiderable burden, though the ſpring tides riſe about ſixteen feet.

The pariſh of Culroſs is nearly four miles ſquare; and, except the ſudden aſcent from the ſhore, may be pronounced almoſt level. The ſouth portion of the ſoil is in a ſtate of excellent cultivation; but the north is little more than a vaſt marſh, ſuſceptible of no other improvement than planting. Part of the diſtrict abounds with iron ores and iron-ſtone, free-ſtone of ſuperior quality, and coals: and at Kincardine, four miles from Culroſs, fiſh are caught to the amount of 1000 *l. per annum*, by *cruives*, an invention calculated to facilitate the labours of the fiſherman. The monaſtery of Culroſs, ſituated above the town, was founded by Malcolm, thane of Fife, in 1217, who dedicated it to the Virgin Mary and St. Servanus, and endowed it for an abbot and nine monks of the Ciſtertian order. Near the ancient abbey church is the magnificent ſeat of Culroſs, erected about 1590, by Edward lord Kinloſs, and now the property of the earl of Dundonald; beſides which, the pariſh contains an elegant manſion, named Valley-field, the reſidence of ſir Charles Preſton, and the veſtiges of two Daniſh camps. The population was 1442 in 1792.

CULTELLATION, a term which ſome authors uſe for the meaſuring of heights and diſtances by piecemeal; that is, by inſtruments which give us ſuch heights and diſtances by parts, and not all at one operation.

CULTIVATION, in *Agriculture*, the art of tilling, preparing, and improving the ſoil by means of labour and manure, or other ſimilar methods, ſo as to render it in a fit condition for affording plentiful crops, of different kinds, at ſuitable periods, according to the nature of the climate, ſituation, and other circumſtances in which it is placed. It is the art of bringing land into ſuch a ſtate of texture and conſiſtence, as that the roots of cultivated vegetables may be permitted to ſpread and extend themſelves in the moſt proper manner for deriving their nouriſhment from it; and that water and other matters neceſſary for the perfect growth, vegetation, and ſupport of ſuch plants as crops, may be contained and preſerved in it in the moſt favourable manner for theſe purpoſes.

This is a buſineſs of courſe, which conſiſts of different diviſions or diſtinctions, in reſpect to its nature, as,

1. Tillage, in all its different branches.
2. Manuring, or the application of compoſts, and other ſubſtances.
3. Weeding, or the removal of all ſorts of noxious plants.
4. Managing graſs-plants, or graſs huſbandry.

The proper management, in regard to all theſe, and ſome other circumſtances, conſtitute what may be termed cultivation, or field huſbandry. See TILLAGE and HUSBANDRY.

CULTIVATOR, a name given to an implement, ſomewhat of the horſe-hoe kind, invented for the more convenient and effectual ſtirring of the earth or mould. (See HORSE-HOE DRAG, EXTIRPATOR, &c.) The implements of this kind, which are employed in agriculture, are conſtructed in very different ways, according to the nature and circumſtances of the land, and the particular crops and uſes for which they are deſigned. In *Plate* X. on *Agriculture*, *fig*. 1, there is the repreſentation of one, which is made upon a very ſimple plan, and which is recommended by the writer of the Agricultural Survey of the County of Nottingham. The dimenſions of which are theſe: from *a* to *b*, the length of the firſt bull, 4 feet 6 inches. From *c* to *d*, the length of the ſecond bull, 3 feet 9 inches. From *a* to *e* 16 inches; the teeth 2 feet long, and bent near the bottom, for the ſhare part to lie flat on the earth, and placed one foot from each other. From *e* to *f*, the length of the beam is 6 feet. From *g* to *h*, the length of the iron axletree for the ſmall wheels, 1 foot 6 inches. From *i* to *k*, the length of the iron that ſhifts through the beam, and faſtens with a ſcrew at *l*, 2 feet.

The great advantage in this tool is, that the teeth are ſo placed, that they interſect each other; and being only twelve inches apart, by thus interſecting, the diſtance is reduced to ſix inches; and from the breadth of the ſhare being full three inches, the intermediate ſpace is further reduced, ſo that the diſtance is ultimately ſo ſmall, that the whole of the ground muſt be perfectly broken down and reduced into a fine ſtate of mould, in conſequence of which, the purpoſe of ploughing is not only anſwered, but that of harrowing likewiſe, without the roots of the quick-graſs being cut in two; which is a benefit that cannot be obtained by ploughing. And from the teeth ſtanding in a forward direction, and bending in that way, they likewiſe bring up all the roots to the ſurface of the land, which is another important point that cannot be gained by the plough. And there is a conſiderable abridgement of labour with this tool, which is another circumſtance of great conſequence to the farmer; as with four horſes and one man, from ſix to ſeven acres are capable of being worked over in the courſe of a day, eſpecially where the ſoil is of a ſandy quality. And at *fig*. 2, is ſhewn a *corn cultivator*, which is employed in Eſſex, where the grain is ſown at narrow intervals, by Mr. Rogers, and other farmers, as ſtated in a ſurvey of that diſtrict, by Mr. Young. The handles from Cook's machine are capable of being attached to it. The dimenſions are as below:

	Feet.	Inches.
From *a* to *b*	4	7
c to *d*	4	7
c to *a*	0	9
d to *f*	0	9
a to *e*	0	10
e to *g*	0	5
g to *h*	0	4

This is found a very uſeful and convenient implement in theſe caſes, for working between the narrow rows of white corn-crops.

Fig. 3, exhibits the repreſentation of a *bean cultivator*, which is made uſe of by the ſame farmer at Ardleigh, and which is found in practice to be a moſt excellent tool.

The dimenſions of it are theſe:

	Feet.	Inches.
From *a* to *b*	4	0
a to *c*	1	3
b to *d*	1	3
e to *f*	1	0
f to *g*	0	5
g to *h*	1	0
h to *i*	0	5

And at *fig*. 4, is exhibited a *double cultivator*, which is found uſeful on the farm of C. C. Weſtern, eſq. in the ſame county.

The dimenſions of this are as below:

	Feet.	Inches.
From *a* to *b*	6	0
c to *d*	1	10
b to *h*	1	9
e to *h*	6	0
f to *h*	1	2
f to *g*	0	11
Diameter of wheels	2	1

This is a very powerful and effective implement, and diſpatches much work with facility.

An improved implement of this ſort is likewiſe ſhewn at *fig*. 5, which is found of great utility in preparing and bringing ſtiff heavy ſoils into a fine ſtate of mould. It is well calculated for this purpoſe, from the weight which it poſſeſſes, and its great length of coulters. In this tool *a*, *b*, *c*, *d*, are the beams or bulls in which the ſhares or coulters are placed, and which have a ſort of triangular form; *d*, *d*, *d*, the three wheels, which are capable of being raiſed or depreſſed, and *e*, *e*, the handles.

Implements of this kind are alſo ſometimes conſtructed of a compound deſcription, ſo as to operate, with certain additions, in reſpect to ſhares, as *ſcarifiers* and *ſcufflers;* and, when complete, as a cultivator. Mr. Cook is the inventor of an uſeful tool of this nature. See Scarifier and Scuffler.

CULTRARIUS. See Popæ.

CULTURE, in *Agriculture*, the art of tilling, improving, or bettering the condition of lands, by ſuch practices as are the moſt adapted to their peculiar nature and qualities, whether under the ſyſtems of grain or graſs huſbandry.

Culture, *Row*, is that mode of cultivation in which the crops are ſown or ſet in rows or drills, at certain diſtances, by means of the hand or machinery. See Drill-Husbandry, and Drill.

CULVER, in *Rural Economy*, a name provincially given in ſome diſtricts to the pigeon.

Culver-*Houſe*, a name ſometimes applied to ſignify a pigeon-houſe, or dove-cot.

CULVERINE, a piece of artillery longer than ordinary cannon of the ſame caliber. Its length is generally about ten feet ſix inches. The famous culverine of Nancy is 22 feet long, and throws a bullet of 18 ℔. They do not make uſe of this piece, as it does not throw a ball ſo far as cannon of the ſame bore. It is at Dunkirk. See Cannon Hence a ſoldier of militia in the 15th century, was called by the French *coulevrenier*. He wore an habergeon, or ſmall coat of mail, or armour with ſleeves, a gorgerin, or neck-piece, and a head-piece, and braſs placard before, with a dagger and cutting-ſword

CULVERT, an arched drain for the paſſage of water; theſe occur very frequently under roads, and ſtill more ſo under navigable canals, for conveying rills and brooks of water from the upper to the lower ſide of the road or canal, and even for diſcharging the rain water out of hollows on the upper ſide of a canal. When ſuch a drain or arch under a canal ſinks down in the middle, in order to clear the bottom of the canal, it is ſaid to be "broken-backed." Under the article Canal we have treated pretty fully on the conſtruction of culverts, and have only here further to add ſome remarks on the culverts for large canals, like the Inverneſs and Fort William, or Caledonian Canal, where it is difficult for the engineer in a ſhort ſpace of time to aſcertain the ſize of culverts for ſome ravines, ſufficient for diſcharging their flood waters, and not be liable to choak by timber and other matters hurried down ſome of the ſtreams from mountainous diſtricts, and where it is often adviſable to conſtruct two arches, in ſuch glens as are deep enough to admit of it, the larger of which may ſerve for a road-arch, or communication under the canal, at all times but during great floods, by which the inconvenience and expence of bridges over the canal may be ſaved, in many inſtances. At Bannavie, a culvert, or aqueduct, as the ſame are called when they exceed a certain ſize, under canals, was finiſhed under the Caledonian Canal, in the ſpring of 1806, by Mr. Thomas Telford, conſiſting of two arches 9 feet wide, and 10 feet high each, their bottoms being paved with ſtones on edge, to ſerve for the paſſage of carts, cattle, &c., which otherwiſe muſt have had a pair of ſwing bridges over this large canal, which is too wide to admit of one bridge to turn or ſwing acroſs it. We lately had occaſion to notice ſome places on the upper ſide of the Grand Junction Canal, in Buckinghamſhire, where the culverts are made ſo ſmall that ſudden rains have been known to inundate one or more houſes, while buſhes, ſtraw, and other matters are always liable to choak up or diminiſh the water-way, ſo as to endanger the lives of the inhabitants, were ſuch to happen in the night of a rainy ſeaſon.

CULVERTAIL, in *Ship-Building*, is uſed for a manner of letting one timber into another, ſo that they cannot ſlip aſunder. The faſtenings of a ſhip's *carlings* into the beam is ſo performed. See Dove-tail.

CUMA, in *Geography*, a town of the iſland of Gilolo, ſituated at the bottom of a large bay.—Alſo, a ſmall iſland in the Mediterranean, near the coaſt of Italy; five miles weſt of Naples. See Cumæ.

CUMÆ, in *Ancient Geography*, *Cuma*, or *Cyme*, an ancient city of Italy, in the Campania, weſt of Naples, and north of Baiæ, ſituated near the ſea, on a lofty rock or hill, which afforded a beautiful and extenſive proſpect, and a proper place for the foundation of a citadel. It is ſaid to have been founded in times of remote antiquity by two colonies of Greeks; one of which migrated from a city of the ſame name in Æolia, and another from Chalcis in Eubœa; and both of them accuſtomed to maritime occupations, ſailed in purſuit of diſcoveries into the Mediterranean, and eſtabliſhed themſelves on the coaſt of Italy. Theſe two colonies, after ſome previous adventures, ſettled on the ſame ſpot, and determined to ſhare in common the honour and advantage of the ſituation in which they were eſtabliſhed. Accordingly, the Cumæans gave their name to the new city, and the Chalcidians gave theirs to the inhabitants, ſo that the city of Cumæ was inhabited by Chalcidians. This colony, in proceſs of time, became very powerful, and extended itſelf along the coaſt of Naples. The firſt eſtabliſhment of the Cumæans was at a place called "Dicearchia," which was adapted to the accommodation of their veſſels; and it afterwards took the name of Puteoli or Puzzuoli. The Cumæans ſoon perceived that they had not choſen the moſt favourable ſpot for a permanent and flouriſhing ſettlement; the gulf of Naples preſented a more commodious and deſirable ſituation; but as their capital had been conſecrated to the gods, and the lares had poſſeſſion of their houſes, they thought it impiety to abandon it. However, they built a ſecond town at the bottom of the gulf, and this they called "New Cumæ," or Νεαπολις Κομαιων. Such was the origin of the name, and of the town of Naples. The Cumæans made alſo another eſtabliſhment at Baiæ. Cumæ, founded as we have related by Greek emigrants, became the ſeat of commerce, the parent of Naples, and the capital of a ſtate that ruled the ſeas before either Rome or Carthage were heard of. Its proſperity was of long duration, while the power of infant Rome was confined within the narrow limits of her own plain. Under the ſway of Ariſtodemus, Cumæ afforded an aſylum to Tarquin the Proud, the depoſed king of Rome, whom all the neighbouring potentates had in vain attempted to aſſiſt, and had refuſed to relieve. This harbourer of a baniſhed prince had attained the height of power by ſubverting the liberties of his country. In the 64th Olympiad, about the 524th year B. C., the Tyrrhenians attacked Cumæ, in hopes of plundering her rich ſtores, the fruits of long and proſperous traffic, but were driven off with loſs; in this emergency, the republic owed its ſafety to the courage and conduct of Ariſtodemus, and rewarded his ſervices with every token of honour which a free ſtate could beſtow. He ſoon became ſo popular a leader, as to excite the jealouſy of the ſenate; with a view to his deſtruction, they ſent him with a very ſmall force to defend the city of Aricia againſt the Tuſcans ; but by the exertion of great military talents, Ariſtodemus terminated the campaign gloriouſly, and when he returned to Cumæ, availed himſelf of the attachment of the troops for deſtroying his enemies, and uſurping the ſovereign authority. He reigned many years with deſpotic authority, but at length, as it has happened to many other tyrants, was betrayed by his own creatures, and, with his whole family, put to the ſword. As Rome advanced in her fortunate career, the glory of all the neighbouring powers faded away before her; the Cumæans, in their turn, ſubmitted to her yoke, and were treated with lenity ; but real liberty was gone, and trade abandoned their ſhores ; at length, the dullneſs and ſolitude of the place grew ſo profound, as to become proverbial: "vacuæ Cumæ," "Quieta Cyme, &c." Indeed, the Cumæi were noted for their ſtupidity. "Cumæ is ſtupid to a proverb," ſays Strabo, (lib. 13.) ; and he aſſigns theſe reaſons for it. *Firſt* of all ; they were 300 years before they thought of laying a duty on merchandize imported into their harbours, and before they found that they inhabited a maritime city. *Secondly*. Having mortgaged their porticoes for a certain ſum of money, and failing to pay it at the time ſtipulated in the contract, their creditors would not allow them to walk under them ; but, when the rains began to fall, thoſe creditors, being touched with compaſſion, cauſed it to be publiſhed, that the Cumæans might, if they pleaſed, take ſhelter under their own porticoes : which gave occaſion to this raillery : "The Cumæans had not the ſenſe to know that they had a right to ſtand under their own porticoes when it rained, till they were informed of it by the voice of the crier." Cumæ was farther reduced to a lower ſtate by the Goths ; and at laſt, being a mere receptacle for thieves, it was, in the year 1207, totally ruined and forſaken. The rocky hill upon which the citadel of Cumæ ſtood, is the produce of an eruption, and hollowed into many ſpacious caverns, amongſt which we now look in vain for the grotto where the "Cumæan ſibyl" (ſee Sibyl) pronounced her oracles ; this ſanctuary was undermined and deſtroyed in the Gothic war. Agathias informs us that it was ſcooped into the form of a temple, the roof of which ſerved as a foundation for one of the principal towers of the fortreſs. When Narſes inveſted the citadel, he cauſed this rocky cover to be cut through in ſeveral directions, and then propped up with beams; when every thing was ready for the aſſault, the wood was ſet on fire. As ſoon as the props were conſumed, the rocks gave way, and the walls fell with them into the temple ; and on theſe accumulated ruins the imperial troops entered the breach. If antiquarians may be credited, the cave which was the abode of the Cumæan ſibyl, extends three Italian miles in length, to the lake Avernus, where it has another entrance; but in ſeveral parts the paſſages have been ruined ; and at the entrance near Cuma, it is not poſſible to advance above 200 paces. This part of it is cut out of a rock, and is of conſiderable height and breadth. Some years ago, the imperial general Wenzel cauſed an aperture with 51 ſteps to be cut in the ſide of the cave, for the convenience of coming out of it ; but the peaſants have ſince ſtopped it up.

Cumæ extended acroſs the plain towards the eaſt, where many ruins are ſtill to be ſeen. A large brick arch, called "l'Arco Felice," thrown acroſs a chaſm in the ridge that bounds the plain on the eaſt ſide, is ſuppoſed to have been a gate of the city, or a paſſage under a Roman aqueduct, and not a monument of the ancient Cumæan republic. In Lucan's time, about A. D. 62, Cumæ appears to have been a very populous city, from the following paſſage :

"—— Acidalia quæ condidit Alite muros
Euboicam referens fœcunda Neapolis urbem."

"Where the fam'd walls of fruitful Naples lie,
That may for multitudes with Cumæ vie."

The adjacent country ſtill retains a luxuriant fertility, eſpecially towards "Torre di Patria," where it produces abundance of fig-trees.

Cumæ, a town of Aſia, in Æolia, the largeſt and moſt beautiful in this province, according to Strabo. Some have ſaid that Homer, and alſo Ephorus, were of this city. It was epiſcopal, as we learn from the acts of the council of Epheſus, held in the year 431.

CUMAMUS, in the *Materia Medica*, a name given by many of the ancients to Cubebs.

CUMANA, in *Geography*, a province of the government of Caracas in South America, including alſo Barcelona, which, however, has never formed a diſtinct province, but being included in the grant to the Walſees, was eſteemed a part of Venezuela. The town of Barcelona was founded in 1634, on a plain, one league from the mouth of the river Neveri. The population is computed at 14,000; but the town is diſagreeable, and is only noted for feeding ſwine. The population of the province of Cumana amounts, according to Depons, to 80 000.

The town of Cumana is the moſt ancient in the Caracas, having been founded in the year 1520, on a ſandy ſoil, about a league from the ſea. The heat of the climate is very great; nevertheleſs the population is computed at 24,000, and is thought to be on the increaſe. It is, however, ſubject to frequent earthquakes, which Humboldt ſuppoſes to proceed from the volcanoes of Cumucuta, which force out ſulphur and hot-water. The caverns of Cuchenaro emit an inflammable gas, which ſhines in the night, eſpecially after rains, to the height of 100 fathoms. The population of Cumana is compoſed chiefly of Creoles, who are induſtrious, and fond of their native place. The great article of trade is ſalted fiſh, which is ſent to Caracas and the windward iſlands; the induſtrious inhabitants being from Catalonia, and the Canaries. Cumana is difficult of acceſs, and might preſent a defence of about 5000 men. N. lat. 10° 12′. W. long. 66° 40′.

Cumana, *New*, or *New Andaluſia*. See *Spaniſh* Guiana.

CUMANAGATE, a ſmall town in a bay on the coaſt of Terra Firma, in the province of Cumana ; ſituated on a low flat ſhore, which abounds with pearl oyſters.

CUMANCHES, a tribe of warlike Indians, who every year enter the province of New Mexico, to the number of about 1500 men. Their country is unknown, as they always march prepared for war, which they carry on againſt all the other tribes. They encamp in tents made of the ſkins of buffaloes, and which are carried on the backs of large dogs trained for that purpoſe. The men are only cloathed down to the navel, and the women to their knees. When they have concluded the traffic which brings them to this province, conſiſting in the ſkins of wild goats and buffaloes, and little children, whom they have made captives, for they kill the men and women, they withdraw till another year.

CUMANDA Guacu, in *Botany*, a name for certain very large Indian kidney-beans, which roaſted, contuſed, and exhibited with an egg, are given for fluxes of the belly ; boiled, made into a cataplaſm, and applied to the belly, they are ſaid to cure colic pains; and they are in this form applied to apoſtemations, with a view of reſolving them.

CUMANIA, or Comania, in *Ancient Geography*, *Kizlar-Kaleſſi*, a fortreſs ſituated on an elevated rock, before the Caucaſan gates according to Pliny. He ſays that it was provided with a good garriſon, for defending the paſſage which led to an immenſe number of barbarians, who inhabited the regions on the other ſide of Caucaſus.

CUMARCA, in *Ichthyology*, a ſpecies of *Stromateus*; which ſee.

CUMARUNA, in *Botany*, Aubl. Guian. Pl. 296. Lam. Ill. Pl. 601. Claſs and order, *diadelphia decandria*.

Gen. Ch. *Cal.* Perianth top-ſhaped, one-leafed, three-toothed. *Cor.* Petals five, two lower ones ſhorter. *Stam.* Filaments ten, nine united at the baſe. *Peric.* Legume, with a ſingle ſeed.

Sp. C. A tree. *Leaves* alternate, pinnated; leaflets few, alternate, egg-ſhaped, veined. *Flowers* in a terminal panicle. A native of Guiana.

CUMBACH, in *Geography*, a ſmall town of Germany, in the Principality of Saxe Gotha, remarkable for a fiſhpond of 120 acres, which yields excellent carp and eels.

CUMBER, a poſt town of the county of Down, Ireland, ſituated on a branch of the lake of Strangford. It has a very fine ſtrand near it, and a race courſe two miles in circuit, It is 84 Iriſh miles N. of Dublin, and about 9 S. E. from Belfaſt.

CUMBERLAND, Richard, in *Biography*, an Engliſh biſhop of conſiderable celebrity, was born in London in the year 1632: he received his claſſical learning at St. Paul's ſchool, whence, about the year 1649, he was removed to Magdalen College, Cambridge. Here he took his degrees, and purſued his ſtudies with a view to the practice of medicine. Phyſic, however, he ſoon relinquiſhed for the ſtudy of theology; and being elected fellow of the college, he took orders, and obtained the rectory of Brampton, in Northamptonſhire, where he continued in the zealous diſcharge of the duties attached to his office, till the year 1667, when he came to London, and was choſen chaplain to ſir Orlando Bridgman, then chancellor, who ſhortly after preſented him with the living of Allhallows, in Stamford. In this ſituation he devoted himſelf as well to the immediate duties of his profeſſion, as to philoſophical ſtudies. In 1672 he publiſhed a treatiſe, in quarto, entitled, "De Legibus Naturæ Diſquiſitio Philoſophica, &c." This work, which was intended as a refutation of the tenets of Hobbes, obtained for its author a high degree of reputation. It has been twice tranſlated into Engliſh, with additions. In 1680 he took his doctor's degree; and in 1686 he publiſhed, "An Eſſay towards the Recovery of the Jewiſh Weights and Meaſures, comprehending their Monies, by Help of an ancient Standard, compared with ours of England, &c." Dr. Cumberland was always attached to the doctrines of the church of England; and on account of his zeal in defence of the principles of the revolution, he was ſelected as a fit perſon to fill the ſee of Peterborough. To this high honour he was appointed without any ſolicitation, and ſolely on account of his learning, virtues, and zeal; he is ſaid even not to have known the fact, till he read an account of it in the public newſpapers. In 1691 he entered upon the duties of the epiſcopal office, which he performed for many years with the greateſt aſſiduity. He died in the year 1718, of a paralytic ſtroke, in his 87th year. His life had been active, and his various purſuits required deep ſtudy and intenſe thinking; but his faculties were ſtrong till almoſt the laſt period of his mortal exiſtence. So great was the vigour of his mind, that, at the age of 84, when biſhop Wilkins preſented him with a copy of his Coptic Teſtament, he ſet about ſtudying the language, and made ſo rapid a progreſs in it, that he was able to read the greater part of the verſion with the moſt critical attention. After the death of biſhop Cumberland, his ſon-in-law, Mr. Payne, publiſhed "Sanchoniatho's Phœnician Hiſtory, tranſlated from the firſt Book of Euſebius, de Preparatione Evangelica, &c." upon which the venerable prelate had beſtowed much time and reſearch; and in the courſe of the inquiry he was led to other ſubjects, an account of which he left behind him in MS., which was publiſhed by the ſame editor, under the title of "Origines Gentium Antiquiſſimæ, or, Attempts for diſcovering the Times of the firſt Planting of Nations." The character of this learned prelate was highly eſteemed by his contemporaries; his principles were moderate; and he was candid towards thoſe whoſe ſentiments did not correſpond with his own. His manners were unaſſuming, condeſcending, and affable; and his piety was the reſult of excellent habits formed in early life. He was hoſpitable without oſtentation; and by his example, as well as by his advice, he did every thing in his power to render the clergy in his dioceſe reſpectable, uſeful, and happy. Biog. Brit.

Cumberland, in *Geography*, a maritime county in the northern part of England, bordering Scotland, is bounded on the weſt by the Iriſh Sea, into which its weſtern coaſt projects, ſomewhat in the form of a bow, to an extent of nearly 70 miles; on the north it is ſeparated from Scotland by Solway Frith, the Scots Dyke, and the river Liddal; its eaſtern ſide is ſkirted by the counties of Northumberland and Durham, the dividing limits being moſtly artificial; to the ſouth its boundaries are Weſtmoreland and Lancaſhire: from the former it is partly ſeparated by Ulls-water and the river Eamont, and from the latter by the river Duddon. The greateſt extent of the county is about 80 miles, but its mean length not more than 60; its general breadth is nearly 35; and its circumference 224. It contains 970,000 acres: of theſe 342,000 compriſe the mountainous diſtricts; 470,000 are encloſed, and chiefly under cultivation; 150,000 are in low commons, capable of improvement; and 8000 in lakes and waters. Cumberland is divided into five wards, ſynonymous with the hundreds in other counties; but ſo called here, from the inhabitants of each diviſion being formerly obliged to keep watch or ward againſt the irruptions of the Scots, in times of warfare. It contains one city, Carliſle, 17 market-towns, 112 pariſhes, 22,445 houſes, and 117,230 inhabitants. The ward of Allerdale, above Darwent, is in the dioceſs of Cheſter; all the other part of the county in that of Carliſle. The repreſentatives in parliament are ſix, *viz.* two for the county, two for Carliſle, and two for Cockermouth. Cumberland pays one part of the land-tax, and provides 200 men for the militia.

The ſurface of the county is extremely irregular and broken. The ſouth-weſtern diſtrict exhibits a gigantic combination of lofty, rugged, and rocky mountains, promiſcuouſly thrown together, but encloſing many beautiful, though narrow, vallies, as well as fine lakes, rivers, and ſome extenſive woodlands.. On the eaſtern confines, another range of hills ſtretches along to Scotland, but poſſeſſes much leſs pictureſque beauty than the former. In the front of this laſt aſſemblage, a conſiderably broad tract of low ground extends the whole length, unobſtructed by any high mounts, partly cultivated, partly heathy common, and watered by the Eden, and numerous brooks and rivulets. This tract becomes very extenſive before it reaches Carliſle; ſtretching acroſs the county to Wigton, and thence towards Workington, including all the northern part of the county. Along the weſtern ſhore there is a ſtrip of cultivated land, from two to four or five miles in width. The woodlands are but few; and the general appearance of the county is bleak and naked, from the extenſive moors which ſo frequently preſent themſelves to the eye of the traveller. The ſoils of this diſtrict are exceedingly various, but have been claſſed under the diviſions of fertile clays, or ſtrong rich loams, which occupy but a ſmall portion of the county, and are chiefly appropriated to the growth of wheat; dry loams, including the different degrees from the rich brown loams to the light ſandy ſoils, and occupying the greater portion of the land; wet loam, generally on a clay bottom, and adapted to grazing; and black peat-earth, which is very prevalent in the mountainous diſtricts, and particularly thoſe adjoining Northumberland and Durham. The encloſed grounds are kept free from moles by an excellent practice obſerved in the different pariſhes, of hiring perſons to deſtroy them for a term of years, at a certain annual ſalary, which is raiſed like the regular parochial taxes, and does not exceed an halfpenny *per* acre.

The buildings of this county are chiefly of ſtone, except in the market-towns, where the houſes are generally of brick; and near the borders of Scotland, where they are moſtly conſtructed with clay or mud. Moſt of the old farm-houſes, cottages, and out-houſes, are thatched with ſtraw, and the ſtones of the walls laid with clay inſtead of mortar; but the more modern buildings are generally covered with ſlate, and their walls cemented with lime: in thoſe diſtricts, however, where clay or mud walls prevail, the advances of modern improvements are admitted with ſome reluctance; the people conſidering them as an expenſive and unneceſſary luxury. Many of the houſes are covered with a very fine blue ſlate, the beſt kinds of which are procured in Borrowdale.

The principal manufactures of Cumberland are the ſpinning and weaving of cotton into calicoes, corderoys, and other articles; and the printing of cotton. The former has not been many years introduced: it was firſt planted at Dalſton, and ſoon extended to Carliſle, Warwick-Bridge, Corby, Comerſdale, and a few more places. The ſeat of cotton-printing is at Carliſle, the population of which place has thereby been much increaſed. In ſome of the market-towns are ſmall manufactories of checks and coarſe linens. At Egremont eighteen looms are employed in the manufacture of ſail-cloth; and at Whitehaven, where it was only introduced in 1786, ſeveral hundred hands are employed in the different branches of the ſame manufacture. Three or four paper-mills are employed in different parts of the county; a manufactory of coarſe earthen ware has been long carried on near Dearham; and near Workington are the Seaton iron-works, which employ ſeveral hundred workmen. Many private families knit and ſpin their own ſtockings; and every village is ſupplied with a weaver or two, who weave their home-made cloth.

The mineralogical ſubſtances of Cumberland are extremely rich and variegated, and exiſt in ſuch abundance in the different parts of the county, that a deſcription of the whole would, of itſelf, conſtitute a work of conſiderable magnitude. In the calcareous genus is limeſtone, of various colours, texture, and hardneſs. The quarries at Overend contain impreſſions of many kinds of ſhells, with ammoniæ, entrochi, and aſteriæ; and a great variety of marine exuviæ are found in the limeſtone on the moors near Giſland Spa. Marble, with ſhells in it, of a browniſh colour, is met with at Little Stainton and Dacre; duſky-green, veined with white, at Croſs-fell; yellowiſh, grey, lead-colour, and brown, with or without ſhells, on the banks of the Peteril; and blueiſh-black, clouded with lead-grey, veined and ſpotted with white, hard, free from cracks, and admitting of a fine poliſh, near Kirkoſwald. Beautiful ſpecimens of ſpar of various colours, amorphous, and cryſtallized in different forms, are found in the lead mines of Aldſton-Moor; and, ſince the ſtudy of mineralogy has become faſhionable, have been ſold for conſiderable ſums. In the mines between Keſwick and Aldſton it has been met with, cryſtallized in hexagonal priſms, terminated at one end by a pyramid. Gypſum is found in many parts of the county: its colour is moſtly white, veined, clouded, and ſpotted with red; ſometimes brown and grey; of compact, even fracture. It frequently, however, exhibits a conſiderable variety of appearance, even in the ſame quarry; and at Newbiggen is met with not only compact, but ſplintery, fibrous, foliated, and cryſtallized: in the latter ſtate, the cryſtals are pure and colourleſs, arrow-headed, and irregularly diſpoſed, forming the reſemblance of a cock's-comb. It lies embedded in red argillaceous marl, between two large ſtrata of ſandſtone: the upper, ſolid, hard, and fine-grained; the under, looſe, friable, and coarſe. The ſtratum varies conſiderably in thickneſs; and in ſome places, immediately below it, there is a thin bed of a ſoft umber-like ſubſtance, which, on examination, appears to be decayed wood. The lead-mines of Aldſton-Moor contain a great variety of fluors, compact, foliated, amorphous, and cryſtallized. The colours are red, green, blue, yellow, purple, violet; and of all gradations, from very pale to almoſt black. They are ſometimes found ſtudded with brilliant quartz cryſtals, and with cryſtallized galena. In the magneſian genus is mica, which is found of many different colours, interſperſed and incorporated with ſeveral kinds of ſtones, and particularly in moſt of the ſandſtone rocks. Spangles of ſilvery mica are met with in a red, ſlaty, friable ſtone, near the river Caldew, in the quarries on the Peteril, and various other places. The ſteatites, ſemi-indurated, white, ſtreaked with pale-green, has been found at Hill-Top and St. John's; and ſome of the ſolid white kind in Langnor iron-mine, at Borrowdale, and at one or two other places. Some ſmall rounded maſſes of ſerpentine are met with in many parts on the ſea-ſhore, and ſometimes, but rarely, in ploughed grounds. Aſbeſtos has been diſcovered in the lead mine at Northend, and in ſome of the mountains, where it preſents a great variety of appearance, as it ſeems to graduate into different ſubſtances.

Of the ſilicious genus are quartz cryſtals, which are found in the mines of Aldſton-Moor, beautifully tranſparent, and of various forms and colours: ſome of the yellow kind are but little inferior in brilliancy to the Brazilian topaz. Garnets are not unfrequently found in micaceous ſtones; and ſome beautiful ſmall ones have been met with in the neighbourhood of Keſwick. Cornelians of various tints, but principally of different ſhades of red, are often diſcovered on the ſea-ſhore, and near the ſurface of the earth in many other places. Jaſpers of different colours, often veined, clouded, and ſpotted, are generally met with in beds of rivers, and on or near the ſurface of the ground. Many ſubſtances of the argillaceous genus are found in different parts of the county. Trap, whinſtone, and toadſtone, exiſt almoſt every where; the two latter generally in detached pieces on the ſurface. Schiſtus, of ſeveral varieties of colour, is found in immenſe ſtrata in many parts; and ſchiſtoſe clay, frequently of a tabulated ſtructure, reſembling the leaves of a book, is met with in moſt coal-mines, at Giſland, Keſwick, and various other places. Terra-porcellanea, or porcelain clay, the *kaolin* of the Chineſe, is found at Barrock, near Nebſteps: it is of a white and cream colour, moſtly friable, and duſty; it contains minute particles of ſhining ſilvery mica. On the banks of Ullſwater, tripoli is frequently diſcovered in rounded lumps, of a greeniſh colour, in gravel beds ſometimes, and in coarſe martial clays. Foſſil, or pit-coal, is found in many parts of the county, and of very different qualities. It is met with at various places along the eaſtern mountains; but is eaſieſt of acceſs, and in the greateſt abundance, on Talkin and Tindale Fells, whence Carliſle, Penrith, and

Brampton are chiefly ſupplied. On the weſt ſide of the river Caldew, near Calbeck, and thence to Maryport, Workington, and Whitehaven, it exiſts in great abundance; and many coal-mines are conſtantly at work in this diſtrict, and particularly at Whitehaven. Some very large pits have alſo been opened at Workington and Tindale Fell, near Brampton. Thin layers of jet are ſometimes found in the rocks on the Irthing, in ſmall detached pieces in the bed of that river, on the ſea-ſhore, and near the ſurface of the earth in other places. Wallerius, and other eminent chemiſts, have ſuppoſed it to be aſphaltum, condenſed and hardened by length of time. It bears a fine poliſh; and is frequently worked into toys, bracelets, boxes, buttons, and other articles. The famous black-lead, or wadd mines, are ſituated at the head of Borrowdale, in a place extremely difficult of acceſs, and, for the riches and qualities of the ſubſtance, are unequalled by any in the world. The mines lie to the eaſt of a very ſteep mountain, which forms the weſt ſide of the vale of Stomathwaite. There are two workings: the lower one is about 340 yards above the level of the ſea, and its perpendicular depth about 105 yards; the upper one is nearly 390 yards above the ſea, and its depth about 30. The ſtrata of the mountain are very irregular, and broken; and the black-lead appears to have been formed in the fiſſures. The mineral itſelf does not exiſt in regular ſtrata, but is found in irregular maſſes. It is deſcribed as lying in the mine in form reſembling a tree, having a body or root, and veins or branches ſpreading from it in different directions: the root or body is the fineſt black-lead, and the branches the worſt; growing proportionally more inferior, as they become diſtant from the parent ſtem. The veins, or branches, ſometimes ſhoot out to the ſurface of the ground; yet theſe indications are very rare. The black-lead is generally embedded in a blue rock, which is not unfrequently ſtained as black as the mineral itſelf to the depth of two or three feet; ſometimes there is a wet ſludge between the rock and the black-lead; at others it is found in ſops, or lumps, in a body without branches. In the deepeſt mine, the black-lead lies in two veins, croſſing each other; the main body, and richeſt in quality, being at the point of interſection: theſe veins fall perpendicularly to the depth of 40 fathoms. The blue ſtone, where the black-lead is commonly found, has often a ſtratum of hard granite above it. Quartz cryſtals are frequently diſcovered in the working. The country in the immediate vicinity of the wadd mines has been deſcribed by a native of Cumberland (Mr. George Smith), as full of cataracts and rivers, that are precipitated from the craggs with an alarming noiſe; and the ſummit of the mountain itſelf, in whoſe bowels this valuable mineral is produced, has been depicted by the ſame gentleman as truly terrifying. "Not a herb was to be ſeen but wild ſavine, growing in the interſtices of the naked rocks; while the horrid projection of vaſt promontories, the vicinity of the clouds, the thunder of the exploſions in the ſlate quarries, the diſtance of the plain below, and the mountains heaped on mountains that were piled around us, deſolate and waſte, like the ruins of a world which we had ſurvived, excited ſuch ideas of horror as are not to be expreſſed." The value of this ſubſtance, and the ſingular fraud of an owner of a contiguous part of the mountain, who ſecretly ſunk a ſhaft, and opened a paſſage diagonally to the mine, occaſioned an act of parliament to be made in the reign of George II. to prevent its being ſtolen, by ſubjecting the criminal to the ſame puniſhment as for felony. In this act there is a recital, that black-lead hath been diſcovered in one mountain or ridge of hills only in this kingdom; and that "it hath been found, by experience, to be neceſſary in the caſting of bomb-ſhells, round-ſhot, and cannon-balls." The chief uſe to which it is now applied is drawing; and the lead of ſome pencils made at Keſwick is of ſo very fine a texture, that it bears a point nearly as ſharp as that of a needle. Some aſſert that it may be uſed medicinally, to eaſe the pains of the gravel, ſtone, ſtrangury, and colic.

The principal metallic ſubſtances of Cumberland are lead, copper, and iron ores. The lead mines are chiefly in Aldſton-Moor, on the ſouth-eaſt borders of the county, where about 1100 men are employed, and clear to the owners upwards of 16,000*l.* *per annum*. In working ſome of theſe mines, the miners frequently meet with large breaks in the rock, like grottoes, wholly encruſted with the moſt beautiful ſpar, which, on entering, has the richeſt appearance imaginable. The whole cavern, by the light of a candle, reflected from a thouſand points, appears as if beſpangled with gold, ſilver, and diamonds. Theſe internal openings are generally cloſed up as ſoon as found; the ſpar they contain being a great temptation to the workmen to neglect the ſervice of their employers, as they could obtain more by gathering and ſelling ſpar than by their own buſineſs. Galena is found, in all its varieties, in the mines in the vicinity of Aldſton, Keſwick, and Caldbeck; and it not unfrequently contains a conſiderable portion of ſilver. The lead ores, in the mines of Aldſton-Moor, are found lying in cracks or fiſſures. Theſe fiſſures, though commonly nearly perpendicular, are never wholly ſo; and in whatever direction they are found, they always incline downwards from that ſide where the ſtrata are higheſt: thus, in a vein from north to ſouth, if the ſtrata ſhould be raiſed higher on the ſouth ſide the fiſſure than on the north ſide, its inclination will then be from the ſouth downwards to the north. The copper ores are commonly combined with ſulphur, and generally contain both iron and arſenic. The moſt conſiderable copper-mines are near Caldbeck, at Heſket New-Market in Borrowdale, and at Newlands in the neighbourhood of Keſwick, where the celebrated mine of goldſcarp is ſituated; from which, by the old workings, and written documents, it appears that immenſe quantities of copper have formerly been obtained. Specimens of copper ores have been found in the mountains named Hard-knot and Wrynoſe, and at ſome other places. Ochreous iron ores, reſembling thoſe called by Mr. Kirwan highland argillaceous ores, are very commonly met with either on or near the ſurface, in moſt parts of the county, eſpecially in moory ſoils, and where the under-ſtratum is a coarſe martial clay. They appear to have been depoſited by water, as they are generally found concreted with ſmall ſtones, roots, and other ſubſtances. In the pariſh of Egremont, at a place called Crowgarth, is the moſt ſingular mine of iron ore ſuppoſed to be in Great Britain. It lies in the earth, at the depth of 12 fathoms; and the thickneſs of the band of ore, which is hard ſolid metal, is between 24 and 25 feet. It was never known to be much wrought till the years 1784 and 1785, when it was more generally opened; and ſo great has been the demand for it, at Carron foundery in Scotland, and ſome other places, that, in 1791 and 1792, the annual exportation was 20,000 tons and upwards. At Langnor, between Whitehaven and Egremont, many varieties of the hæmatites are found, and ſometimes, from their colour and ſhape, are called kidney ore. Native Pruſſian blue is ſometimes found in the peat-moſs of this county, and in clay, particularly that of Etterby-ſcar, near Carliſle; its qualities, however, are different from the artificial.

Among the ſemi-metals, blende, pſeudo-galena, or black-jack, is met with in the greateſt plenty. Its forms and colours are very different: ſome is blueiſh, reſembling galena;

black, or greeniſh-black, like pitch; of a glaſſy ſhining ſurface, often cryſtallized, in irregular pyramids, and other irregular figures; ſometimes containing ſilver, arſenic, and other ſubſtances. Oxyd of zinc has been found at Borrowdale and Ouſley. A mine of cobalt was diſcovered about ten years ſince, in the pariſh of Croſtwaite, near Cowdale, about four miles from Keſwick; but has hitherto been little regarded. Antimony has been found at Baſſenthwaite; and in the ſtratum under the coal at Tindale Fell, oxyd of manganeſe, tinged and intermixed with pyrites and mica: it has alſo been diſcovered at Caldbeck.

This county abounds with lakes. ſome of which will be hereafter deſcribed under Lake. The principal are known by the names of Ulls-water, which occupies an area of about 9 miles in its greateſt length, by about three-quarters of a mile, on an average breadth; Thirlmere, or Leathes-water, a narrow irregular ſheet of water, about 3 miles in length, ſkirts the immenſe baſe of Helvellyn; Derwent-water, or Keſwick lake, is rather of an oval figure, and extends nearly 3 miles in length, and about half ſo much in breadth; Baſſenthwaite-water, or Broad-water, which is nearly 3 miles north of Keſwick lake, abounds with beautiful ſcenery, and is 4 miles long, and 1 in its greateſt breadth; Over-water, in a barren ſituation between Binſey and Caldbeck-fells, is about half a mile in length, and in breadth ſomewhat more than a quarter of a mile; Lowes-water, beautifully ſituated near the north-weſtern extremity of the mountains above Mellbreak, is about a mile long, and a quarter broad, and, contrary to all the others, diſcharges its waters at the ſouthern end; Crummock-water expands its pellucid boſom beneath ſome lofty mountains, and extends nearly 4 miles in length, and half a mile in breadth; Buttermere-water, about a mile ſouth of Crummock-water, from which it is ſeparated by a luxuriant vale, is about a mile and half long, and half a mile broad, into which numerous torrents pour down from the mountains, one of the roaring cataracts falling between four and five hundred yards; Ennerdale-water ſpreads among the mountains near to Whitehaven, and guarded, on every ſide but the weſt, with craggy and almoſt impaſſable heights, poſſeſſes a ſpace of about 2 miles and half in length, its greateſt breadth being about three quarters of a mile; Waſt water expands its cryſtal ſurface in the boſom of Waſtdale, to the length of 3 miles, and breadth, in the wideſt part, of three quarters of a mile; Burn-moor-tarn, ſeated among the wildeſt mountains at the head of Miterdale, covers about 250 acres; Devock-water occupies about 300 acres, amongſt the hills ſouth-eaſt of Ravenglaſs; Talkin-tarn and Tindale-tarn poſſeſs about 40 or 50 acres each, on the moors ſouth-eaſt of Brampton; and Turnwadling ſpreads its waters over 100 acres, on a barren common, 1 mile weſt from the river Eden, at Armathwaite.

The mountains of Cumberland are exceedingly numerous, and many of them of immenſe elevation, and ſingular ſtructure. They enter into the compoſition of almoſt every view; and either by their ſublime heights, their romantic forms, the dignified grandeur of their aſpects, the immenſity of the rocky maſſes that compoſe them, or the wild, awful, and impoſing majeſty of their appearance, are well calculated to give birth to intereſting emotions.

The rivers and ſmaller ſtreams of this county are very numerous. The principal are the Eden, the Eamont, the Duddon, the Ehen, the Derwent, the Greata, the Cocker, the Ellen, the Waver, the Wampool, the Caldew, the Peteril, the Eſk, the Liddal, the Line or Leven, the Irthing, and the Gelt. Hutchinſon's Hiſtory of the County of Cumberland, 2 vols, 4to. Houſeman's Topographical Deſcription of Cumberland, &c. 8vo.

Cumberland, a county of America, in New Brunſwick, comprehending the lands at the head of the bay of Fundy, on the baſon called Chebecton, and the rivers that flow into it. It has ſeveral townſhips; thoſe which are ſettled are Cumberland, Sackville, Amherſt, Hillſborough, and Hopewell. It is watered by the rivers Aulac, Miſſiquaſh, Napan, Macon, Memramcook, Petcoudia, Chepodie, and Herbert; the three firſt of which are navigable, for three or four miles, for veſſels of five tons; the Herbert is navigable to its head, 12 miles, in boats; the Napan and Macon are ſhoal rivers; the others are navigable four or five miles. The town of Cumberland has coal-mines.

Cumberland, a county in the diſtrict of Maine, E. of York county, and has the Atlantic ocean on the S., and Canada on the N. Its ſea-coaſt, formed into numerous bays, and ſkirted with many fruitful iſlands, is nearly 40 miles in extent in a ſtraight line. Saco river, which runs ſouth-eaſterly into the ocean, ſeparates between this county and York on the S.W. Cumberland is divided into 33 townſhips; its capital is Portland; and the number of its inhabitants, by the cenſus of 1800, is 37,918. The ſoil of this county, as well as that of York, is, to a great extent, light and lean; great part being pine-plains.

Cumberland, a county in New Jerſey, bounded S. by Delaware bay, N. by the county of Glouceſter, S.E. by cape May, and W. by the county of Salem. It is divided into ſeven townſhips, of which Fairfield and Greenwich are the chief: it contains 9529 inhabitants, 75 of whom are ſlaves.

Cumberland, a county of Pennſylvania, bounded N. and N.W. by Mifflin, E. and N.E. by Suſquehanna river, which ſeparates it from Dauphin, S. by York, and S.W. by Franklin county; 47 miles in length, 42 in breadth, and containing 18 townſhips, of which Carliſle is the principal. This county is generally mountainous; but between N. and S. mountain, on each ſide of Conedogwinet creek, there is an extenſive, rich, and well-cultivated valley. It contains 25,386 inhabitants, of whom 228 are ſlaves.

Cumberland, a county in Virginia, on the N. ſide of Appamatox river, which divides it from Prince Edward; 20 miles long, 15 broad, and containing 9839 inhabitants, of whom 5711 are ſlaves.

Cumberland, a county of N. Carolina, in Fayette diſtrict, containing 7608 inhabitants, of whom 2097 are ſlaves. In this county is a townſhip of the ſame name.

Cumberland, a county of Kentucky, containing 3284 inhabitants, of whom 236 are ſlaves.

Cumberland, the north-eaſternmoſt townſhip of Providence county, in the ſtate of Rhode iſland, containing 2056 inhabitants.

Cumberland, two towns of Green county, in the ſtate of Pennſylvania, containing 1277 inhabitants.—Alſo, a townſhip in York county, Pennſylvania.—Alſo, a townſhip of Waſhington county, in the ſame ſtate.—Alſo, a townſhip of Adams's county, in the ſame ſtate, containing 1263 inhabitants.—Alſo, a townſhip of the ſame ſtate, in the county of Bedford.

Cumberland, a poſt town, and the chief townſhip of Alleghany county, in Maryland, lying on the N. bank of a bend of Potowmack river, and on both ſides of the mouth of Wilt's creek. It contains about 100 houſes, a court-houſe, gaol, market-houſe, and three churches, one for Roman Catholics, one for Methodiſts, and one for German Lutherans.

Cumberland *Bay*, a bay on the weſt coaſt of the iſland of St. Vincent. N. lat. 13° 12′. W. long. 61° 18′.—Alſo, a bay on the N.E. coaſt of the iſland of Juan Fernandez.—

Alſo, a large bay, to named by captain Cook, in January, 1775, in the S. Atlantic ocean, near the coaſt of the iſle of Georgia, a few miles E. of Poſſeſſion bay, in S. lat. 54° 5′. W. long. 37° 18′.—Alſo, a bay in the moſt northern part of America, opening under the polar circle, running to the N.W. and W., and ſuppoſed to communicate with Baffin's bay on the N. N. lat. 66° 44′. W. long. 65° 20′.—Alſo, a harbour on the E. ſide of Waſhington's iſles, on the N.W. coaſt of N. America; S. of Shitikiſs, and N. of Cummaſhawan.—Alſo, a harbour on the S.E. coaſt of the iſland of Cuba, reckoned to be one of the fineſt in the Weſt Indies, capable of ſheltering any number of ſhips; 20 leagues E. from St. Jago de Cuba. N. lat. 20° 3.′. W. long. 76° 50′.

Cumberland, *Cape,* a cape on the iſland of Eſpirito Santo, one of the New Hebrides, in the S. Pacific ocean. S. lat. 14° 39′. E. long. 166° 47′.—Alſo, a cape on Kerguelen's land, 1½ league S.E. ½ S. from Chriſtmas harbour.

Cumberland *Fort,* a fort of the United States of America, in New Brunſwick, ſituated at the head of the bay of Fundy, on the E. ſide of its northern branch. It is capable of accommodating 300 men.—Alſo, a fort which formerly ſtood in Cumberland townſhip, in Alleghany county, Maryland, at the W. ſide of the mouth of Will's creek.

Cumberland *Fort,* a ſtrong place at the S.E. point of Portſea iſland, in Hampſhire, commanding the entrance into Langſtone harbour. In the government trigonometrical ſurvey, in 1793, the weſt chimney of the governor's houſe in this fort was obſerved from Butſer hill, diſtant 70,049 feet, and Rook's hill, diſtant 74,863 feet; whence is deduced its latitude 50° 47′ 21″.7 N., and longitude 1° 1′ 43″, or 4^m. 6^s.9 W. of Greenwich.

Cumberland *Gap,* a place having a poſt-office, in Claiborne county, and ſtate of Teneſſee; 528 miles W. from Waſhington.

Cumberland *Houſe,* a factory belonging to the Hudſon bay Company, ſituated in New South Wales, in North America, on the S. ſide of Pine iſland lake. N. lat 53° 56′ 41″. W. long. 102° 13′.

Cumberland *Iſland,* an iſland on the coaſt of Camden county, in the ſtate of Georgia, between Prince William's ſound at the S. end and the mouth of Great Satilla river at its N. end, and 20 miles S. of the town of Frederica. It is about 20 miles in circumference. N. lat. 31°. W. long. 81° 40′.—Alſo, an iſland in the South Pacific ocean, ſo called by captain Wallis in June, 1767, lying low, and about the ſize of queen Charlotte's iſland, or 6 miles long, and 1 wide. S. lat. 19° 18′. W. long. 140° 36′. Variation of the needle 7° 10′ E.

Cumberland *Iſlands,* a cluſter of iſlands near the N.E. coaſt of New Holland, ſo called by Cook in June, 1770, forming a paſſage, called, from the day of its diſcovery, "Whitſunday paſſage." S. lat. 20° 36′. W. long. 211° 28′.

Cumberland *Mountain,* a mountain of N. America, occupying a part of the uninhabited country of the ſtate of Teneſſee, between the diſtricts of Waſhington and Hamilton and Mero diſtrict, and between the two firſt-named diſtricts and the ſtate of Kentucky; the north-eaſterly part of the ridge being the dividing line between Kentucky and Virginia. The ridge is generally about 30 miles broad, and extends from Crow creek on Teneſſee river from S.W. to N.E. In Teneſſee it enlarges in width to 50 miles, and with a ſurface ſo level, that it may be called the high lands. On both ſides of the mountain is found limeſtone. The mountain conſiſts of the moſt ſtupendous piles of craggy rocks of any mountain in the weſtern country. It is inacceſſible for miles, in ſome parts, even to the Indians on foot. In one place, near the ſummit, it has a very remarkable ledge of rocks, about 30 miles long, and 200 feet thick, preſenting to the S.E. a perpendicular face. Morſe.

Cumberland *River,* a river of N. America, called by the Indians "Shawanee," and by the French "Shavanon," which falls into the Ohio, 10 miles above the month of Teneſſee river, and about 24 miles due E. from fort Maſſac. It is navigable for large veſſels to Naſhville in Teneſſee, and from thence to the mouth of Obed's or Obas river. The chief branches, ſome of which are navigable to a great diſtance, are the Caney fork, 100 yards wide, joining it 120 miles above Naſhville, Harpeth, Stones, Red, and Obed's. The head waters of this river are ſeparated by the Cumberland mountains from thoſe of Clinch river. Its courſe, till it comes to the ſouth line of Kentucky, is S.W., then weſterly, in general, through Lincoln county; thence S.W. into the ſtate of Teneſſee, where it encloſes, by its windings, Sumner, Davidſon, and Teneſſee counties; it then takes a north-weſterly direction, and re-enters the ſtate of Kentucky, and from thence preſerves nearly an uniform diſtance from Teneſſee river to its mouth, where it is 300 yards wide. It is navigable without interruption for more than 500 miles. In paſſing through Mero diſtrict, its meanders form ſeveral peninſulas, 14 or 15 miles round, and about one acroſs the iſthmus. Marſe.

Cumberland *River,* a place ſo called, where a poſt-office is kept, in Teneſſee; 13 miles from Cumberland mountain, and 81 from the Crab orchard in Kentucky.

Cumberland *Townſhip,* a townſhip in Upper Canada, lying partly in the county of Stormont, and partly in Dundas, and being the ſixth townſhip on aſcending the Ottawa river.

CUMBRAY, Great and Little, iſlands of Scotland; the former is about 6 miles in circuit, and lies at the mouth of the river Clyde, between the iſle of Bute and the county of Air; the latter is ſmaller, and about half a mile from the former.

CUMBU, or Coomboo Goombaw, a large and populous city, in the route from Laſſa in Thibet to Pekin in China, where is ſituated, near a ſmall river, a ſpacious and celebrated putala, or temple of public worſhip, (Buddhala, the manſion of Buddha.) When the Lama of Thibet, at the earneſt ſolicitation of the Chineſe emperor, determined to pay him a viſit, he began his journey from Tiſolumbu in July, 1779; in 46 days he reached Duchu, or Doochoo, ſeated on the banks of a river of the ſame name, where a meſſenger from the emperor met him, and preſented to him pearls, ſilks, and many other valuable articles, with a rich palanquin; after a journey of 21 days more, he arrived at Thuctaring, or Thooktharing, receiving in his progreſs every poſſible token of reſpect and homage. Here he was met by eight perſons of diſtinction, and 2000 troops, who were commiſſioned by the emperor to attend him; but the lama, having received their preſents of gold, ſilver, horſes, mules, ſilks, &c. diſmiſſed them; and proceeded thence to Cambu, to the temple of which many thouſand devout perſons annually reſort. Here he was detained four months, on account of a great fall of ſnow; and during his ſtay he received from the emperor coſtly preſents of pearls, a curious watch, ſnuff-box, and knife all ornamented with jewels, beſides many curious brocades and ſilks. At this place, and in other ſtages of his journey, he was importuned by all ranks of people for a *mark of his hand*, which, being coloured with ſaffron, he impreſſed on clean paper. Many thouſands of theſe were printed, diſperſed among the people, and preſerved as the moſt ſacred relics. At this place he was again preſented, by the emperor's orders, with a very rich palanquin, a large tent, 20 horſes, ſeveral mules, &c: the whole amounting in value to upwards of 25,000 illeungs; an illeung of ſilver being worth about 7*s*. After ſeveral months the lama purſued his journey, followed by a very numerous train of attendants, receiving coſtly preſents in every ſtage of his progreſs, and at length was introduced with ſingular parade to the emperor's preſence; who expreſſed a wiſh to be inſtructed in the myſteries of his religion. After an intercourſe of ſome months, the lama ſickened of the ſmall-pox and died; nor was leſs attention paid to his corpſe than to his perſon whilſt he lived. It was depoſited in a temple of gold; and the emperor diſtributed ſilver on the occaſion, to the amount of four lacks of rupees, to the devout perſons who attended and offered prayers over the corpſe. Another lack of rupees was diſtributed before the corpſe was removed, in order to be carried in the temple of gold, encloſed within another of copper, into his own country. After a tedious journey of more than ſeven months, they arrived at Digurchee, or Teſhoo Loomboo, the place of the lama's reſidence, whilſt he lived. Here his remains were depoſited in a moſt ſuperb pagoda, or monument, built for that purpoſe; and the two temples of gold and copper, brought from Pekin, were carefully fitted up, and ſet up in the pagoda, immediately over the ſpot where the corpſe was laid. Turner's Emb. to Tibet, Appendix.

CUMELE, and Cumelobotane, in *Botany*, the name by which the Greek writers have deſcribed the *lupulus* or hop.

CUMERIUM Promontorium, in *Ancient Geography*, a promontory of Italy, which advanced into the Adriatic ſea, to the north of Aniona, and near it.

CUMI, a town of Ethiopia, ſituated, according to Pliny, on the banks of the Nile.

CUMIANA, in *Geography*, a town of France, in the department of the Pô in Piedmont in Italy, which formerly belonged to Sardinia. It is the chief place of a canton, in the diſtrict of Pignerol, with a population of 4507 individuals. The canton has 8 communes, and 9050 inhabitants.

CUMIERES, a ſmall town of France, on the river Marne, in the department of the Marne; 3 miles N.W. of Eſpernay; famous for its excellent champaign wine.

CUMILLUM Magnum, in *Ancient Geography*, a place of Italy, marked in the Itinerary of Antonine on the route from Rimini to Dertona, ſuppoſed to be the preſent *Cigomol.*

CUMIN, in *Botany*. See Cuminum.

Cumin, *Baſtard*. See Lagoecia.

CUMINIOIDES, Tourn. See Lagoecia.

CUMINUM, (Heb. כמן, Iſaiah xxviii. 25. 27. κυμινον, Sept. Dioſc. Cyminum; Plin.) Linn. Gen. 351. Schreb. 483. Willd. 547. Gært. 126. Juſſ. 221. Vent. 3. 19. Claſs and order, *pentandria digynia*. Nat. Ord. *Umbellatæ*, Linn. *Umbelliferæ*, Juſſ.

Gen. Ch. Univerſal and partial umbels four or five-rayed, uniform. Leaves of the general involucre three or four, capillary or trifid, at leaſt as long as the umbel; of the partial one, three or four, briſtle-ſhaped, as long as the rays of the partial umbel. *Cal. proper* ſuperior, very ſmall, five-toothed. *Cor.* Petals five, emarginate, inflexed, ſomewhat unequal. *Stam.* Filaments five; anthers ſimple. *Piſt.* Germ inferior, larger than the flower, oval-oblong; ſtyles two, very ſmall; ſtigmas ſimple. *Fruit* oval-oblong, ſtriated. *Seeds* two, convex on one ſide, flat on the other.

Eſſ. Ch. Fruit oval-oblong, ſtriated. Partial umbels about four. Involucre three or four-leaved.

Sp. C. *cyminum*. Cumin. Linn. Sp. Pl. Mart. Lam. Willd. Gært. tab. 23. Lam. Ill. Pl. 194. Woodv. Med. Bot. tab. 191. (C. ſemine longiore; Bauh. Pin. 146. Moriſ. Hiſt. 279. § 9. tab. 2. 1. C. ſativum; Cam. Epit. 518. Rai. Hiſt. 433.) *Root* annual, white, oblong, ſlender. *Stem* ſix or ſeven inches high, ſmooth, ſtriated, leafy, branched. *Leaves* alternate, rather diſtant, finely cut like thoſe of aniſe or fennel; ſegments few, almoſt capillary, about an inch long, generally bitenate, the two lateral ones often ſimply bifid. *Flowers* ſmall, white or purpliſh; three or four, ſeldom five in each partial umbel. *Fruit* aromatic, crowned with the minute teeth of the calyx, terminated by the ſhort reflexed ſtyles. *Seeds* with nine ſhallow filiform ſurrows on the convex ſide, ſmooth or ſlightly hiſpid. A native of Egypt and Syria. It is cultivated for ſale in Sicily and Malta, whence the reſt of Europe is ſupplied with the ſeeds. They have an aromatic, warm, and bitteriſh taſte, with a ſtrong, but not diſagreeable, ſmell; contain a large quantity of eſſential oil, and are ſuppoſed to poſſeſs a carminative and ſtomachic power, equal, if not ſuperior, to moſt of thoſe of the umbelliferous plants. The Dutch are ſaid to put them into their cheeſe, and the Germans into their bread. In Malta the plant is called cumino aigro, or hot cumin, to diſtinguiſh it from aniſe, which they call cumino dolee, or ſweet cumin.

Cuminum *ſemine rotundiore & minore;* C. Bauh. See Pimpinella *aniſum β*.

Cuminum *ſylveſtre, capitulis globoſis;* C. Bauh. See Lagœcia.

Cuminum *ſylveſtre, ſiliquatum pone;* Dalch. See Hypecoum *erectum.*

CUMMASBAWAS, or Cummasbawaa, in *Geography*, a ſound and village on the E. ſide of Waſhington iſland, on the N.W. coaſt of North America. The port is capacious and ſafe; and its mouth lies in N. lat 53° 2′ 30″, and W. long. 228° 22′. At this port the women take the precedency of the men in every point, and particularly in their commercial concerns.

CUMMINGTON, a townſhip of America, in the ſtate of Maſſachuſetts and county of Hampſhire, lying about 20 miles N.W. of Northampton, and containing 985 inhabitants.

CUMNER, or Cumnar, a vicarage in Berkſhire, in the hundred of Horner. On the hill in this pariſh, which is near to Oxford, a ſtation was choſen in the government trigonometrical ſurvey in 1799, about 130 feet W. of the centre of the clump of trees; the ſituation of which was determined by an obſervation from Shotover hill, diſtant 29,231.5 feet, and bearing 76° 58′ 3″ N.E. from the parallel to the meridian of Dunnoſe; and another from Whitebrin hill, diſtant 14,714.3 feet: whence is deduced its latitude 51° 44′ 2″.4 N., and longitude 1° 18′ 18″.4, or $5^m\ 13^s.2$ W. of Greenwich. This ſtation was uſed with Shotover ſtation, for ſettling the place of Oxford obſervatory, in connection with this ſurvey.

CUMPETES, in the *Materia Medica*, a name given by ſome of the Greek writers to the *carpeſia* of Galen and others. This was an aromatic drug, and was the younger ſhoots and tender twigs of an odoriferous tree, growing on ſome mountains in Pamphylia, which were collected in the ſpring, and, when dried, were uſed as a ſuccedaneum for the cinnamon. The word cumpetes often occurs in Myrepſus; but there is ſome doubt in the orthography, whether it be *cumpetes* or *cumpepes*: there ſeems moſt reaſon to believe the latter is the proper word. Charito mentions this drug in his antidotes; and the commentators uſually explain it by the word *carpeſia* or *carpaſus*, a name by which they underſtood, though improperly, the cubebs. The Greeks of the later ages, and the Latin writers who ſucceeded them, all fell into the ſame error, of calling the *carpeſia* the cubeb; though the accounts of the ancient Greeks are againſt it. Nay, Avicenna ſeems to have given into the ſame error; for he has tranſcribed into his chapter of cubebs what Galen ſays of the *carpeſia*.

CUMPULUNGO, in *Geography*, a town of Walachia; 56 miles N.N.W. of Buchoreſt.

CUMUSTWITH Lead-Mine, in Cardiganſhire in Wales, was worked by the mine adventurers of England, about the year 1700. It was famous for its bellies of ore, from 4 to 7 yards broad, from 10 to 30 yards long, and from 4 to 7 yards high, with ſometimes only a leader of an inch thick between theſe, for 5 or 10 yards together, both in ſinking and driving: in ſome places the ore was found interwoven, as it were, with the ſubſtance of the rock.

CUN, or Cunning, at ſea. See Cond.

CUNAXA, in *Ancient Geography*, a place of Aſia, in Aſſyria, ſituated on the left bank of the Euphrates, and at the diſtance of five ſtadia from Babylon, where the combat took place between Cyrus and Artaxerxes.

CUNCULIANA, an epiſcopal town of Africa, in the Byzacene territory.

CUNDIER, Jacques, in *Biography*, a French painter and engraver, who flouriſhed at the commencement of the 17th century. He engraved the portraits of the firſt preſidents of Aix in Provence; a book in folio, 1624; as well as other prints from different maſters. Heinecken.

CUNE'GES, in *Geography*, a ſmall town of France, in the department of the Dordogne, chief place of a canton, in the diſtrict of Bergerac. It has but 407, but the canton contains 9252 inhabitants, in 18 communes, upon a territorial extent of 197½ kiliometres.

CUNEGO, Domenico, in *Biography*, an engraver of conſiderable eminence, who was born at Verona in the year 1727. At firſt he ſtudied painting in the ſchool of Franceſco Ferrari, but afterwards entirely renounced the pallet for the graver. Many of the fineſt prints in that beautiful ſelection, entitled, the Scuola Italica, publiſhed at Rome by the late Mr. Gavin Hamilton, are by the hand of this maſter. At an advanced period of life, Cunego formed a deſign of publiſhing the entire work of Michael Angelo, in the Seſtine chapel; and though the encouragement he met with was not ſufficient to enable him to complete ſo noble an undertaking, we are indebted to him for tranſcripts of ſeveral parts of that chapel, which were never previouſly engraved, independent of prints in outline, upon a ſmall ſcale, of the entire work. Domenico had two ſons, Aloyſio, born in 1757, and Joſeph, born in 1760, who both practiſed the art of engraving, with a ſucceſs, however, very unlike that of their father.

CUNEI, in *Ancient Geography*, a people of Spain, who are ſuppoſed to have inhabited a diſtrict called *Cuneus*, correſponding to the kingdom of Algarve.

Cunei, in *Conchology*. There are ſeveral foſſil ſhells which authors refer to this genus, whoſe ſpecies have no exiſtence among the known recent ſhells. Da Coſta has figured one of theſe, *Tab.* 6. *fig.* 5. which is moſt curiouſly ſtudded. Other foſſil cunei are reticulated, and ſome ſulcated, &c.

Cunei, in *Natural Hiſtory*, a name given to thoſe *tellinæ*, which have one ſide of their ſhell much more extended than the other. See Muscle.

CUNEIFORM Leaf, in *Botany*. See Leaf.

CUNEIFORME, in *Anatomy*, a name given to ſeveral bones. The ſphenoid bone is often mentioned by that name. There is an os cuneiforme in the firſt phalanx of the carpus; and there are three oſſa cuneiformia in the tarſus. See Skeleton.

CUNELIONE, in *Ancient Geography*, a town of Albion, ſituated, according to the Itinerary of Antonine, between Verlucione and Spinæ; now Marlborough, Wiltſhire.

CUNETTE, in *Fortification*. See Cuvette.

CUNEUS, in *Ancient Geography*, a country of Spain, in Luſitania, ſince called the kingdom of Algarve.—Alſo, a promontory of Spain, in Luſitania, now Cabo di Santa Maria.

Cuneus, one of the mechanical powers; more uſually, by Engliſh writers, called the Wedge; which ſee.

Cuneus, among the Romans, a term often uſed to ſignify that part of the theatre where the ſpectators ſat, on account of its reſembling the figure of a wedge.

This term is often found in the deſcriptions of the ancient theatres and amphitheatres, and is thus explained. The ſeats being diſpoſed circularly, were divided at regular diſtances by flights of ſteps, which gave acceſs to them, and to the vomitoria, or doors of entrance. Theſe ſtair-caſes being directed to the centre of the circle, divided the ſeats into ſections of the ſhape of a wedge, cuneus, from which circumſtance they were named.

Cuneus, the wedge, was alſo a form of battle frequent among the Romans. See Wedge.

Cuneus, *Parabolic*. See Parabolic *Cuneus*.

CUNGI, Congi, or Cugni, Batista, in *Biography*, of Borgo S. Sepolcro, a painter of the 16th century. He aſſiſted Giorgio Vaſari, in company with Criſtoforo Gherardi, in his works in the refectory of S. Michel in Boſco, at Bologna.

There was alſo a Franceſco Cungi living at the ſame time, who was probably the brother of Batiſta. Vaſari.

Cungi, Congi, or Cugni, Lionardo, a painter, native of Borgo S. Sepolcro, who flouriſhed in the 16th century. Vaſari deſcribes him as a moſt excellent deſigner; and informs us, that he drew the whole of the Laſt Judgment of Michael Angelo with ſuch intelligence, that Pierino del Vaga was induced to purchaſe it at a conſiderable price, and preſerved it with great care during the remainder of his life. Vaſari.

CUNI, in *Ancient Geography*, a place of Aſia, in Gedroſia, according to Ptolemy.

CUNICI, a town of the largeſt of the Balearic iſlands, which, according to Pliny, enjoyed the ſame privileges with thoſe of Latium.

CUNICULARIÆ Insulæ, iſlands of the Mediterranean, placed by Pliny between the iſlands of Corſica and Sardinia. They are mere rocks.

CUNICULUS, in *Zoology*, a ſpecies of animals of the *lepus* or hare-kind, called in Engliſh rabbit. See Lepus *Cuniculus*.

For ſeveral other ſpecies of *Cuniculus*, ſee Cavia, Mus, and Dipus.

Cuniculus, in *Mining*, a term uſed by authors, in diſtinction from *puteus*, to expreſs the ſeveral ſorts of paſſages and cuts in theſe ſubterranean works. The *cuniculi* are thoſe direct paſſages in mines, where they walk on horizontally; but the *putei* are the perpendicular cuts or deſcents.

It is an obſervation with our miners, that the damps ſo much dreaded in all mines, happen generally in the horizontal cuts; but Dr. Brown, in his examination of the gold and ſilver mines in Hungary, obſerves, that they as often happen there in the *putei* or *ſcachts*, as in the *cuniculi* or *ſtollen*. Another obſervation as to damps with us is, that they are moſt frequent in clayey and ſoft places under ground; but in thoſe mines they are as frequent where the matter is hard ſtone; and one of the moſt miſchievous that had then lately happened, was in a place every way ſurrounded with ſtone ſo hard, that the tools of the miners could ſcarce work through it; and the deſcent had, in the very ſpot where the damp was, been made by means of gun-powder. In ſome of the *cuniculi* in theſe mines, there are damps that regularly return on certain occaſions; as if the lower end of the *cuniculus* be filled up with water, certain parts in going to it are always affected with damps, which will put out a lamp or candle the moment it enters them, and often do great miſchief to the miners in paſſing them. Phil. Tranſ. No. 48. See Damp.

CUNILA, in *Botany*, (Plin. κονιλη; Nicand.) Linn. gen. 35. Schreb. 46. Willd. 59. Lam. Ill. 47. Juſſ. 111. Vent. 2. 328. Claſs and order, *diandria monogynia*. Nat. Ord. *Verticillatæ*, Linn. *Labiatæ*, Juſſ.

Gen. Ch. *Cal.* Perianth one-leafed, cylindrical, ſtriated, with five ſomewhat unequal teeth, permanent. *Cor.* One-petalled, ringent; upper lip erect, flat, emarginate; lower lip three-parted; ſegments rounded; middle one emarginate. *Stam.* Filaments two fertile, two without anthers; anthers roundiſh, didymous. *Piſt.* Germ ſuperior, four-parted; ſtyle filiform; ſtigma bifid, acute. *Peric.* The calyx cloſed at the throat with ſhaggy hairs. *Seeds* four, egg-ſhaped, minute.

Eſſ. Ch. Calyx five-toothed, corolla ringent; upper lip erect, flat. Two of the filaments barren. Seeds four.

Sp. 1. C. *mariaria*. Linn. Sp. 1. Mart. 1. Lam. 1. Willd. 3. (Satureia origanoides; Linn. Sp. Pl. Ed. 1. Thymus foliis ovatis acuminatis ſerratis; Gron. Virgin. 64. Calamintha mariana; Pluk. Mant. 35. tab. 344. fig. 1. C. erecta virginiana; Moriſ. Hiſt. 3. 413. § 11. tab. 19. fig. 7.) “Leaves egg-ſhaped, ſerrated; corymbs terminal dichotomous.” *Root* perennial. *Stems* about a foot high, erect, ſlender, almoſt woody, obtuſely quadrangular, ſmooth, branched. *Leaves* oppoſite, ſeſſile, acute. *Flowers* ſmall. The whole plant has an aromatic taſte and ſmell, exactly reſembling pennyroyal. There is a variety almoſt ſcentleſs, with narrower leaves, and ſmaller heads. A native of Maryland and Virginia. 2. C. *pulegioides*. Linn. Sp. Pl. 2. Mart. 2. Lam. 2. Ill. Pl. Willd. 4. (Meliſſa pulegioides; Linn. Sp. Pl. Ed. 1. M. floribus verticillatis; Gron. Virgin. 167. Kalm. it. 2. 314. Eng. Ed. 1. 592.) “Leaves oblong, two-toothed; flowers in whorls.” *Root* annual. *Stems* ſeven or eight inches high, erect, pubeſcent, branched. *Leaves* oppoſite, toothed, ſmooth above, roughiſh with very ſhort hairs underneath, on ſhort petioles. *Flowers* in axillary whorls, ſhorter than the leaves continued from the upper to the lower pair of leaves; two lower diviſions of the calyx briſtle-ſhaped, ciliated. A native of North America. It has a ſtrong ſcent, and an infuſion of it is ſaid by Kalm to be uſed by perſons who have taken cold and have a pain in their limbs. 3. C. *thymoides*. Linn. Sp. Pl. 3. Mart. 3. Lam. 3. Willd. 5. (Thymus pulegioides. Linn. Sp. Pl. Ed. 1. Acinos thymi folio & facie; Moriſ. Hiſt. 3. 404. § 11. tab. 19. fig. 6. Calamintha minima, thymi folio; Tourn. 194.) “Leaves oval, quite entire, flowers in whorls; ſtem quadrangular.” The habit of the preceding. *Stem* ſix or ſeven inches high, erect; branches few, ſimple, ſhort. *Leaves* obtuſe, ſmooth, ſtriated underneath. *Whorls* from the top to the bottom of the ſtem. A native of the ſouth of France, about Montpelier. 4. C. *capitata*. Linn. Fil. Supp. 87. Mart. 4. Lam. 4. Willd. 1. “Leaves egg-ſhaped; flowers terminal; umbel roundiſh.” *Stem* five or ſix inches high. *Leaves* ſomewhat oblong, ſmooth. *Flowers* purple; calyx ſmooth, ſtriated; anthers black. Obſ. Von Biberſtein is of opinion that this is no other than Ziziphora clinopoides of the Species Plantarum. See Annals of Botany, vol. ii. p. 405. 5. C. *fruticoſa*. Willd. 2. (C. fruteſcens; Donn. Cat. Cambrig. 5. “Leaves linear, revolute at the margin, tomentous underneath; flowers axillary; ſtem ſhrubby. A plant of dubious genus; with the habit of roſemary. *Flowers* large. A native of New Holland.

Cunila *Bubula*, a name by which Pliny, and ſome other authors, have called the wild marjoram or origanum.

CUNILAGO, is uſed by ſome authors for the *coryza*.

CUNINA, or Cunia, in *Mythology*, a goddeſs who had the care of little children, attending the cradle, and watching them while they were aſleep.

CUNINGHAM, Francis, in *Biography*, a painter, born in Scotland in the 18th century. He ſtudied at Rome under Antonio Mengs, and afterwards travelled into Spain, France, Ruſſia, and Pruſſia. He reſided at Berlin in 1788. He ſeems to have been principally employed as a portrait painter. From his pictures are engraved, amongſt others, enumerated by Heinecken, the following portaits; Frederic II. king of Pruſſia careſſing two levrettes, a whole length, by D. Cunego: Frederic William II., a whole length, by the ſame: Frederic duke of York, by Townley: Catherine II. empreſs of Ruſſia, by the ſame. Heinecken.

Cuningham, William, a phyſician and engraver, who reſided at Norwich in the middle of the 16th century. In 1559 he publiſhed a work entitled “A Coſmographical Glaſs,” for which he engraved with his own hand ſeveral plates, and amongſt the reſt a large map of Norwich. Walpole.

Cuningham, in *Geography*, a diſtrict of Scotland, in the county of Ayr.

CUNIO, Daniello, in *Biography*, a Milaneſe painter of the 16th century, who was the ſcholar of Bernardino Campi, and executed many works with the cartoons of his maſter, in the ſtate of Milan. This artiſt, in company with Girolamo del Leone, painted in the palace of prince Triubri, at Maléo, the moſt celebrated enterpriſes of the emperor Charles V. He is likewiſe ſaid to have diſtinguiſhed himſelf in landſcape. Orlandi.

Cunio, Ridolfo, a painter in Milan, probably a brother or near relation of Daniello Cunio. He was the ſcholar of Gio. Batiſta Creſpi called Il Cerano; and amongſt other public works at Milan, painted the picture of S. Antonio in the church of S. Marcellino. His cabinet pictures, in which he introduced conflagrations or nocturnal effects, are much eſteemed. He was living about 1650, Orlandi.

CUNION-CHARION, in *Ancient Geography*, a promontory placed by Ptolemy in the S.E. part of the iſland of Sardinia.

CUNISTORGIS, in *Ancient Geography*, a large town of Spain, in Luſitania, ſituated in the country of the people called *Cunei*, according to Appian.

CUNITZ, in *Geography*, a ſmall town of Germany, in the principality of Saxe-Weimar, with 348 inhabitants, on an eminence near an ancient caſtle, from the ruins of which there is a moſt delightful view.

CUNLHAT, a ſmall town of France, in the department of Puy-de-Dôme, chief place of a canton, in the diſtrict of Ambert, with a population of 2825 individuals. The canton has four communes, and 8810 inhabitants, upon a territorial extent of 107½ kiliometres.

CUNNERSDORF, a ſmall town of Saxony, in Upper Luſatia, five miles from Görlitz, with a beautiful caſtle, and quarries of very fine chalk ſtone, famous for its excellent police.

CUNNINGHAM, Alexander, in *Biography*, was ſon of the pariſh miniſter of Ettrick, near Selkirk in Scotland. Little is known of him till his appointment as tutor to the ſons of the earl of Hyndford, and to lord Lorne afterwards John duke of Argyle. He was often conſulted on political ſubjects, and was a zealous advocate for whig principles. In the reign of George I. he was appointed reſident miniſter at Venice, where he remained from 1715 to 1720. From this period he was probably engaged in literary purſuits. The time of his death, like that of his birth, has never been exactly aſcertained, though the former is ſuppoſed to have happened about the year 1737. He left behind him "A Hiſtory of Great Britain, from the revolution to the acceſſion of George I.," written in Latin, which was tranſlated by Dr. Hollingberry, and publiſhed by Dr. Thomſon in two volumes 4to. in the year 1787. This work is ſpoken of as poſſeſſing much original matter, and containing many facts which had never before been brought to the light. Biog. Brit.

Cunningham, William, practiſed medicine at Norwich from 1556 to 1559, and afterwards in London, where we find him giving lectures in anatomy at the Barber-Surgeon's-hall, in 1563. He was author of "Speculum Coſmographiæ ſive de principiis Navigationis," lib. v. London, 1559, fol. and 4to. Two letters between W. C. and John Hall, chirurgeon, touching the cure of the pox, 1565. MS. Bodl. A new almanack and prognoſtication, calculated for the longitude of London, for the year 1556, Lond. 8vo. An invective epiſtle in defence of aſtrology, quoted in William Fulke's invective againſt aſtrologers.

Gale, in his Inſtitution of a chirurgeon, makes mention of a work written by Cunningham, and intended for publication on the venereal diſeaſe, called by him Chamæleontiaſis, from ſome ſuppoſed reſemblance between perſons afflicted with it, and the chamæleon. It appears, from the following dialogue between two fictitious perſons, Yates and Field, that the treatment of it was ſimilar to that employed in ſiphylis.

"John Yates,—I judge his new invented way of curation to be extreme and dangerous to the patient, for both the fumes and ſtrait order of diet with the woods, are well known to be dangerous, and yet many times doth not that which they promiſe. But yet, if his way be perfect, it is more to be liked, and he worthy praiſe.

"John Field,—His way is void of danger, eaſy to the patient, exact alſo, and perfect."

Dr. Cunningham wrote prefatory epiſtles to ſome works of Gale and Halle, which ſhew him to have been a man of conſiderable learning. Aikin's Biographical Memoirs of Medicine.

Cunningham's *Iſland*, in *Geography*, an iſland of Upper Canada, ſituated at the W. end of lake Erie, S. weſterly of the Baſs iſlands, and ſoutherly of Ship iſland.

CUNNINGHAMIA, in *Botany*, Schreb. gen. 1720. Mart. Mill. (Malanea; Lam. Ill. 174. Antirhea; Vent. 2. 581. Malanea & Antirhea; Juſſ. 203, 204.) Claſs and order, *tetrandria monogynia*. Nat. Ord. *Rubiaceæ*, Juſſ.

Gen. Ch. *Cal.* Perianth one-leafed, four-toothed, very ſmall, permanent. *Cor.* monopetalous; tube ſhort; border four-cleft; lobes egg-ſhaped, ſpreading. *Nectary* a rim ſurrounding the baſe of the ſtyle. *Stam.* Filaments four, inſerted into the throat of the tube; anthers roundiſh or oblong. *Piſt.* Germ inferior, roundiſh; ſtyle filiform, bifid; ſtigmas obtuſe. *Peric.* Drupe egg-ſhaped, crowned with the calyx; nut two-celled. *Seeds* one in each cell, oblong.

Eff. Ch. Calyx ſuperior, very ſmall, four-toothed. Corolla monopetalous, with a ſhort tube. Drupe two-celled, two-ſeeded.

Sp. 1. C. *ſarmentoſa*. Mart. (Malanea; Deſr. Enc. 1. Lam. Ill. 1468. tab. 66. fig. 2. Aubl. Guian. 3. tab. 41.) "Leaves egg-ſhaped, wrinkled, tomentous underneath; racemes axillary, compound, elongated." A ſhrub. *Stem* about ſix feet high, four or five inches in diameter, with a reddiſh, wrinkled, cracked bark. *Branches* ſupporting themſelves by the trunks, and climbing to the tops of very large trees; branchlets numerous, very long, ſlender, knotty, cloathed with a reddiſh down, many of them hanging down to within eight or ten feet of the ground. *Leaves* two on each knot, oppoſite, ſix or ſeven inches long, about four broad, entire, often a little rolled inwards; green above; reddiſh and downy, with prominent veins underneath; petioles ſcarcely half an inch long; ſtipules two to each leaf, acute, tomentous, caducous. *Flowers* ſmall; in looſe, axillary, ſolitary, compound, tomentous racemes, which are longer than the leaves, blueiſh; ſtamens rather long. *Fruit* oblong-oval, ſmooth. A native of Guiana. 2. C. *bifurcata*. (Malanea bifurcata; Deſr. 2. Lam. 1466.) "Leaves egg-ſhaped, acute at both ends, nearly ſmooth; peduncles forked at their upper part; flowers unilateral." A ſhrub. Branches woody, oppoſite, obſcurely four-cornered, greyiſh, leafy chiefly towards the top. *Leaves* two inches long, or more, about an inch broad, oppoſite, entire, green on both ſides; with tufts of hair underneath, ſpringing from tranſparent glandular points at the axils of the nerves; petioles from three to four lines long, channelled; ſtipules accompanied by ſhort whitiſh hairs above the place of their inſertion. *Flowers* ſmall, ſeſſile, in two, but apparently unilateral rows, which are ſituated on each of the forks of the ſhort, axillary, ſolitary common peduncles. *Drupes* ſcarcely half the ſize of a grain of wheat, oval, beſet with very ſhort hairs. Suppoſed to be a native of the Caribbee iſlands. 3. C. *nitida*. (Malanea nitida; Deſr. 3. Lam. Ill. 1467. Langeria lucida; Swartz. prod. 48.?) "Leaves egg-ſhaped, quite ſmooth, ſhining; peduncles dichotomous." Whole plant ſmooth, with the exception of very ſmall tufts of hairs, on glandular tranſparent points, at the axils of the nerves, underneath the leaves. *Branches* woody, greyiſh, cylindrical, with a rather uneven bark. *Leaves* three or four inches long, about an inch and half broad, oppoſite, entire, on very ſhort petioles; ſtipules intrafoliaceous, oval-acuminate, caducous. *Flowers* ſmall, ſeſſile, or nearly ſo, alternate, a little diſtant from each other on the ramifications of the common petioles; common petioles nearly the length of the leaves, axillary, ſolitary, ſeveral times dichotomous. *Fruit* oval, about a quarter of an inch long; nut oblong, angular. A native of the Caribbee iſlands. 4. C. *verticillata*. (Malanea verticillata; Deſr. 4. Lam. Ill. 1465. Pl. 66. fig. 1. Antirhea; Juſſ. Commerſ.) "Leaves inverſely egg-ſhaped, acuminate, whorled, generally in threes; peduncles axillary, forked." A ſmall tree. *Branches* woody, cylindrical, ſmooth, greyiſh. *Leaves* entire, ſmooth above, with ſmall tufts of hair underneath, as in the two preceding ſpecies, about two inches and a half long, and little more than one broad; petioles about a quarter of an inch long; ſtipules intrafoliaceous, lanceolate, acute. *Flowers* ſmall, ſeſſile, unilateral, near together on the upper part of the forks of the common peduncle. Common peduncles axillary, ſolitary, ſlightly hairy, an inch long or more; calyx cloathed with ſhort hairs; corolla hairy on the outſide, longer in proportion than in the other ſpecies; anthers oblong, almoſt ſeſſile. *Fruit* about the ſize of a grain of wheat. A native of the iſles of France and Bourbon.

CUNNOR, in *Geography*, a river of S. Wales, which runs into the Tave, in the county of Glamorgan.

CUNNUS, in *Anatomy*, the *pudendum muliebre;* or the anterior parts of the genitals of a woman, including the *labia pudendi*, and *mons Veneris*.

CUNOCEPHALI, in *Mythology*, from κυων, *dog*, and κεφαλη, *head*, a kind of baboons, or animals with heads like thoſe of dogs, which were wonderfully endowed; and preſerved, with great veneration, by the Egyptians, in many of their temples. It is related, that by their aſſiſtance the Egyptians found out the particular periods of the ſun and moon, and that one half of the animal was often buried, while the other half ſurvived; and that they could read and write. This ſtrange hiſtory, Dr. Bryant imagines, relates to the prieſts of Egypt, ſtyled *cahen*, to the novices in their temples, and to the examinations they were obliged to undergo, before they could be admitted to the prieſthood. The Egyptians, being much addicted to the ſtudy of aſtronomy, founded their colleges upon rocks and hills, called *caph*, and from their conſecration to the ſun, *caph-el*; whence the Greeks deduced κεφαλη, and from *cahen-caph-el* they formed κυνοκεφαλος. *Cahen-caph-el* was ſome royal ſeminary in Upper Egypt, whence they drafted novices to ſupply their colleges and temples. By this etymology he explains the above hiſtory. The death of one part, while the other ſurvived, denoted the regular ſucceſſion of the Egyptian prieſthood. As the *cunocephali* are ſaid to have been ſacred to Hermes, who was the patron of ſcience, and particularly ſtyled *cahen*, or *canis*, their college and temple were probably in the nome of Hermopolis; and the *cunocephali* are ſaid to have been worſhipped by the people of that place. They formed a ſacred college, whoſe members were perſons of great learning; and their ſociety ſeems to have been a very ancient inſtitution. They were particularly addicted to aſtronomical obſervations; and by contemplating the heavens, ſtyled Ouran, they learned to diſtinguiſh the ſeaſons, and to divide the day into parts. The *cunocephali* are alſo found in India, and other parts of the world. Herodotus (lib. iv. c. 191.) mentions a nation of this name in Libya; and ſpeaks of them as a race of men with the heads of dogs. In the vicinity of this people, he places the *acephali*, men with no heads, but with eyes in the breaſt. Theſe and the *acephali* were thus denominated from their place of reſidence, and from their worſhip; the one from *Cahen-caph-el*, the other from *Ac-caph el;* each of which appellations is of the ſame purport, the right noble, or ſacred rock of the ſun. Many places were named Cunocephale; all which were eminences, or buildings ſituated on high, agreeably to the etymology above given. The citadel of Athens was ſo called by Xenophon; and thoſe who ſpeak of the Cunocephali deſcribe them as mountaineers. There was a promontory of this name upon the coaſt of the Red ſea, mentioned by Strabo; and another in Corcyra. Bryant's Analyſis of Ancient Mythology, vol. i. p. 329, &c.

CUNODONTES, a people mentioned by Solinus, and Iſidorus, and by them ſuppoſed to have the teeth of dogs. They were probably denominated, ſays Dr. Bryant, from the object of their worſhip, the deity *Chan-Adon*, which the Greeks expreſſed Κυνοδων, and thence called his votaries *Cunodontes*. Ibid. vol. i. p. 341.

CUNONIA, in *Botany*, (from J. C. Cuno of Amſterdam, who deſcribed his own garden in Dutch verſe, 1750.) Linn. Gen. 556. Schreb. 761. Willd. 884. Juſſ. 310. Vent. 3. 284. Claſs and order, *decandria digynia*. Nat. Ord. *Saxifragæ*. Juſſ.

Gen. Ch. *Cal.* five-leaved, much ſhorter than the corolla; leaves egg-ſhaped, concave, acute. *Cor.* Petals five, inverſely egg-ſhaped, ſpreading. *Stam.* Filaments ten, awl-ſhaped, longer than the petals; anthers roundiſh, didymous. *Piſt.* Germ ſuperior, conical; ſtyles two, the length of the ſtamens; ſtigmas obtuſe. *Peric.* Capſule oblong, acuminate, two-celled. *Seeds* numerous, roundiſh.

Eſſ. Ch. Corolla five-petalled. Calyx five-leaved. Capſule two-celled, acuminate, many-ſeeded. Styles longer than the flower.

Sp. C. capenſis. Linn. Sp. Pl. Mart. Lam. Ill. Pl. 371. (Ooſterdykia floribus ſpicatis pentapetalis; Burm. Afr. 259. tab. 96. Arbuſcula arbuti alati foliis; Pluk. alm. 45. tab. 191. fig. 4.) A ſhrub. *Stem* knotty, leafy towards the ſummit, terminated by a ſingular oval-oblong petioled leaflet, which Linnæus calls a gland, although it is an inch long or more. *Leaves* large, oppoſite, petioled, winged; leaflets five or ſeven, lanceolate, ſerrated, very ſmooth. *Racemes* in terminal pairs, one on each ſide of the ſingular leaflet, erect. *Flowers* very numerous, ſmall, pedicels, ſeveral proceeding from one point. A native of the Cape of Good Hope.

Cunonia *floribus ſeſſilibus;* Buttn. Mill. ic. See Antholyza *cunonia*.

CUNTLINE, in *Rigging*, denotes the intervals between the ſtrands of a rope.

CUNTUR, in *Ornithology*. See Condore and Vultur *Gryphus*.

CUNUGUATI, Cunugnales, or *Nueva Ville Rié*, in *Geography*, a town of South America, in the government of Buenos Ayres, and province of Paraguay.

CUNUSITANI, in *Ancient Geography*, a people placed by Ptolemy on the E. coaſt of the iſland of Sardinia.

CUOLAGH, or Quoylach *Bay*, in *Geography*, lies at the ſouth ſide of the entrance into Kenmare river, on the ſouth-weſt coaſt of Ireland. At the head of it is a ſafe and well ſheltered creek for ſmall veſſels. Long. 9° 53′ W. Lat. 51° 38′ N.

CUOMI, a town of China, of the third rank, in the province of Chang-tong; 15 miles N.W. of Kiao.

CUOZGNE', a town of France, in the department of the Doire, in Piedmont, in Italy, which formerly belonged to Sardinia. It is the chief place of a canton, in the diſtrict of Ivrée, with a population of 3250 individuals. The canton has 13 communes, and 7847 inhabitants.

CUP, Calyx, a veſſel ſo called, of various forms and uſes. In the Ephem. German. we have a deſcription of a cup made of a common pepper-corn, by Oſwald Nerlinger; which holds one thouſand two hundred other ivory cups, each having its ſeveral handle, all gilt on the edges; with room for four hundred more.

Cups, among *Herbaliſts*, are thoſe ſhort green huſks in which flowers grow; ſome being divided into two, three, four, five, or ſix leaves. See Calyx.

Cup-*fountain*. See Fountain.

Cup-*galls*, in *Natural Hiſtory*, a name given by authors to a very ſingular kind of galls found on the leaves of the oak, and ſome other trees. They are of the figure of a cup, or drinking-glaſs, without its foot, being regular cones, adhering by their point or apex to the leaf; and the top, or broad part, is hollowed a little way.

Beſide this ſpecies of gall, the oak-leaves furniſh us with ſeveral others; ſome of which are oblong, ſome round, and others flatted; theſe are of various ſizes, and appear on the leaves at various ſeaſons of the year. They all contain the worm of ſome ſmall fly; and this creature paſſes all its changes in this its habitation, being ſometimes found in the worm, ſometimes in the nymph, and ſometimes in the fly ſtate, in the cavity of it.

Cup *ſhell.* See Shell.

CUPA, among the *Ancients*, a kind of boats, uſed in laying bridges over rivers, being broad below, and narrow above.

CUPAMENI, in *Botany*. Rheed. See Acalypha *indica*.

CUPANIA, (named from F. Cupani, a Franciſcan monk of Sicily, author of Plantæ Siculæ, 1692, and Hortus Catholicus, 1696.) Linn. Gen. 279. Schreb. 645. Gært. 1051. Juſſ. 149. Molinæa; Juſſ. 248. Commers. Claſs and order, *octandria monogynia*. Nat. Ord. *Trihilatæ*; Linn. *Sapindi*; Juſſ.

Gen. Ch. *Cal.* Perianth five-leaved, (five-parted? Swartz.) inferior; leaflets oblong, erect, (egg-ſhaped, acuminate, concave; Sw.) *Cor.* Petals five, cowled at the top, upright, (clawed, ciliate; Sw.) *Stam.* Filaments eight, capillary, longer than the calyx, erect, (from the baſe of the corolla, broader at the bottom, villous, the length of the petals; Sw.) anthers incumbent. *Piſt.* Germ egg-ſhaped (roundiſh, three-cornered; Sw.); ſtyle ſhort, trifid (at the tip, awl-ſhaped, the length of the ſtamens; Sw.) ſtigmas blunt, (ſmall, almoſt upright; Sw.) *Peric.* Capſule coriaceous, turbinate-ovate, three-lobed, (obtuſely three-cornered, large; Sw.) three-celled, three-valved. *Seed* ſolitary, (two in each cell; Plum.) with a bell-ſhaped crenate aril, embracing the ſeed like a calyx, (coloured, faſtened to the ſeed above the middle; Sw.)

Sp. 1. C. *tomentoſa*. Mart. 1. Willd. 1. Swartz. Prod. 61. Fl. Ind. Occ. 2. 657. (Trigonis tomentoſa; Jac. Am. 102. 1.) “Leaves pinnated; leaflets inverſely egg-ſhaped, retuſe, ferruginous-tomentous underneath.” A ſmall upright tree, twelve feet high. Younger branches and ribs of the leaves ſlightly tomentous. *Leaves* alternate, half a foot long; leaflets uſually three pairs, without an odd one, alternate, oblong, attenuated at the baſe, emarginate, ſerrated. *Racemes* ſeven inches long, axillary, erect, ſimple. *Flowers* yellowiſh, ſmall, numerous, on ſhort pedicels. Jacq. A native of Hiſpaniola, on woody mountains. 2. C. *glabra*. Mart. 2. Willd. 2. Swartz. Prod. 61. Fl. Occ. 2. 659. (C. arborea, foliis oblongis crenato-ſerratis, diſtiche et alternatim ſitis, racemis laxis propendentibus; Brown. Jam. 178. C. Americana; Linn.? C. caſtaneæ folio, fructu ſericeo & ramoſo; Plum. Gen. 45. Burm. Amer. tab. 110?) “Leaves pinnated; leaflets egg-ſhaped, obtuſe, crenated, ſmooth.” A ſhrubby tree, twelve or fourteen feet high. *Leaves* large. *Racemes* looſe, drooping. Brown. A native of Jamaica and Hiſpaniola. 3. C. *ſaponarioides*. Mart. 3. Willd. 3. Swartz. Prod. 62. Fl. Ind. Occ. 2. 661. “Leaves pinnated; leaflets oblong, attenuated, quite entire, ſcabrous-pubeſcent underneath.” A native of the Weſt Indies. 4. C. *lævis*. (Molinæa lævis; Willd. Lam. Ill. Pl. 305. fig. 1.) “Leaves pinnated, in two pairs; corymbs panicled; fruit inverſely egg-ſhaped, truncated, triquetrous.” *Leaves* abruptly pinnated; leaflets oppoſite, oblong, obtuſe, attenuated at the baſe, quite entire. *Panicle* axillary, compoſed of ſmall corymbs. A native of the iſland of Bourbon. 5. C. *caneſcens*. (Molinæa caneſcens; Willd. Roxb. Corom. 1. 43. tab. 60.) “Leaves pinnated, in two pairs; racemes panicled; fruit egg-ſhaped.” Bark of the branches cinereous, ſcabrous. *Leaves* abruptly pinnated; leaflets elliptical, rather acute, quite entire. *Panicle* axillary, ſhorter than the leaves, compoſed of long racemes. A native of the Eaſt Indies. 6. C. *alternifolia*. (Molinæa alternifolia; Willd. Lam. Ill. Pl. 305. fig. 2.) “Leaves pinnated; leaflets alternate, retuſe; panicle cloſe.” Leaflets about eight, alternate, inverſely egg-ſhaped, very ſlightly retuſe, quite entire, petioled. *Panicle* axillary, ſhorter than the leaves, compoſed of ſmall corymbs. A native of the iſland of Bourbon.

Obſ. There is much diſcrepance in authors with reſpect to this genus and its ſpecies. The original cupania of Linnæus contained only one ſpecies, taken up by him from Plumier, and deſcribed as a pentandrous plant, with a three-leaved calyx, a ſmall trifid ſtyle, and a one-celled, three-valved capſule, containing ſix ſeeds, embraced by a bell-ſhaped aril in the manner of a calyx. La Marck, in the Encyclopedie Methodique, has alſo but one ſpecies, which he conſiders as the C. americana of Linnæus, quoting Plumier, and adding Brown's Jamaica-plant as another ſynonym. Not having ſeen the flowers, he copies their generic characters from Linnæus, but gives the following deſcription of the fruit, taken from a dried ſpecimen in his poſſeſſion. *Capſule* top-ſhaped, coriaceous, ſilky, and reddiſh on the outſide, three-celled, three-valved, opening from the ſummit to the baſe, with the adhering partitions. The ſpecimens from which Gærtner deſcribed the fruit of his C. americana came from Jamaica, and have only one ſeed in each cell: hence, he was induced to doubt whether it be not a different ſpecies from the Domingo-plant of Plumier, which is ſaid to be ſilky-white, and to have two ſeeds in each cell. He agrees with Linnæus in attributing to it an aril, of which La Marck takes no notice, and differs from the laſt-mentioned author in deſcribing the capſule as perfectly entire in its lower part, and ſplitting into valves only half way down. Willdenow thinks it uncertain whether the tomentoſa or glabra of Swartz be the americana of Linnæus. Juſſieu ſeparates cupania and molinæa; and Willdenow ſtates that they differ in the latter's having no ſtyle and no aril to the ſeeds. But Mr. Dryander (Linnæan Tranſactions, vol. ii. p. 232.) pronounces them the ſame genus. Under the ſanction of ſuch high authority, we have not ſcrupled to unite them, though we have not ventured to attempt the eſtabliſhment of an eſſential character. Profeſſor Martyn, in his edition of Miller, refers from molinæa to cupania; but under that article he has inſerted only Swartz's three ſpecies of cupania. La Marck, in the plates of his Illuſtrations, has figured two ſpecies of molinæa; but as the letter-preſs to that work is not finiſhed, we are not able to aſcertain his ideas concerning the genus. He has given no figure of cupania. The gelonium of Gærtner, formed from ſome imperfect ſpecimens of a tree found in the iſle of Bourbon, ſeems to differ from cupania chiefly in having a two-celled capſule.

CUPAR, or Coupar of Fife, in *Geography*, a royal burgh, and county town of Fifeſhire, Scotland, is ſeated on the northern bank of the river Eden, nearly in the centre of the county.—It is alſo the name of a pariſh, which comprehends an area of about five miles in diameter, and is divided into two parts by the river Eden. The borough, at an early period, was poſſeſſed by the thanes of Fife, who held their courts of juſtice here. It is now a reſpectable well-built town, with paved ſtreets; and is governed by a provoſt, three bailies, a dean of guild, and thirteen counſellors. Among the public ſtructures of the town, the church, with a handſome ſpire, is prominent. Next to which is the court-room and town-houſe; but the public gaol for the county is reprobated by Dr. Campbell, in his communication to ſir

John Sinclair, as mean, filthy, and, in every reſpect, diſgraceful to the character of the place, and of the diſtrict. In Cupar and its neighbourhood, a conſiderable quantity of coarſe linens is manufactured: and it is ſtated, that "about 500,000 yards are annually ſtamped" in this town. The linen merchants are ſaid to pay annually about 45,000*l.* to the manufacturers. In the year 1794, 223 looms were employed in this buſineſs. Here are alſo ſome conſiderable tan-yards, and a bleach-field; alſo brick and tile-fields. In the year 1800, Cupar contained 796 houſes, and 4463 inhabitants. Sinclair's Statiſtical Account of Scotland.

CUPAR, or COUPER of ANGUS, ſo named, to diſtinguiſh it from Cupar in Fifeſhire, Scotland, is a conſiderable town and pariſh, ſituated in the valley of Strathmore, and lying partly in Angus, and partly in Perthſhire. The pariſh occupies an area of above five miles in length, by one in breadth, and contains nearly 2400 acres. The lands are moſtly incloſed; and agriculture has been progreſſively improving for the laſt twenty years. In the pariſh are five mills, and a conſiderable linen manufactory, the extent of which may be partly eſtimated, when it is known, that in the year 1792 there were 97,810 yards of brown linen ſtamped here. At the bleach-field of Balgirſho, about 200,000 yards are annually whitened. The population of the pariſh, in 1793, according to the report in ſir John Sinclair's ſtatiſtical work, was 2076, "an increaſe of 585 within the preceding forty years. According to the reports of 41 Geo. III. A. D. 1800, the pariſh then contained, in the Perth diviſion, 420 houſes, and 2169 inhabitants; and in the Angus diviſion 59 houſes, and 247 inhabitants; making a total of 479 houſes, and 2416 perſons. In the pariſh are the veſtiges of an encampment, of a ſquare form, comprehending about 24 acres, and ſaid to have been formed by the army of Agricola, in his ſeventh expedition. (See Roy's Military Antiquities.) Within the vallum of this fortreſs, Malcolm IV. in 1142, founded, and richly endowed, an abbey for Ciſtercian monks. Parts of the building remain.

The town is ſeated on a rivulet, which divides it, and alſo the counties. It is 12 miles from Perth, and nearly the ſame diſtance from Dundee. Here are a weekly market on Tueſday, and four annual fairs. In the year 1781, a tannery was formed here, and has produced ſo much, as to turn out, in one year, 2600 hides of leather. The town has gradually improved; and its ſtreets are provided with lamps and pavements. Sinclair's Statiſtical Account of Scotland.

CUPEA, a town of European Turkey, in the province of Moldavia, 20 miles N. of Suczava.

CUPEL, or CUPELLATION, in *Chemiſtry*. Cupellation is a proceſs employed in the aſſay of gold and ſilver, by which the alloy, or baſe metal, with which any ſample of the noble metals may be mixed, is ſeparated, and its proportion aſcertained. The rationale of this proceſs is founded on the following facts.

Of all the metals hitherto diſcovered, three alone (namely, gold, ſilver, and platina,) are incapable of being oxydated or ruſted by mere expoſure to air, either when ſolid or in fuſion; and hence gold and ſilver anciently acquired the name of *noble* metals. All other metals tarniſh and are oxydated when kept in fuſion in open veſſels, (ſome with extreme eaſe, others not without difficulty,) ſo that by conſtantly removing the ſkin of oxyd as it forms, and expoſing freſh ſurfaces to the air, the whole metal may be finally changed into oxyd. Hence when a mixture of a *noble* and a *baſe* metal (or in other words, of a metal unchanged, and of one oxydable by fuſion,) are melted and expoſed to air, the baſe metal gradually changes to an oxyd, and is thrown off in the form of coloured ſcales or glaſſy pellicles, and the noble metal remains unaltered. This ſeparation, however, is not in all caſes equally accurate, for where the *alloy* or baſe metal is not very eaſily oxydable, and where the proportion of the alloy to the noble metal is but ſmall, the affinity which the latter exerciſes towards the former is ſo great, and increaſes ſo much with the decreaſing proportion of the alloy, as to protect it compleatly from any further action of the air, and to preſerve it in the metallic ſtate. Thus, for example, if a mixture of equal parts of ſilver and copper are kept in fuſion in an open veſſel, a cruſt of brown oxyd of copper readily forms, which, if removed, is ſucceeded by other cruſts that continue to be produced, but with increaſing difficulty, till the copper is only about a twelfth of the maſs; but after this point ſcarcely any continuance of heat will compleat the oxydation of the remaining portion of the alloy.

The ſame, however, does not take with lead when alloyed with ſilver, for on fuſing the mixed maſs the lead ſpeedily oxydates on the ſurface, and at the ſame time vitrifies into litharge, and if this is removed, every particle of lead may be thus extracted, and the ſilver alone left behind perfectly pure.

Now it is found that when a triple alloy of ſilver, copper, and lead, is mixed together (the quantity of lead being ſeveral times greater than that of the copper) the oxydability of the copper is ſo much increaſed by the preſence of the lead, owing to the affinity of the two oxyds, and the ſolubility of the copper oxyd in that of the lead when in fuſion, that the ſilver is no longer able to protect any portion of the copper from oxydation, and the whole alloy is removed from the noble metal, even to the laſt ſenſible particle.

This, therefore, is the principle on which the proceſs of cupellation is founded, namely, that of mixing the alloyed noble metal with a conſiderable portion of lead, expoſing the whole to a melting heat with acceſs of air, and thus converting to an oxyd both the lead and every other baſe metal preſent in the maſs, till the noble metal is left behind perfectly pure.

This proceſs is performed both in the large way in extracting ſilver from the ore and refining it, and in the ſmall way in aſſaying thoſe mixtures of gold and ſilver with different alloys which are uſed in ſuch large quantities for plate, coin, &c. &c. The former, indeed, is technically called refining, and the latter only cupellation, and ſome little variation in the management of each takes place, but the principle in both is preciſely the ſame.

Cupellation is uſually performed in a furnace contrived for the purpoſe, and capable of giving a pretty intenſe heat. The body of the furnace is a hollow four-ſided priſm, in the middle of which is fixed an earthen veſſel called a muffle, of an oven ſhape, vaulted at top, entirely open at one end, and with a flat floor at bottom. The open end of the muffle comes in cloſe contact with a correſponding hole in the ſide of the furnace, and is luted to it, and the cloſed end projects as far as the centre of the furnace. By this contrivance the muffle is heated by the fuel round it, whilſt not a particle of the burning charcoal can fall into its cavity, and a gradation of heat is alſo obtained within it, being the moſt intenſe at the cloſed end which is in the centre of the fire, and the leaſt at the open end contiguous with the hole in the ſide of the furnace. The cavity of the muffle being large in compariſon with the veſſels which it is to contain, a conſiderable body of heated air is conſtantly circulating over the melted metal, which is neceſſary to keep up the conſtant oxydation of the lead and alloy on which the proceſs of cupellation depends.

But as it would be nearly impracticable to keep up the requiſite heat within the muffle, whilſt one ſide was entirely open to the external air, a ſmall veſtibule or ſhelf of iron is made to project a few inches from this opening, on which ſeveral long cylinders of charcoal are heaped up whilſt the proceſs is going on, which take fire by touching the end of the red-hot muffle, and partially block up the opening, ſo as fully to heat the outer air in paſſing to it.

The melted metal is contained in ſmall earthen veſſels called *cupels*, which are ſmall ſolid cubes or cylinders about an inch or an inch and a half acroſs, and with a ſmall depreſſion at top which lodges the melted globule. The cupels may be made of any earth of little coheſion, ſuch as the aſhes left after the lixiviation of the ſaline reſidue of burnt wood, which are much uſed in *refining*; but for *cupellation*, or aſſaying in the ſmall quantities, the cupels are made entirely of bone-aſh or phoſphat of lime, which poſſeſſes the qualities of poroſity and infuſibility in an eminent degree. This is ground to a fine powder, then a little moiſtened with water, and the maſs (which poſſeſſes ſcarcely any coheſion) is forcibly ſtruck into an iron or a braſs mould, where it takes the requiſite form, and on drying becomes ſolid enough for uſe. The cupels are ſo ſmall that ſeveral of them may be ranged ſide by ſide on the floor of the muffle, and they are ſo extremely porous that the fuſed oxyd of lead ſinks into their ſubſtance with as much eaſe as water into a lump of chalk, but all of the globule of metal that remains in the metallic ſtate is detained in the little cavity on their ſurface. It ſhould be obſerved, that the cupels cannot abſorb more than their own weight of litharge at the utmoſt, ſo that the quantity of metal uſed and the required proportion of lead muſt be regulated accordingly.

Experience has ſhewn the extreme accuracy and nicety of manipulation requiſite to conduct cupellation with uniform exactneſs, and yet there is no proceſs in which accuracy is of more real importance, ſince the quantities operated on are at moſt only a few grains, which are taken as ſamples of the purity and conſequent value of very large maſſes of gold and ſilver. Hence, too, ſcales and weights of uncommon delicacy are required.

Cupellation of Silver.

For the aſſay of ſilver a clean piece of the metal is taken, which is not more than 36 grains, and leſs if the alloy appears abundant, is laminated, and weighed with the utmoſt care. It is then wrapped up in a piece of ſheet-lead of the proper weight, or both the ſilver and lead are folded in paper ready for uſe. The purity of the lead is important; for all lead naturally contains a little ſilver, which, if not removed, might make a ſenſible error in the aſſay. The lead is, therefore, always revived from litharge; in which ſtate it is remarkably pure, and contains no more than $\frac{1}{2}$ grain of ſilver in the pound, which quantity may be entirely neglected.

The mode of proportioning the quantity of lead to the eſtimated quantity of alloy in the ſilver will be preſently noticed.

The fire being kindled, and the floor of the muffle ſprinkled with chalk, to prevent the cupels from being glued to it in the proceſs, the muffle and empty cupels are firſt made fully red-hot, and the cylinders of charcoal are put againſt the open end of the muffle, as already deſcribed. The ſilver and lead are then dropped into the cupel, and the charcoal replaced. The metals immediately melt together; and, when red-hot, the following appearances take place. The melted globule begins to ſend off denſe fumes, which riſe to the roof of the muffle, and at the ſame time a thin ſtream of red fuſed matter is ſeen conſtantly flowing down the ſides of the globule to the ſurface of the cupel, through which it ſinks. This fume is the oxyd of lead evaporated by the heat, and the ſtream of fuſed matter is the melted litharge, together with the copper or other alloy of the ſilver which is thus extracted from it. In proportion to the intenſity of the heat are the denſity of the fume, the violence with which it is given off, and the rapidity with which the melted oxyd *circulates*, as it is termed, or falls down the ſides of the metal. As the cupellation advances, the melted globule becomes rounder, and its ſurface more ſtreaky, till, in about fifteen or twenty minutes, according to circumſtances, all the lead and alloy are vitrified and abſorbed by the cupel, the laſt portions of litharge collect in large bright ſtreaks, which diſappear with great rapidity, ſhewing the melted metal beneath bright with irideſcent colours, which ſuddenly after becomes opake, and exquiſitely white and brilliant, exhibiting the clean ſurface of pure melted ſilver. This laſt appearance is called the *lightning* of the metal, and it is highly beautiful, as if a red curtain was ſuddenly withdrawn from the metal. The operation is now finiſhed, and the cupel is drawn forwards to the open ſide of the muffle, that it may cool gradually before it is removed; for, if it were ſuddenly fixed, the globule is apt to ſhoot into an arboreſcent ſurface in the act of congealing, by which ſmall particles are thrown out of the cupel and loſt, and the aſſay is ſpoiled.

In the cupellations made at the mint aſſay-office, two aſſays are made of the ſame metal, and no ſenſible difference between the weight of the two buttons is allowed to paſs, as aſcertained by ſcales, that turn with the $\frac{1}{1200}$th of a grain.

The proceſs is conſidered as well performed when the button of ſilver adheres but ſlightly to the cupel; when its ſhape is very conſiderably globular, and not flattened at the margin; when it is quite white, clean and brilliant, and not fouled or ſpotted with any remaining litharge. In this ſtate of purity, the ſurface of the button is never quite ſmooth, but is ſomewhat ſcaly or ſtriated, the effect of a very ſtrong tendency to cryſtallization, which perfectly pure ſilver poſſeſſes, but is not found in plate or alloyed metal. Under the microſcope, this irregularity of ſurface is ſtill more obſervable, and the ſcales ſeem to incline to a pentagonal form.

Where the alloy of the ſilver is only copper, as is uſually the caſe, the cupel round the button is ſtained of a brown grey.

The management of the fire in cupellation is of great importance. If it is ſo intenſe that the cupel can ſcarcely be diſtinguiſhed from the muffle, and the fume of litharge can hardly be diſcerned through the dazzling heat, not only much of the lead is volatilized to mere waſte, but even a portion of the ſilver is carried off along with it, which renders the aſſay inaccurate. Even ſilver alone, and in the greateſt purity, may be evaporated by intenſe heat as M. Tillet (an ingenious French chemiſt, and maſter of the mint at Paris) found, by an experiment, in which a button of pure ſilver was intenſely heated for two hours, and had loſt thereby no leſs than $\frac{1}{20}$ of its weight. If one veſſel is inverted over another that contains the ſilver, in this caſe the inſide of the upper one is found ſtudded with minute globules of ſilver, when viewed through a common lens. On the other hand, when the fire is too ſlack in cupellation, the litharge is not fully melted as it forms, and, therefore, is not abſorbed by the cupel, but lies on the ſurface as a red ſcoria, and the circulation is very ſluggiſh. The proper medium of heat is, when every thing within the muffle is fully red-hot; when the fume of litharge is abundant, and viſibly riſes to the top; and when the circulation goes on rapidly, and the button continues very globular. Towards the end of the proceſs, the heat ſhould be increaſed as the button, by the conſtant abſtraction of the lead, becomes conſtantly leſs eaſily fuſible.

It has been already mentioned, that in cupellation all the alloy of the ſilver is carried down into the cupel along with, and diſſolved in the litharge, provided lead enough be uſed. But it was alſo found by M. Tillet, that a ſmall portion of the ſilver is at the ſame time carried down with the lead; ſo that, when perfectly pure ſilver is cupelled with lead of known purity, the button of ſilver left after the proceſs never weighs quite ſo much as before, even though the heat employed is ſo moderate as not to volatilize any of the ſilver. As a proof that ſome of the ſilver is carried down into the cupel, M. Tillet ground this veſſel to powder, and fuſed it with a reducing flux, whereby he recovered nearly all the lead that had been uſed, and which now contained ten times as much ſilver as its natural retent of this noble metal, nine tenths of which, therefore, muſt have been derived from the button of ſilver during cupellation. Accordingly, on cupelling this lead, *per ſe*, it left behind all this exceſs of ſilver, and now only carried down its natural retent, which amounts to about $\frac{1}{1152}$, or half a grain in a pound French.

It remains to give the proportions of lead to alloy, which have been found the moſt uſeful in cupellation, and the method of eſtimating the quantity of alloy previous to this operation, with ſufficient exactneſs to guide the artiſt. The ancient aſſayers uſed for this purpoſe ſmall ſlips or bars of metal, made with pure ſilver and copper, in known proportions, in a regularly increaſing ſeries, from the leaſt to the greateſt quantity of alloy uſually required. Theſe ſets of bars were called *touch-needles;* and, by comparing the ſilver to be aſſayed with theſe needles, in colour, tenacity, and other external marks, its proportion of alloy was gueſſed at with ſufficient accuracy to determine the quantity of lead required in the cupellation. Theſe needles are now, however, almoſt totally diſuſed in ſilver-aſſaying, as an experienced aſſayer is able to judge of the fineneſs of ſilver, with quite ſufficient accuracy, by the eaſe with which it is cut, the colour and grain of the freſh-cut ſurface, the malleability, the appearances on being heated red-hot, and other tokens.

The proportion of alloy (if copper) to the ſilver being found with ſufficient exactneſs, that of the lead is thus eſtimated. Copper, when taken by itſelf, requires from 10 to 14 times its weight of lead for complete ſcorification on the cupel. But all admixtures of fine metal tend to protect the copper from the action of the litharge, the more, in proportion to the quantity of fine metal. Thus, when one part of copper is mixed with three of ſilver, no leſs than 40 parts of lead are required; and one part of copper with 11 of ſilver require 72 parts of lead. It ſhould be obſerved, however, that a conſiderable difference in the reſpective proportions of lead to copper is obſerved by different aſſayers, though the general principle of increaſing the lead in proportion to the quantity of fine metal is indiſputable.

The following table will ſhew ſome of the proportions uſed in the French mint, as given by M. Tillet, and alſo others uſed by the German chemiſts, as given by Gren:

Copper.		Silver.		Lead.
1	with	0	requires	10.
1	——	$\frac{1}{15}$	——	17 Ger.
1	——	$\frac{1}{11}$	——	28 Fr.
1	——	$\frac{1}{3}$	——	20 Ger.
1	——	$\frac{1}{3}$	——	29 Fr.
1	with	$\frac{1}{2}$	requires	30 Fr.
1	——	1	——	32 Fr.
1	——	2	——	36 Fr.
1	——	3	——	40 Fr. and Ger.
1	——	4	——	56 Ger.
1	——	5	——	48 Fr.
1	——	7	——	64 Ger.
1	——	11	——	72 Fr.
1	——	15	——	96 Ger.
1	——	23	——	96 Fr.
1	——	30	——	128 Ger.

Cupellation of Gold.

The proceſs of cupellation is the ſame for gold as for ſilver, the alloy, in both inſtances, being worked off by lead; but ſeveral curious circumſtances take place with mixtures of gold with other metals, which are not eaſily explicable. When pure gold is mixed with lead and cupelled, the whole of the lead is not ſeparated, as it is with pure ſilver, but a ſmall portion remains combined with the gold ſufficient to impair its colour and ductility. If, beſides gold and lead, the mixture contains copper to the amount of $\frac{1}{24}$ of the gold, the whole of the lead will now be ſeparated in cupellation, but almoſt the whole of the copper will remain. If, in addition to the above ingredients, the alloy contains a ſomewhat greater proportion of ſilver than it does of copper, this latter is ſeparated by cupellation, but a little of the lead remains. But if the amount of ſilver equals or exceeds that of the gold, all the lead and copper are ſeparated, and only the gold and ſilver remain.

As, therefore, the object of cupellation is to ſeparate the whole of the alloy of baſe metal, it is neceſſary, in aſſaying gold, to add firſt a very conſiderable quantity of ſilver, then to work off the copper, and other baſe metal, by lead on the cupel, and afterwards to ſeparate the gold and ſilver by the proceſs of *parting*, as it is called, by means of nitric acid.

The aſſay of gold, therefore, is more complicated than that of ſilver, and requires the intervention of this latter metal. The quantity of ſilver muſt, as already mentioned, be at leaſt equal to that of the gold, to enable the lead to extract all the copper in cupellation; but, in fact, the ſilver is generally three times as much as the gold, otherwiſe, though all the copper may be removed by a much leſs proportion, the ſubſequent ſeparation of the ſilver from the gold by nitric acid cannot well take place. For it is found that, unleſs the ſilver be in this large quantity, the gold, which is not itſelf touched by the nitric acid, alſo protects a portion of the ſilver from the acid, and the ſeparation is not complete.

The cupellation of gold therefore is conducted in the following manner: the quantity of copper or other alloy preſent, being firſt eſtimated as accurately as poſſible in the way that will be preſently mentioned, as much fine ſilver is added to the mixture, as will make the gold only a *fourth* of the maſs when the baſe alloy has been removed. If the gold is already alloyed with any ſilver, a proper allowance is of courſe made for the eſtimated quantity. This proportioning of the ſilver to the gold, and melting them together, is called *quartation,* the gold being reduced thereby to one-fourth of the maſs of noble metal. To the mixture the requiſite quantity of lead is then added (which is nearly the ſame as in ſilver aſſaying) and the cupellation is conducted exactly in the ſame manner, only that a higher heat may be be given, as the ſilver in this mixture is not volatilized by a ſtrong fire, as it is in mere ſilver aſſaying. The *lightning* takes place here alſo when every particle of lead and other baſe metal is removed, and only the gold and ſilver are left on the cupel.

The ſeparation of theſe noble metals by nitric acid, and the exact proceſs of parting, will be deſcribed under GOLD. It may be juſt mentioned, however, that the button is firſt flattened, and then rolled out into a ſmall coil, and then put into a glaſs, and with boiling nitric acid, by which all the ſilver is extracted, and the gold alone is left behind in perfect purity.

The quantity of alloy in any mixture of gold with other metals is eſtimated previous to cupellation, partly by the general appearance (the nature of the alloy being known) and partly by the uſe of the touch-ſtone. In judging by the general appearance alone much advantage may be derived from touch-needles, but the caſe is more complicated here than in ſilver aſſaying, ſince three metals at leaſt are concerned in gold aſſaying, namely, gold, ſilver, and copper. Therefore if theſe needles are uſed, there muſt be ſeveral ſets of them adapted to the nature of the alloy.

The trial by the touchſtone is another ſimple and very ingenious method of forming ſome eſtimate of the proportion of alloy in any gold mixture. For this purpoſe the piece of metal to be tried is rubbed hard upon a piece of black baſalt or black pottery, ſo as to make a broad bright metallic ſtreak by the abraſion of ſome of the metal. This ſhews at once the true colour of the alloy, which may alſo be compared with another ſtreak made by a touch-needle beſide it. A drop or two of nitric acid is then ſpread upon the ſtreak, and after remaining about ten ſeconds, it is waſhed off, and the effect obſerved. If the ſtreak preſerves its golden colour unaltered, the metal is judged to have a certain degree of fineneſs, as gold is inſoluble in this acid; if it looks red, dull, and coppery, it is leſs fine; if the ſtreak is almoſt entirely effaced, the metal contains very little gold; and thus by the aſſiſtance of this acid, an experienced aſſayer will come at a ſufficiently accurate knowledge of the quantity of alloy to guide him in the addition of lead and ſilver in the cupellation. It is found however that though pure nitric acid will readily diſſolve copper ſingly, it will not act ſenſibly on this metal, when in mixture with twice its weight of gold, ſo effectually does the gold protect the copper againſt this powerful acid. But if a ſmall proportion of muriatic acid is added, the copper will be diſſolved when the gold is not more than three-fourths of the mixture, and thus the power of this teſt is much extended. Vauquelin, in his "Manuel de l'Eſſayeur," recommends for this purpoſe an acid compoſed of 98 parts of nitric acid of 1.34 ſp. g., 2 parts of muriatic acid of 1.173 ſp. gr., and 25 parts of water. This does indeed compoſe a nitro-muriatic acid, which is the proper ſolvent for gold, but the gold on the touch-ſtone is not in this caſe ſenſibly acted on, owing to the ſhortneſs of the application, and the very ſmall proportion of muriatic acid.

Touching is alſo of great uſe in determining the value of wrought trinkets which cannot ſpare ſo much as 8 or 10 grains for a regular aſſay.

Cupellation of Alloys of Platina.

On account of the great ſpecific gravity of platina, it was long apprehended that gold might be adulterated with it to a conſiderable degree without being eaſily detected, for as platina is equally unoxydable by air as gold and ſilver, it cannot be ſcorified by lead on cupel, and being inſoluble in nitric acid its ſeparation from gold is not readily effected. It is not difficult, however, to detect this metal when mixed with gold or ſilver even in very ſmall proportion.

Gold alloyed with ſo little as one *per cent.* of platina and cupelled in the uſual way, with thrice its weight of ſilver, differs from gold and ſilver alone in requiring a much greater heat for cupellation and compleat fuſion of the button; otherwiſe, when all the lead is worked off, the button remains flat, like a piece of money, and its ſurface knotty. Even when the button is well fuſed its edges are much thicker, and rounder than in common gold aſſays, its colour duller, and eſpecially it appears remarkably cryſtallized on its ſurface. Alſo in cupellation, when the laſt portions of lead are worked off, the button appears paſty, ſcarcely irideſcent, and does not lighten, or become ſuddenly brilliant as ſilver and gold alone, or gold and ſilver do.

Silver bears alloying with platina better than gold does; but this is never done fraudulently. When the platina does not exceed 5 *per cent.* of the ſilver, it works eaſily on the cupel, but the *lightning* is leſs obſervable than with pure ſilver, and, in particular, the property of cryſtallizing is ſtill more conſpicuous. When the platina amounts to a quarter of the mixture, the button or cupel flattens, and becomes paſty even before all the lead is run off, and its ſurface ſhoots up into knobs which, when ſeen by a magnifier, appear cluſters of cryſtalline points.

Some remarkable occurrences take place with the alloys of gold or ſilver with platina, when treated with nitric acid, which will be mentioned under that metal.

CUPER, GILBERT, in *Biography*, was born in the duchy of Guelderland, in 1644: his early education was at Nimeguen, and he finiſhed his ſtudies under Gronovius at Leyden. At the age of 25 he was appointed profeſſor of hiſtory at Deventer. He was alſo raiſed to the principal offices of the magiſtracy of that city. Here he died in 1716. He publiſhed many works of conſiderable merit; particularly "Obſervations on various Greek and Latin Authors;" "A Collection of ancient Monuments relative to Egypt;" "An Explanation of the Apotheoſis of Homer;" and a "Hiſtory of the Three Gordians." He maintained a friendly correſpondence with the principal literary characters of his time, by whom he was highly eſteemed, on account of his great learning. He was elected foreign member of the academy of inſcriptions at Paris. Moreri.

CUPERIUM, in *Ancient Geography*, a place of Thrace, in the vicinity of Zurule.

CUPERTINO, in *Geography*, a town of Naples, in the province of Otranto; 5½ miles N.E. of Nardo.

CUPHA, in *Ancient Geography*, a river of European Sarmatia.—Alſo, a town of Africa, in Libya, placed by Ptolemy near the Niger.

CUPHA, or KUPHA. See CUFA.

CUPHEA, in *Botany*. Hort. Kew. 2. 129. Willd. 952. Gært. 255. Juſſ. 332. Vent. 3. 304. Claſs and order, *dodecandria monogynia*. Nat. Ord. *Salicariæ*; Juſſ. *Calycanthemæ*; Vent.

Gen. Ch. *Cal.* Perianth one-leafed, tubular, ſtriated, five or ſix-toothed, upper tooth broader, permanent. *Cor.* Petals five or ſix, inſerted into the throat of the calyx, the two upper ones larger. *Stam.* Filaments ten or twelve, in three ranks, unequal, two of them ſhorter and more hairy; anthers roundiſh. *Piſt.* Germ egg-ſhaped; ſtyle permanent. *Peric.* Capſule oblong, one-celled, valveleſs, covered by the calyx, and burſting irregularly with it by the enlargement of the receptacle of the ſeeds. *Seeds* from five to ten, lenticular, erect, attached to the filiform lateral branches of a columnar, triquetrous, free, cartilaginous receptacle.

Eſſ. Ch. Calyx five or ſix-toothed, unequal. Petals five or ſix, unequal, inſerted into the calyx. Capſule one-celled; receptacle triquetrous.

Sp. C. *viſcoſiſſima.* Jacq. hort. 2. 83. Pl. 177. Lam. Ill. Pl. 407. Gært. tab. 44. fig. 9. (Lythrum cuphea; Linn. jun. Supp. 249. Balſamona Pinto; Vandell. faſc. 1771. 15. tab. 3. *Root* annual. *Stem* a foot high, cylindrical, erect, pubeſcent-viſcid, purpliſh, branched. *Leaves* oppoſite, petioled, ovate-oblong, quite entire, even-ſurfaced. *Flowers* purple, lateral, ſolitary, on ſhort peduncles; calyx ſwollen at the baſe, pubeſcent-viſcid; nectary a reflexed ſcale within the gibbous part of the calyx. *Capſule* burſting longitudinally by the protruſion of the lengthened receptacle, loaded with the unripened ſeeds, which come to maturity in the open air. A native of moiſt ſhady ground in Brazil. It is readily raiſed from ſeed in our botanic gardens.

CUPID, in *Mythology*, one of the companions of Venus, and the god of love. The Cupids were anciently ſuppoſed to be very numerous, and accordingly they were the offſpring of different parents; but there were two which were the chief, *viz. Eros*, the ſon of Jupiter and Venus, who delighted in inſpiring his votaries with refined ſentiments of virtuous love; and *Anteros*, of inferior, and, indeed, contrary character, the deſcendant of Mars and Venus, or, as ſome ſay, of Erebus and Nox. The former is ſaid to have been the cauſe of love, and the latter is repreſented as the cauſe of its ceaſing; and, therefore, the antiquarians at Florence uſually call the two little Cupids at the foot of the Venus of Medici by the names of Eros and Anteros; and in the air of their faces, and alſo in their form and attitudes, there is ſomething that correſponds with theſe names; the upper one being lighter, and of a more pleaſing aſpect, and the lower one more heavy and ſullen. Their darts are of a different nature; that of Eros golden, which procures love; and that of Anteros leaden, which cauſes hatred.

Cupid is commonly repreſented as a child, with ſoft and fine hair, almoſt always naked, of a good ſhape, inclining to plumpneſs, and furniſhed with wings, a bow, quiver, and darts, and ſometimes with a lighted torch. The ancient artiſts and poets repreſent Cupid either as idle and playful, or as very powerful, and governing all things, ſo that Venus, without his aſſiſtance, is weak and impotent. Thus Virgil, Æn. i. 668.

> "Nate, meæ Vires, mea magna potentia, ſolus:"

ſometimes careſſing, and ſometimes tormenting the goddeſs Pſyche, or the ſoul, riding in a car drawn by two Pſyches, or by two butterflies, riding on a lion or a dolphin, &c.

The famous ſtatuary Praxiteles, who flouriſhed about the 114th olympiad, B. C. 324, acquired great honour, by his ſtatues of Cupid. The orations of Cicero againſt Verres have given celebrity to the marble Cupid, which the orator repreſents as a rival to one ſtill more famous by the ſame artiſt, that formed the pride and the wealth of the Theſpians: —a ſtatue ſpared by Memmius, when he plundered the cities of Greece. We learn from Pauſanias, that this marble Cupid of Praxiteles, which was the idol of the Theſpians, periſhed (after a variety of adventures) in a fire at Rome. It has been ſaid that the marchioneſs of Mantua poſſeſſed, in the year 1573, the Cupid of Praxiteles, and the ſleeping Cupid of Michael Angelo; but againſt this fact the teſtimony of Pauſanias has been alleged. Neverthleſs, though the Theſpian ſtatue ſuffered the fate reported by Pauſanias, the marchioneſs might poſſeſs another Cupid executed by Praxiteles; becauſe it appears that there exiſted two marble Cupids of acknowledged beauty, by this illuſtrious ſculptor; and among the ſtatues deſcribed by Calliſtratus, two Cupids, by the ſame artiſt, in bronze, are celebrated as works of exquiſite perfection. On one of theſe, perhaps, the following epigram was written; though Junius imagined that it was compoſed on the Theſpian Cupid, and that the poet has taken the liberty to turn the marble into braſs. We ſhall ſubjoin a verſified tranſlation of this Greek epigram, tranſlated into Latin by Grotius, from Mr. Hayley's "Eſſay on Sculpture."

"Julian, the Egyptian prefect, on the Cupid of Praxiteles."

> "Praxiteles, proud ſlave of my command,
> Thus form'd my ſtatue with his fetter'd hand,
> Me, couch'd within him, he in bronze portray'd
> For Phryne, who with love the gift repaid.
> She made her captive mine. To hearts that burn,
> Love is for love the only juſt return."

CUPIDO, in *Ornithology*, a ſpecies of Tetrao; which ſee.

CUPINOVA, in *Geography*, a town of Servia, on the river Save; 4 miles S.S.W. of Belgrade.

CUPIUS, Jacobus, in *Biography*, a painter of quadrupeds, living in the 17th century. From the compoſitions of this artiſt R. Perſyn engraved 13 plates, which were publiſhed by N. Viſſcher in 1641. Heinecken.

CUPOLA, in *Architecture*, the ſame with *dome*.

The word is Italian, formed of the barbarous Latin *cuppola*, otherwiſe called *thola*, and *fornix*.

CUPPÆ, in *Ancient Geography*, a place in Myſia, ſituated, according to the Itinerary of Antonine, in the route from Nicomedia to Viminacum.

CUPPING, in *Surgery*, is one of the modes of inviting blood to a particular part of the body, by means of a veſſel named a Cupping-glass; and it is uſual, after the application of this inſtrument, to employ ſcarifications, for the purpoſe of extracting the accumulated fluids. The comparative advantages of local and general blood-letting are elſewhere explained. (See the articles Bleeding and Scarification.) The operation of cupping is by no means difficult; but in large cities it is very much confined to a particular claſs of practitioners, named Cuppers, who extract blood in this way with great facility, ſometimes to the quantity of a pound in ſix or ſeven minutes. Cupping was practiſed by the ancient Greeks, Romans, and Arabians, and the figure of a cupping-apparatus may be ſeen in the ſurgical works of Albucaſis; though the methods, formerly in uſe, were not nearly ſo convenient and effectual as thoſe employed by the moderns.

When a cupping-glaſs is applied alone, without ſcarifying the part, this operation is named dry cupping; and it is had recourſe to where we deſire to produce a greater flow of blood to a part than is uſual, or to draw the milk into women's breaſts, or to elongate their nipples, &c. The immediate effect of cupping any part is, to remove the ſuperincumbent weight of the atmoſphere upon it, and thereby to occaſion a relatively greater degree of preſſure on the adjacent parts. The blood is thus urged into the ſmall arteries and veins, ſo as to produce a conſiderable redneſs under the cupping glaſs, at which place the ſkin is alſo much elevated, and rather inflamed.

The exhauſtion of the air from the cupping-glaſs is generally effected either by an air-pump, or by the flame of a wax-taper; but the latter mode is now commonly preferred, and is much the moſt expeditious method. When blood is to be drawn, we firſt uſe the glaſs, and apply the ſcarificators immediately after its removal; then again fix the glaſs on the ſame ſpot, and leave it there till the blood has flowed freely. To remove the glaſs, it is only neceſſary to raiſe one edge of it a little, ſo as to admit the air; and after every removal, the ſkin ſhould be wiped clean with a ſponge and warm water, to keep the ſcarified ſurface in a fit ſtate for a renewal of the bleeding. If more than ſix or eight ounces of blood be intended to be extracted, ſeveral glaſſes, and as many ſcarifications, will be required; and the depth of the punctures muſt be in proportion to the quantity of blood demanded, unleſs the ſtructure of the part forbids our making any other than very ſuperficial wounds. No other dreſſing is required after cupping, than a piece of fine old linen.

Cupping-*Glaſs*, is a veſſel formed ſomewhat like a bell, applied to ſeveral parts of the body, in performing the operation above deſcribed. Among the ancients this inſtrument was compoſed of horn, wood, braſs, ſilver, &c. When a cupping glaſs is to be uſed with an air-pump, for exhauſting it, a ſmall aperture is left in its upper part, which is covered with a valve; but when the air is to be excluded by the flame of a lamp, &c. it muſt be entire at its upper part, and open at the bottom only.

CUPPIS, in *Geography*, a town of Sweden, in the province of Finnland.

CUPRÆ, or Cuppa, in *Ancient Geography*, a maritime town of Italy, in the Picenum. Ptolemy places it between Tronto and Matrinum. It is thought to be the preſent St. Benedetto. Ptolemy alſo points out another town of this name, in the interior of Picenum, on the mountains beyond Tronto; ſuppoſed to be the preſent Loretto.

CUPRESSETUM, a place of Aſia, in Aſſyria, near the river Caper, according to Strabo.

CUPRESSO-Pinulus, in *Botany*, Breyn. See Brunia *nodiflora*.

CUPRESSUS, (κυπαριττος, Theophraſt.; κυπαρισσος, Dioſc.; from κυω, *pario*, and παρισος, *æqualis*, alluding to the regularity of its branches. Cupreſſus; Plin. Cypariſſus; Virg.) Cypreſs, Tourn. 358. Linn. gen. 1079. Schreb. 1458. Willd. 1713. Gært. 569. Juſſ. 413. Vent. 3. 580. Claſs and order, *monœcia monadelphia*. Nat. Ord. *Coniferæ;* Linn. Juſſ.

Gen. Ch. Male flowers about twenty, diſpoſed in an egg-ſhaped catkin. *Cal.* Scale roundiſh, acuminate, concave, pedicelled, peltate. *Cor.* none. *Stam.* Filaments none; anthers two or four, oval-roundiſh, one-celled, adnate to the baſe of the inner ſide of the ſcale. Female flowers from eight to ten, cluſtered into a ſmall, ſhort cone. *Cal.* Scale egg-ſhaped, thickiſh, ſpreading. *Cor.* none. *Piſt.* Scarcely diſcernible; but at the baſe of each ſcale there are ſeveral points which appear to be germs, with ſimple or double ſeſſile ſtigmas. *Peric.* A ſtrobile; ſcales thickened, at firſt ſhut, afterwards expanding, orbicular, angular, generally peltate, convex and almoſt pointed on the outſide; a little concave within, appearing like the heads of nails. *Seeds* ſeveral, ſmall, oblong, angular.

Eſſ. Ch. Males. Catkin imbricated. Calyx a ſcale. Corolla none. Anthers two or four, ſeſſile, without filaments. Females. Catkin ſtrobilaceous. Calyx a ſcale. Corolla none. Stigma one or two concave points. Nut angular.

* *Leaves adnate, imbricated on the ſmall branches.*

1. C. *ſempervirens.* Common cypreſs. Linn. Sp. Pl. 1. Mart. 1. Lam. 1. Willd. 1. "Leaves imbricated; fronds quadrangular;" Linn. "Little branches quadrangular; leaves imbricated in four rows, obtuſe, adpreſſed, convex; ſtrobiles globular; ſcales awnleſs; branches ſtiff and ſtraight;" Willd. α. Stricta; Hort. Kew. Pyramidal common cypreſs. Cupreſſus; Bauh. Pin. 488. C. meta in faſtigium convoluta, quæ fæmina Plinii; Tourn. 587. Gært. tab. 91. fig. 1. Lam. Ill. Pl. 787. fig. 1. β. Horizontalis. Hort. Kew. Spreading common cypreſs. C. ramos extra ſe ſpargens, quæ mas Plinii; Tourn. 587. The pyramidal variety is a large ever-green tree, very ſtraight, with a brown bark; the wood hard, compact, pale or reddiſh, with deep veins, of a penetrating pleaſant ſmell, and very durable; branches almoſt from the bottom of the ſtem, upright, and forming a pyramid, in the manner of the Lombardy poplar, ſo cloſe as to be impenetrable to the rays of the ſun. *Leaves* ſmall, oppoſite, entirely covering the young branches; more diſtinct on the older ones, where they appear in pairs, decurrent, and claſping the ſtem; green, ſmooth, a little pointed, permanent, changing into a kind of ſcales on the oldeſt branches, where they become dry, and are partly united with the bark. The colour of theſe leaves in winter is of a dull ſombre caſt; but in ſpring they aſſume a brighter hue, and give a lively appearance to the tree, even before the expanſion of the new leaves. *Flowers* on trees that are at leaſt ten or twelve years old; male catkins from the end of the laſt year's branches, ſmall, yellowiſh, three lines long, often very numerous; female catkins much fewer; generally at the end of the branches which ſpring from wood two years old. *Fruit* ſtrobile, (Galbalus; Gært.; the name given by the ancients to the fruit of the cypreſs; but it does not at all differ from a ſtrobile, as the term is uſed by modern botaniſts, and applied to the fruit of other coniferous plants) ovate-globular, an inch in diameter, not ripening till the following ſpring; ſcales large, angular, peltate, corky, ſlightly convex on the outſide, radiately ſtriated, mucronate in the centre, ſupported on the inner ſide by a thick angular peduncle; nuts four or more, adhering to the lower part of the peduncle, ſmall, boney, but eaſily cut with a knife, inverſely egg-ſhaped, compreſſed, or irregularly angular, covered with a dun-coloured membranous ſkin, which is extended into a very narrow rim ſurrounding the nut, one-celled. *Seed* linear-oblong, ſomewhat cylindrical, of a bay colour. The ſpreading variety is diſtinguiſhed at once by its habit, and is ſo ſtrikingly different from the pyramidal one, that La Marck would pronounce it a diſtinct ſpecies without heſitation, if both kinds were not ſaid to be produced indiſcriminately from the ſame ſeeds. Miller, indeed, aſſerts that his horizontal cypreſs is perpetuated from ſeeds without variation, and is diſtinguiſhed from the ſpreading variety of the common cypreſs by having its branches more exactly horizontal; but La Marck aſſerts that this plant, if really a diſtinct ſpecies, is little known to botaniſts. If, as appears probable, it be C. horizontalis of the Hortus Kewenſis, it is conſidered by the very able writer of that work as only a variety of C. ſempervirens. Linnæus calls the young ſhoots which bear the fructification *frondes;* and has been followed in this reſpect by the author of Hortus Kewenſis, as well as by La Marck, who calls them in French *feuillaiſons,* a word which ſeems to have been invented by himſelf for the purpoſe. Linnæus was probably induced to employ the term in the preſent inſtance by the remarkable adnate inſertion of the leaves, which appears to incorporate them with the branch; but Willdenow is more correct in calling them what they really are, little branches *(ramuli);* the term *frons* being, as Dr. Smith obſerves in his "Introduction to Botany," properly confined to the plants of the claſs cryptogamia. A native of the ſouth of Italy, the Levant, ſome parts of the Ruſſian empire, China, &c. and cultivated as an ornamental plant in all the warmer parts of Europe, particularly about palaces; no other tree being thought to blend ſo well with ſtone buildings. It is not uncommon about Marſeilles, Rome, &c.; and is ſaid to be ſo long-lived, that, if we may believe Pliny, there were in his time trees growing at Rome which were more ancient than the city itſelf. We are told, that the gates of St. Peter's church at Rome, made of cypreſs-wood, had laſted from the time of Con-

ſtantine, 1100 years, as freſh as new, when pope Eugenius IV. ordered gates of braſs in their ſtead. Some maintain that the wood, *gophir*, of which Noah's Ark was made, was cypreſs; and Plato preferred it to braſs itſelf, for writing his laws upon it. On account of the gloomy hue of its leaves, eſpecially in winter, it was eſteemed by the ancients a ſuitable ornament of their burial places, was ſacred to Pluto and Proſerpine, and was uſed at the funerals of perſons of faſhion. Hence, with the poets, it obtained the epithets atra, funeſta, funebris, and feralis. It was introduced into England more than two hundred and fifty years ago, according to Turner, and is ſtill found in old gardens. It has been ſtrongly recommended by Evelyn and Miller, as worthy of more general cultivation in this country, for the ſake of the valuable qualities of its timber, which would as ſoon come to perfection, and prove as profitable as that of the oak. Evelyn praiſes it for its hardineſs; but profeſſor Martyn obſerves, that it has never been planted in any conſiderable quantity among us, evidently becauſe it cannot reſiſt the attacks of our winter froſts and ſpring blaſts. Its wood, having a pleaſant ſmell, taking a fine poliſh, and not being liable to be eaten by inſects, is eſteemed for cabinet furniture and other ſimilar purpoſes. It was uſed by the Greeks, in the time of Thucydides, for the coffins of their eminent warriors; and many of the cheſts which encloſe the Egyptian mummies are made of it, affording a deciſive proof of its almoſt incorruptible nature. 2. C. *glauca*. Glaucous or Portugal cypreſs. Lam 2. (C. luſitanica; Willd. 2. Tourn. 587. Duham. Arb. 1. 198. Mill. Dict. C. pendula; Mart. 5. L'Herit. Stirp. 15. tab. 8. Hort. Kew. 3. 373.) "Leaves acute, glaucous, glandular, imbricated in four rows; branches hanging down." Lam. "Little branches quadrangular; leaves imbricated in four rows, adpreſſed, glaucous, keeled; ſtrobiles ſomewhat globular; branches pendulous." Willd. A ſmall tree, known at firſt ſight by its glaucous foliage and pendulous branches. *Leaves* ſmall, lanceolate, acute, adnate in their lower part, oppoſite, with a gland, or rather reſiniferous hollow on the back; thoſe on the lower branches in ſomewhat diſtant pairs, dryiſh, ruſſet, and rather prickly. *Flowers* ſimilar to thoſe of the preceding ſpecies, but ſmaller; male catkins ſmaller and more obtuſe. *Cones* about the ſize of a common cherry, blueiſh before they become dry. *Seeds* ſhort, almoſt orbicular, compreſſed, angular. A native of the Eaſt Indies, on the coaſt of Malabar; but has been long naturalized in Portugal, where it grows to a conſiderable timber-tree, though in England it is not more than fifteen feet high. It has been cultivated here more than a hundred years; but being rather tender, is now a rare plant in our gardens and plantations. 3 C. *pendula*. Lam. 4. Willd. 4. Thunb. Jap. 265. (Fimoro; Kæmpf. Amæn. 883) "Leaves oppoſite, egg-ſhaped; little branches dichotomous, pendulous." A tree not more than ſix feet high, erect, and entirely ſmooth. *Branches* alternate, lax, leafleſs, very compound; little branches filiform, covered with leaves, long, lax, ſpreading, altogether pendulous. *Leaves* decuſſated, imbricated, egg-ſhaped, with a point at the end which bends a little outwards, very ſhort. Obſerved by Thunberg, but without fructification, on the mountains of Japan. 4. C. *thyoides*. White cedar, or arbor vitæ leaved cypreſs. Linn. Sp. Pl. 2. Mart. 3. Lam. 3. Willd. 5. (C. nana mariana; Pluk. Mant. 61. tab. 345. fig. 1.) "Leaves imbricated; fronds two-edged." Linn. "Leaves imbricated, cloſe preſſed, with a ſingle gland on the back; fronds flattened, turned different ways." Lam. A ſmall or middle ſized ever-green tree, naturally forming a regular elegant head. *Branches* not pendulous; little branches flattened, not placed in the ſame plane as in the arbor vitæ, but ſtanding two ways. *Leaves* of a delicate green colour, ſmall, oppoſite, imbricated in four rows on the little branches, with their point cloſe to the branch. *Flowers* of the male catkin, according to L'Heritier, with pedicelled, not peltate ſcales, and only two anthers; of the females, with two ſtigmas. A native of North America, China, and Cochinchina. In the Engliſh gardens it ſeldom riſes much higher than fifteen feet. Loureiro ſtates that in China it is not more than eight feet high; but in North America it is conſiderably larger, and is uſed for poſts and rails, but does not laſt in the ground ſo well as what is there called red cedar (juniperus Virginiana). Canoes and even houſes are made of it; but it is moſt eſteemed for ſhingles. It was firſt introduced into England by Peter Collinſon, in 1736. 5. C. *columnaris*. Mart. 7. Forſt. Flor. Auſtr. *n.* 351. "Leaves imbricated, awl-ſhaped, furrowed; ſtrobiles cylindrical, elongated." A native of New Caledonia and Norfolk iſland.

** *Leaves free, detached, more or leſs open, not imbricated.*

6. C. *juniperoides*. African or Cape cypreſs. Linn. Sp. Pl. 4. Mart. 4. Lam. 5. Willd. 7. "Leaves oppoſite, decuſſated, awl-ſhaped, ſpreading." *Branches* looſe, ſpreading. *Leaves* near an inch long, of a light green colour, continuing in verdure all the year. *Cones* black when ripe. A native of the Cape of Good Hope. 7. C. *japonica*. Linn. jun. Supp. 401. Mart. 6. Lam. 6. Willd. 6. Thunb. Jap. 265. Gært. tab. 91. fig. 5. Lam. Ill. Pl. 787. fig. 2. "Leaves in four rows, ſickle-ſhaped, compreſſed, furrowed, decurrent." Thunb. A very lofty, ſtraight tree. *Leaves* reſembling thoſe of the ſpruce fir, or rather thoſe of yew, larger than in the other ſpecies, in three or four rows, not oppoſite, numerous, linear, acute, bent inwards, with four longitudinal furrows, green and ſomewhat ſhining above, marked with two whitiſh ſtreaks underneath, an inch and half long, and little more than a line broad. *Male catkins* ſeveral together in a terminal ſpike, with intermediate leaves, egg-ſhaped, obtuſe, ſmooth. *Female ſtrobiles* ſolitary, few, globular, on the lower branches; ſcales peltate, coriaceous-membranous; variouſly angular below; cleft above into three or four membranous lanceolate-acuminate, erect ſegments; the anterior part finally extended into a long, acuminate, keeled, recurved beak; peduncle thick, ſtriated, curved. *Nuts* four or ſix in each ſcale, united in pairs, inverſely egg-ſhaped, lenticularly compreſſed or angular, ſurrounded with a very narrow membranous edge. *Seed* ſomewhat cylindrical, black. The wood is ſoft, and yields readily to the tool; on which account it is much uſed for cabinets, and other furniture, that are varniſhed or japanned. If it be kept ſome time under ground, and then macerated with water, it takes a blueiſh colour. 8. C. *diſticha*. Deciduous cypreſs. Linn. Sp. Pl. 2. Mart. 2. Lam. 7. Willd. 3. (C. americana; Cateſ. Car. 1. 11. tab. 11. C. virginiana, foliis acaciæ deciduis; Comm. Hort. 1. 113. tab. 59. Duham. Arb. 1. 198. tab. 82. Pluk. Alm. 125. tab. 85. fig. 6.) "Leaves in two rows, ſpreading." Linn. "Leaves linear, in two rows, deciduous, ſpreading." Lam. One of the largeſt trees in North America, ſometimes ſeventy feet high, thirty feet in circumference at the ſurface of the ground, and twenty at the height of ſix feet. *Branches* extending almoſt horizontally. *Leaves* acute, in two rows, and very near together on the little branches, whence they have been compared to the leaves of acacia by ſome of the older botaniſts, who miſtook the little branches for common petioles, and thought the leaves winged; whereas they are ſtrictly ſimple, about half an inch long, flat, ſlightly curved, and of a lively green colour, appearing towards the end of

May, and falling off about the middle of November, previous to which they become red. *Cones* larger, with ſtronger ſcales than thoſe of the common cypreſs. *Seeds* alſo larger, very angular, ſhining, exuding drops of red, tranſparent, penetrating reſin. A native of North America, where it grows naturally on ground covered with water three or four feet deep, and is one of the few reſinous trees which flouriſh in ſuch ſituations. As it is hardy, and endures the cold of our climate, it would probably be planted to advantage in marſhes on a large ſcale. Its wood is light, fine-grained, and very durable, whence it is much uſed in North America for various kinds of carpentry work, and is particularly excellent for ſhingles. It was introduced into this country by John Tradeſcant, ſenior, before the year 1640, but has not become common. La Marck ſaw, at Monceau in France, on an eſtate formerly belonging to M. Duhamel, a beautiful viſta of theſe trees in very moiſt ground, on each ſide of a ſmall ſtream, ſome of which began to bear fruit in 1779. There is a variety in which the leaves are leſs ſpreading, rather remote, ſomewhat ſcattered, and ſcarcely in two rows, which is not ſo handſome a tree.

CUPRESSUS *fructu quadrivalvi;* Shaw. See THUJAN *articulata.*

CUPRESSUS, in *Gardening,* comprehends plants of the ever-green and deciduous ornamental tree kind; of which the ſpecies chiefly cultivated are the ever-green cypreſs (C. *ſempervirens*), the deciduous cypreſs tree (C. *diſticha*), the white cedar or arbor vitæ leaved cypreſs (C. *thyoides*), the Portugal cypreſs (C. *pendula*): and the firſt has been diſtinguiſhed into the upright and horizontal or ſpreading kinds.

Method of Culture.—Theſe plants, in all the different ſorts, may be raiſed either from ſeeds or by cuttings of the young ſhoots; but thoſe procured from the ſeeds are by much the beſt plants in general.

In the firſt of theſe methods, the ſeed, being provided and obtained from the cones, by expoſing them to a moderate degree of heat, ſhould be ſown towards the latter end of March, or beginning of the following month, on a warm bed or border, where the ſoil is rather light and mellow, and has been rendered fine by being well dug over, covering it in, to the depth of about half an inch. When the ſeaſon proves dry, ſlight waterings ſhould be occaſionally given; and, during the ſummer, the plants be kept free from weeds, and be watered a little when the weather is hot. In the winter time they ſhould be protected from froſts, by mats, or other contrivances. They muſt be continued under this management till they have attained two years' growth, when they may be removed in the beginning of the ſpring, and planted in nurſery rows, in a warm ſituation, at the diſtance of eighteen inches or two feet, and eight inches or a foot apart. When they have had three or four years' growth in theſe rows, they will be in proper condition for being finally ſet out where they are to remain. The beſt time for performing this buſineſs is in the beginning of ſpring, when the ſeaſon is fine.

They are capable, however, of being raiſed in a more expeditious manner, by ſowing the ſeeds in pots or tubs of light earth, and plunging them in a moderate hot-bed; as in this way they will be fit for removing into nurſery rows, in the courſe of twelve months, or a little longer.

But as ſeed of this ſort is ſlow in vegetating, this laſt method is the moſt proper for it, as ſhade may be more conveniently provided during the ſummer months, and protection in a ſunny expoſure in the winter; and when the plants do not appear in the courſe of the firſt year, the aid of a hot-bed may be conveniently had in the following ſpring, by which they will be brought forward with expedition to the ſtate proper for being planted out in nurſery-rows.

And in the ſecond mode, the cuttings made from the young ſhoots ſhould be planted in a warm ſheltered ſituation, either in the early autumn or ſpring months; care being taken to have them daily ſupplied with water in the following ſummer. Afterwards the plants ſhould be managed in the ſame manner as thoſe raiſed from ſeed.

This method may be attempted with all the ſorts; but thoſe of the ever-green kind are extremely ſlow in ſtriking root.

The plants raiſed in this way are likewiſe much ſlower in their growth than thoſe which are produced from ſeeds.

In their general culture, theſe plants ſhould always be ſuffered to take their natural growth, without clipping or cutting them.

All theſe ſorts, from their beautiful growth and cloſely-placed foliage, have a very ornamental effect in the fronts of large plantations, as well as in groups, with other trees, on the ſides of lawns, or other parts of pleaſure-grounds. They have likewiſe a fine appearance in clumps, or planted out ſingly; and alſo in groups of from three or four to eight or ten of the different kinds, introduced where the extent of mown-graſs ground is conſiderable.

And the ever-green ſorts, from their beautiful pyramidal growth, produce an agreeable variety, in aſſemblage with other ſorts of plants, when planted near ornamental or other buildings of that deſcription.

The large tree growing ſorts may likewiſe be introduced with great effect, in the front parts of plantations of timber trees.

CUPRUM. See COPPER.

CUQ-TOULZA, in *Geography,* a ſmall town of France, in the department of the Tarn, chief place of a canton, in the diſtrict of Lavaur, with 1002 inhabitants. The canton has 10 communes, and 4904 inhabitants, on a territorial extent of 117½ kiliometres.

CUQUENI, or CUCUENI, in *Ancient Geography,* a people of Gallia Aquitanica, according to Ptolemy.

CURA AVENACEA, a diet-drink of oats, much recommended by ſome authors in various diſtempers.

CURAÇAO, or CURAZAO, in *Geography,* an iſland in the Caribbean ſea, about 50 or 60 miles from the continent, 9 or 10 leagues in length, and about 4 in breadth, formerly belonging to the Dutch, who took it from the Spaniards in 1632, but captured by the Engliſh in January, 1807. The ſoil of this iſland is naturally barren, and the climate is far from being ſalubrious; but the Dutch, by their indefatigable induſtry, have converted the paſtures, which formerly furniſhed a great number of cattle, into plantations for ſugar and tobacco, and rendered it, in a variety of reſpects, productive. It has good ſalt-works, which afford a conſiderable ſupply of this article to the Engliſh iſlands and the colonies on the continent. This iſland has been rendered peculiarly advantageous to the Dutch, by the contraband trade, which is carried on between the inhabitants and the Spaniards, and by its harbour's being the rendezvous to all nations in time of war. The Dutch ſhips from Europe have been accuſtomed to touch at this iſland for intelligence, or pilots, and then to proceed to the coaſt of the Spaniſh main for trade; in addition to which, there is a conſtant intercourſe between Curaçao and the Spaniſh continent. In the iſland are numerous warehouſes, full of the commodities of Europe and the Eaſt Indies; conſiſting of all ſorts of woollen and linen cloth, laces, ſilks, ribbands, iron utenſils, naval and military ſtores, brandy, the ſpices of the Moluccas, and the calicoes of India, white and printed. One of the principal advantages derived by the Dutch from this iſland is owing to their trade in African ſlaves; three or four cargoes of whom have been annually ing, withering. *Stam.* Filaments ſix, very ſhort; anthers linear, erect. *Piſt.* Germ ſeſſile, lanceolate; ſtyle very ſhort; ſtigma large, tapering, with a three-cleft tip. *Peric.* Capſule, when immature, three-celled, with the rudiments of ſix or eight ſeeds in each cell; finally appearing one-celled. *Seeds* one to four, ſhining, black, with a horny, ſomewhat incurved beak reſembling the roſtrum of a curculio.

Eſſ. Ch. Calyx none. Corolla ſix-petalled. Filaments ſix. Piſtil one. Pericarp a capſule. Seeds beaked.

Sp. C. *orchioides.* Mart. Gært. tab. 16. fig. 11. Plant. Coromand. 14. tab. 13. *Root* tuberous, with many fleſhy vermicular fibres. *Leaves* numerous, all radical, petioled, ſword-ſhaped, nerved, ſlender, beſet with a few ſoft white hairs when young, from ſix to eighteen inches long, half or three quarters of an inch broad; petiole channelled, ſheath-ſhaped below, and embracing the inner ones. *Raceme* ſolitary, axillary, two-ranked, its top juſt appearing above the earth; ſcape about an inch long, compreſſed, clubbed; lower bractes remote, upper ones nearer, ſpathe-like, pointed, decreaſing in length towards the top, ſo that they become nearly horizontal like a corymb, one-flowered. *Flowers* pretty large, yellow, only one or two of the loweſt fertile, the others abortive from the want of a piſtil; peduncles ſo long that they elevate the flower above the earth more than an inch, hairy, three-ſided. A native of ſhady uncultivated places about Samulcotah on the coaſt of Coromandel, but not common. It is the Nallatady of the Telingas.

CURCULIO, in *Entomology*, a genus of the coleoptera order. The antennæ are clavated or terminated in a club, and ſeated on the ſnout, which is horny and prominent; feelers four, and filiform.

The curculiones, in a ſtate of larva, ſubſiſt chiefly on the ſeeds of various kinds of plants; many of them infeſt granaries, and commit vaſt depredations, devouring the ripened cotyledons, and leaving only the huſk. The larvæ have ſix ſcaly legs, and the head alſo protected with a ſcaly covering. The perfect inſects are, in general, of an elegant form; and ſome of the ſpecies infinitely more remarkable for the ſplendour and beauty of their colours, than almoſt any other of the inſect race. The ſpecies are very numerous, and are divided into a number of diſtinct families, or ſections. Fabricius divides them into three genera, as curculio, anthribus, and brachycerus. Some other continental naturaliſts divide them into a ſtill greater number of genera.

Species.

Section 1ſt. * *Snout longer than the thorax; Thighs unarmed.*

Gigas. Thorax and wing-caſes ſcabrous; antennæ white at the tip. Olivier.

Native of Japan. Deſcribed from a ſpecimen in the Britiſh Muſeum.

Palmarum. Deep black; thorax flat above; wing-caſes ſhort, and ſtriated. Linn. Donov. Inſ. Ind.

Lives on the palm-trees in India.

Cruentatus. Black; lines on the thorax, and two dots on the wing-caſes ferruginous. Olivier.

Inhabits Carolina. Bankſian Cabinet.

Longipes. Blackiſh; wing-caſes ferruginous; ſnout emarginate; anterior legs long. Voet.

Inhabits the Cape of Good Hope.

Colossus. Blackiſh; wing-caſes brown or cinereous; legs elongated. Oliv.

An Eaſt Indian ſpecies, the *curculio longipes* of Drury.

Indus. Black; thorax ſubovate, excavate, punctured; wing-caſes with rugged grooves; ſhanks ſpinous. Linn.

A ſpecies of large ſize, found in India.

Paganus. Greyiſh; thorax brown on the back, with cinereous curves; ſnout with two grooves. Fabr.

The ſnout of this inſect is thick, and twice as long as the head; the antennæ grey, with the baſe black.

A native of India.

Ferrugineus. Dull-purpliſh; wing-caſes abbreviated; thighs ciliated in the middle. Oliv.

Inhabits Braſil. Sulzer.

Hemipterus. Dull-purpliſh; wing-caſes abbreviated and ſpotted. Linn. *Curculio ruſo-faſciatus,* Degeer.

Native of South America, chiefly Cayenne.

Variegatus. Rufous and black varied; ſnout at the tip black. Olivier.

From the Cape of Good Hope.

Limbatus. Blackiſh; thorax, and wing-caſes at the margin rufous.

Deſcribed by Olivier as a native of Senegal.

Cruciatus. Black; thorax ſub-ſpinous; lines on the poſterior end of the wing-caſes cruciform. Fabr.

A New Holland ſpecies, in the Bankſian Cabinet.

Sanguinolentus. Deep black; wing-caſes marked with a ſanguineous band at the baſe. Oliv.

Inhabits the American iſland Tobago.

Fasciatus. Deep black; wing-caſes ſtriated, with a ſanguineous band in the middle. Fabr.

Striatus. Black; wing-caſes marked with ſilky ſtripes. *Curculio ſtriatulus,* Oliv.

Deſcribed from a ſpecimen in the Bankſian cabinet. Found in the iſland of Terre Neuve.

Rubetra. Deep black; antennæ griſeous; thighs ſulcated. Fabr. *Curculio gagates,* Oliv.

Native of Cayenne.

Gagates. Deep black, and glabrous; ſnout ſomewhat compreſſed. Fabr.

Inhabits Cayenne.

Mendicus. Ovate, greyiſh; wing-caſes ſtriated. Oliv.

Deſcribed from a ſpecimen in the cabinet of the late king of France. It is a native of the iſland of Madagaſcar.

Pineti. Black; wing-caſes ſtriated, and ſpotted with white. *Curculio confuſus,* Paykull.

Found on the pine in Sweden.

Pini. Wing-caſes reddiſh, with clouded bands. Linn. *Curculio caſtaneus,* Degeer.

Alſo inhabits the pine in Sweden.

Onopordi. Black, with cinereous hairs; ſnout deep black, with an abbreviated groove on each ſide at the baſe.

Native of Africa.

Ursus. Ferruginous-brown, lineated with white; ſnout black, with an abbreviated groove each ſide at the baſe. *Curculio vittatus,* Mant. Inſ.

Found in Italy. The ſnout is cylindrical; wing-caſes ſmooth.

Planus. Black, and without ſpots; ſnout cylindrical; wing-caſes ſtriated. Fabr.

Native of Germany.

Punctulatus. Yellow, varied with brown; abdomen cinereous, dotted with black. Fabr.

Inhabits America. The antennæ are black; legs cinereous.

Ocularis. Greeniſh-black; ſnout ferruginous; orbits of the eyes ſnowy. Fabr.

A native of Barbary, in the muſeum of M. Desfontaines.

Cynarae. Black, ſprinkled with greeniſh; ſnout black, and ſomewhat carinated. *Curculio cardui*, Roſſi.

According to Dr. Vahl, a native of Africa.

Colon. Greyiſh; wing-caſes marked with a white dot. Paykull. *Curculio paluſtris*, Scop.

Inhabits Germany.

2-Maculatus. Fuſcous, with a cinereous dot on the wing-caſes; ſnout and legs deep black. Fabr.

Native of Saxony. The ſnout is curved, and deep black; legs the ſame colour.

Punctum. Deep black; wing-caſes ſtriated, with a white ſpot in the middle; antennæ and legs red. Fabr.

Inhabits the ſame country as the laſt.

Biguttatus. Deep black; wing-caſes with elevated dots; abdomen and poſterior legs yellow. Fabr.

From the cabinet of Dr. Hunter. This ſpecies inhabits America.

Bilineatus. Fuſcous; two lines and dot on the wing-caſes white. Fabr.

Native of Germany.

Sordidus. Dull-black, and without ſpots; wing-caſes ſtriated. Fabr.

Found in the iſlands of South America.

Suillus. Thorax rough; wing-caſes marked with pilous ſtriæ. Fabr.

Inhabits the ſame places as the preceding.

Tessellatus. Cinereous; white ſtriæ at the tip of the wing-caſes dotted with black. Fabr.

Found in Germany. Hattorf.

Abbreviatus. Deep black; thorax flat and dotted; wing-caſes abbreviated, and ſub-ſtriated. Fabr.

Inhabits Saxony. Hybner.

Nitens. Deep black and gloſſy; thorax flat and ſmooth; wing-caſes ſtriated. Fabr.

Native of the ſouth of France.

Equiseti. Thorax ſmooth; wing-caſes muricated and black; two dots, and tip white. Herbſt. Arch. *Curculio ſcaber*, Linn. *Curculio nigro-gibboſus*, Degeer.

Feeds on the *equiſetum arvenſe*, and inhabits England.

Dimidiatus. Deep black; wing-caſes ſomewhat ſtriated and rufous. Oliv.

Native place unknown.

Bufo. Fuſcous; wing-caſes ſub-reticulated, with a white band in the middle. Oliv.

Deſcribed from a Siberian inſect in the Bankſian cabinet.

Atrirostris. Cinereous; ſnout arched, and deep black. Paykull. Monagr.

Found near Leipſic.

Brunnirostris. Griſeous; ſnout and legs ferruginous. Fabr.

Inhabits plants in Denmark.

Festivus. Braſſy and gloſſy; an obtuſe angle at the baſe of the wing-caſes; tip of the ſnout, and the antennæ fuſcous. Fabr.

Native of Surinam.

Tragiæ. Braſſy; ſnout and legs of the ſame colour. Oliv.

Diſcovered among the ſeeds of the *tragia volubilis*, brought from Brazil. Bankſian Cabinet.

Aeneus. Black; wing-caſes braſſy. Fabr. *Attelabus craccæ*, Panz. *Apion aeneum*, Herbſt.

Deſcribed as a native of Britain, from a ſpecimen in the collection of Dr. Hunter. Its haunts are unknown.

Curvirostris. Deep black; wing-caſes braſſy. Oliv.

The thorax of this ſpecies is dotted; and the wing-caſes ſtriated.

A native of New Holland.

Aethiops. Deep black; antennæ and ſhanks pitchy; wing-caſes oblong and ſtriated. Paykull.

Found in Sweden.

Scirpi. Fuſcous; wing-caſes ſomewhat ſtriated, and ſprinkled with ferruginous. Fabr.

Obſerved on the ſcirpus, in France, by Boſc.

Pruni. Deep black; antennæ ferruginous; thorax bi-tuberculate. Linn.

Native of Europe.

Armeniacæ. Deep black, and immaculate; wing-caſes with crenate ſtriæ. Fabr.

Camelus. Fuſcous; thorax and wing-caſes tuberculate; ſnout rufous at the tip. Fabr.

Found in gardens in Germany.

4-Tuberculatus. Thorax with four black tubercles; wing-caſes ſtriated and varied with cinereous. *Curculio quadricornis*, Paykull.

Mus. Daldorff; ſpecimen found near Kiel.

Teter. Depreſſed, villous, and fuſcous; ſnout deep black. Fabr.

Native of Italy.

Campanulæ. Ovate, and black; wing-caſes ſtriated and obtuſe. Paykull.

Nigrirostris. Green, with the ſnout black. Paykull.

An example of this ſpecies found in England is preſerved in the Bankſian cabinet.

Variabilis. Subteſtaceous; thorax green lineated; ſnout at the tip fuſcous. Fabr.

Inhabits Hamburgh. Dr. Schulz.

Picirostris. Oblong, black, ſilvery-ſilky; ſnout half-way, and legs piceous. Paykull.

Salicariæ. Deep black; baſe of the antennæ, diſk of the body, and the ſhanks teſtaceous. Fabr. *Curculio lythri*. Paykull.

Found in England.

Floralis. Dull griſeous; ſuture of the wing-caſes pale. Paykull.

Taken on flowers in Sweden.

Pseudacori. Above black; thorax at the ſides ferruginous; wing-caſes ſtriated; ſuture at the baſe, white. Fabr.

Inhabits France.

Castor. Ovate; thorax tuberculate; body ſtriated; ſuture at the baſe whitiſh; legs rufous. Fabr.

Native of Germany.

Pericarpius. Subgloboſe, and clouded; wing-caſes on the ſuture at the baſe, white. Linn.

Found on the ſcrophularia in Europe. Herbſt.

Quercicola. Deep black; thorax tuberculated; wing-caſes ſtriated; ſuture at the baſe white; legs black. Paykull, Monogr.

Inhabits the oak in Sweden.

Assimilis. Thorax bituberculate, and canaliculate; wing-caſes ſtriated. Paykull, Monogr.

Inhabits Sweden.

Sisymbrii. White and fuſcous varied; wing-caſes with an elevated black dot at the baſe; ſnout black. Fabr.

A rare ſpecies found near Kiel.

Capreæ. Wing-caſes with two abbreviated white bands. Fabr.

Inhabits England, on the willow. Donov. Brit. Inſ.

Bipunctatus. Villous, cinereous; wing-caſes with a black ſpot in the middle; ſhanks yellowiſh. Linn.

Native of Sweden.

Carpini. Villous, greeniſh; ſnout black; legs teſtaceous. Knock.

Inhabits Germany.

Erysimi. Black; thorax bituberculate and greeniſh; wing-caſes cyaneous. Paykull.

4-Maculatus. Blackiſh, wing-caſes marked with four whitiſh ſpots. Linn.

Inhabits various places in Europe.

Unifasciatus. Above fuſcous; wing-caſes banded in the middle with cinereous. Fabr.

Found in Saxony by Hybner.

Bifasciatus. Black; wing-caſes with two cinereous bands, that at the baſe larger and waved. Fabr.

This ſpecies inhabits Germany; the thorax is rounded, and black, with a paler dorſal line; ſcutel cinereous.

Acridulus. Black; antennæ and legs pitchy; abdomen ovate. Linn.

Frequent on tetradynamious flowers. Herbſt.

Scabratus. Fuſcous; thorax tuberculated; wing-caſes ſcabrous; legs pitchy. Fabr.

Native of Germany. Smidt.

Alauda. Above deep black; thorax bituberculate, and elevated at the anterior edge. Fabr. *Curculio elevatus*, Gmel.

Inhabits ſame country as the laſt.

Dorsalis. Wing-caſes red; ſuture half-way black. Linn.

Found on the common pilewort, in Europe.

Quercus. Cinereous; back of the thorax fuſcous; wing-caſes teſtaceous. Linn.

A ſmall ſpecies found on the oak in Germany and Sweden.

Suturalis. Ovate and fuſcous, with a longitudinal white line. Fabr.

Feeds on the willow. This kind is found in Germany.

Crux. Deep black; thorax with two dots at the baſe; wing-caſes at the ſuture, and ſprinkled dots white. Schulz.

Lemnæ. Deep black; ſnout flat at the tip; wing-caſes ſtriated. Fabr.

Found on the lemna (Duck weed) in Germany. The ſpecies is ſmall.

Exclamationis. Deep black; wing-caſes with a white dot in the middle, and ſmall white line at the baſe. Oliv.

Inhabits New Holland; Bankſian cabinet.

Venustus. Fuſcous; thorax and elytra lineated with white; legs teſtaceous. Fabr. *Curculio albo-vittatus*, Herbſt.

Found in England.

Plantaginis. Wing-caſes cinereous, with a fuſcous ſpot in the middle. Paykull.

Inhabits Saxony.

Rumicis. Griſeous, clouded with black; antennæ fuſcous. Linn.

Found in the north of Europe.

Adspersus. Griſeous; thorax black lineated with cinereous; wing-caſes teſſellated with black dots. Fabr.

Granarius. Pitchy; thorax punctured, and as long as the ſhells. Linn.

This is the weevil inſect ſo deſtructive to granaries where corn has been kept for ſome time. It is deſtroyed by ſtrewing elder or henbane among the corn.

Oryzæ. Pitchy; thorax dotted, and length of the wing-caſes; the latter with two rufous dots. Linn.

Found in rice imported from the Eaſt Indies.

2-Tuberculatus. Ferruginous; thorax length of the wing-caſes, with two elevated dorſal dots. Fabr.

Native of New Zealand. In the Bankſian cabinet.

Paraplecticus. Cylindrical, and ſubcinereous; wing-caſes mucronated. Linn. Geoffr.

Found in England but rare.

Anguinus. Cylindrical, hoary, lineated with fuſcous. Linn.

Inhabits Germany.

Striatellus. Oblong, dull; wing-caſes cinereous, and ſlightly ſtriated with fuſcous. Fabr.

Taken on plants in Barbary.

Umbellatarum. Thorax black, with cinereous lines; wing-caſes mucronate and greyiſh. Fabr.

Found on umbelliferous plants in Barbary.

Mucronatus. Cylindrical, cinereous, lineated with fuſcous; wing-caſes pointed. Fabr.

Inhabits ſame country as the preceding.

Ferrugatus. Black, with ferruginous hairs; wing-caſes obtuſe. Fabr.

Native of Hungary. Hybner.

Gages. Deep black, and gloſſy; wing-caſes ſtriated and duſky; ſnout truncated. Fabr.

Found in Guinea. Dr. Iſert.

8-Lineatus. Cylindrical, black; thorax and four lines on the wing-caſes white. Oliv.

Deſcribed from a ſpecimen in the royal Paris collection. The ſpecies inhabits the Cape of Good Hope.

Semipunctatus. Cylindrical; thorax with white lines; wing-caſes with white dots. *Curculio ſemipunctatus*, Oliv. *Brentus ſemipunctatus*. Fabr. Mant.

Native of New Holland. Bankſian cabinet.

4-Pustulatus. Black; wing-caſes with two ferruginous ſpots. Oliv.

Inhabits the Cape of Good Hope.

Mixtus. Cylindrical; clouded white and brown; wing-caſes ſubmucronate; club of the antennæ teſtaceous. Fabr.

Found in Barbary. Deſfontaines.

Filiformis. Cylindrical, ſubcinereous; three brown lines on the thorax. Fabr.

Native of Italy.

Cylindricus. Cylindrical, above black; wing-caſes cylindrical, with a pale band. Oliv.

Inhabits Siberia.

Notatus. Thorax fuſcous, with four white dots; wing-caſes fuſcous, with two teſtaceous bands, the anterior one abbreviated. Fabr.

Inhabits Barbary, according to Vahl.

Barbirostris. Black, ſnout bearded; anterior ſhanks tridentated. Oliv. Donov. Inſ. India.

Inhabits India.

Angustatus. Cylindrical, deep black; wing-caſes obtuſe and punctated. Herbſt. *Curculio pulverulentus*, Roſſi.

Inhabits England. The thorax is rough; wing-caſes ſtriated with dots.

Bardanae. Cylindrical, with grey down; anterior legs elongated. Fabr.

Found in Saxony. The wing caſes are rounded, and obtuſe.

Ascanii. Cylindrical, deep black, beneath blueiſh. Fabr.

Inhabits the South of Europe.

Lineola. Cylindrical, black; wing-caſes marked with a teſtaceous ſtripe. Oliv.

Native of New Holland, Bankſian cabinet.

Linearis. Elongated, black; antennæ and legs pitchy; ſnout attenuated at the baſe. Paykull.

Inhabits Europe. Found near Straſburg by Hermann.

Crassipes. Anterior thighs ſubclavated; body deep black. Fabr.

Same part of Europe as the foregoing.

Atriplicis. Elongated; deep black, thorax gloſſy; wing-caſes ſtriated and obtuſe. Fabr. *Curculio T. album,* Linn. Fn. Suec.

Found on flowers in Europe.

Lymexylon. Elongated, griſeous; thorax ſcabrous; wing-caſes ſtriated. Fabr.

On the rotten trunks of oak trees. Dr. Helwig.

Section ** *Snout long; Thighs dentated.*

Calcaratus. Black; wing-caſes ſprinkled with fuſcous; anterior ſhanks acutely dentated. Fabr.

The largeſt in this order of curculiones; the native place is unknown.

Bidens. Poſterior thighs dentated and black; wing-caſes armed with a ſingle ſpine each. Oliv.

Native of New Zealand.

Taurus. Greyiſh; thorax and wing-caſes tuberculated; two bent horns on the ſnout. Oliv.

Inhabits Cayenne.

Cornutus. Thorax tuberculated; ſnout armed on each ſide with an acute ſpine. Oliv.

Native of Cayenne. This is a large inſect.

Miliaris. Fuſcous, thorax and wing-caſes rough with numerous tuberculations of deep black. Oliv.

Inhabits ſame country as the laſt.

Cyanicollis Oblong, blackiſh; thorax blue; ſides ſcabrous; wing-caſes ſtriated. Oliv.

A large ſpecies, in the collection of Dr. Hunter. Its native place unknown.

Jamaicensis. Dull, rough; faſciculate tubercle each ſide the thorax; wing-caſes ſtriated. Oliv.

Native of South America.

Senegalensis. Wing-caſes tuberculated, and pointed, with two ſpots of golden down. Fabr.

Inhabits Senegal. Paykull.

Validus. Anterior thighs dentated, oblong, rough and black; anterior ſhanks dentated. Oliv.

Native of Cayenne.

Coronatus. Black; anterior part of the thorax ciliated with ſpines; wing-caſes ſtriated. Oliv.

Mucroreus. Four anterior thighs dentated; wing-caſes covered with yellowiſh powder, above the tip gibbous. Linn.

Native of the Eaſt Indies.

Pusio. Four poſterior thighs dentated; wing-caſes ſtriated, black, with broad repandate grey line. Linn.

An Eaſt Indian ſpecies.

Spinipes. Black, two lines on the thorax, and four on the wing-caſes white; anterior ſhanks ſpinous. Fabr.

From the Hunterian cabinet; a native of South America.

Bombina. Ferruginous fuſcous; wing-caſes ſtriated, and beſet with white raiſed tubercles. Fabr.

Native of Cayenne.

Scorpio. Deep black; thorax flat, at the baſe cinereous; wing-caſes tuberculated, and pointed, middle cinereous. Fabr.

Same country as the former.

Chimaris. Poſterior thighs dentated; black ſpotted with white; anterior legs very long. Fabr.

Native of South America.

Guttatus. Thighs ſubdentated; black; thorax with two ſpots at the baſe; wing-caſes tuberculated and dotted with whitiſh. Oliv.

Native of Cayenne.

Fascicularis. Thighs black; wing-caſes tufted with down; legs varied with cinereous. Oliv.

Native of Cayenne.

Hystrix. Thighs black; wing-caſes with crenated ſtriæ, and two white dots.

Marmoratus. Brown ſpotted with white. Oliv.

Native of Cayenne.

Scaber. Thorax carinated; wing-caſes grooved, the elevated ridges armed with tuberculated ſpines. Fabr.

Inhabits Cayenne.

Cylindrirostris. Thorax ſcabrous; wing-caſes bituberculated behind. Oliv.

This is a large ſpecies found in New Holland. Bankſian cabinet.

Stigma. Wing-caſes with a large ferruginous ſpot. Linn.

Inhabits India.

Hebes. Thorax ſcabrous; wing-caſes ſulcated, tuberculate; mouth bearded. Oliv.

Native of Bengal.

Annulatus. Thighs dentated, pale; thorax and wing-caſes ſtreaked with black. *Curculio annulatus,* Linn.

Native of India.

Caliginosus. Wing-caſes ſtriated with approximate dots. Fabr.

Inhabits England. The thorax is rounded and carinated; thighs acutely dentated.

Dubius. Thighs dentated and black; thorax ſmooth; wing-caſes ſtriated ſcabrous. Fabr.

Native place unknown.

Roreus. Sprinkled with fulvous; anterior legs elongated. Fabr. *Curculio adſperſus,* Mant.

Native of Cayenne.

Brunneus. Brown; ſnout fuſcous; wing-caſes teſtaceous, ſtriated with dots. Oliv.

Bankſian cabinet. Inhabits the Cape of Good Hope.

Abietis. Black; wing-caſes marked with linear interrupted white lines. Linn.

Found on the pine trees in Europe; rare in Britain.

Dentipes. Thorax white; wing-caſes black with white lines; ſhanks dentated. Oliv.

Native of Senegal.

Multiguttatus. Black; thorax and wing-caſes dotted with white. Oliv.

Pupillator. Thighs dentated tuberculate, and fuſcous; wing-caſes with a large grey marginal ſpot, dotted with black. Oliv.

Native of Cayenne.

Reticulatus. Oblong, pitchy; wing-caſes reticulated, oblique bands pale; anterior ſhanks ſpinous. Fabr.

Found at Tranquebar by Dr. Koenig.

Lapathi. Thighs bidentated, white and black varied; thorax and wing-caſes muricated. Linn.

Inhabits the willow in Europe.

Irroratus. Thighs dentated white; above fuſcous ſpotted with white; thighs annulated with white. Fabr.

Native of Cayenne.

Tricinctus. Deep black; ſide of the thorax, with three bands on the wing-caſes white; anterior legs elongated. Fabr.

Inhabits Guadaloupe iſland.

Statua. Deep black; wing-caſes ſulcated, with a common white ſpot; poſterior thighs elongated. Fabr.

Native place unknown.

6-Guttatus. Black wing-caſes with three white dots. Fabr.

An American ſpecies in the collection of Dr. Hunter.

Luridus. Thighs dentated ovate, dull black; wing-caſes ſtriated with dots. Oliv.

Native of New Holland.

Stolidus. Thighs fuſcous; poſterior ſhanks incurvated and toothed. Fabr.

Bankſian cabinet. Native of the Cape of Good Hope.

Frigidus. Fuſcous, wing-caſes ſtriated, ſlightly tuberculated, and varied with ferruginous. Fabr. *Curculio chinenſis*, Oliv.

Native of China and Amboyna.

Gibbus. Black; wing-caſes with excavated dots, and an abbreviated whitiſh ſtreak. Oliv.

Inhabits the iſland of Bourbon.

Ocellatus. Dull, and cinereous; wing-caſes marked with an ocellar black ſpot. Oliv.

Native of Cayenne.

Meditabundus. Thighs dentated; wing-caſes ſtriated, and acuminated behind. Oliv.

Native of New Holland. Bankſian cabinet.

Stupidus. Thighs black; ſides of the thorax rounded; wing-caſes ſubſpinous. Oliv.

Inhabits New Holland.

Mangiferæ. Dull; thorax ſcabrous, with a dorſal white line; wing-caſes reticulated. Oliv.

Lives, according to Dr. Koenig, in the nut of the mangifera.

Stultus. Greyiſh; wing-caſes with a common lunated cinereous ſpot; ſnout deep black. Fabr.

Native of Coromandel. Vahl.

Araneus. Obſcure varied with cinereous; thorax rounded at the ſides. Fabr.

Native of South America.

Strix. Black; thorax lineated with ferruginous; wing-caſes ſtriated with ferruginous dots. Oliv.

Inhabits Cayenne. The head is ferruginous; wing-caſes ſhort; thighs acutely dentated.

Squalidus. Villous-grey, with teſtaceous ſnout. Oliv.

Native of Surinam. Bankſian Cabinet.

Germanus. Black; thorax with two teſtaceous dots. Paykull.

Found in Germany, but not commonly.

Scrophulariæ. Thorax whitiſh; wing-caſes with two black dots connected with white. Paykull, &c.

Native of Europe.

Verbasci. Black; ſides of the thorax yellowiſh; wing-caſes dotted with black and white in alternate ſtriæ. Fabr.

Inhabits near Kiel.

Blattariæ. Whitiſh; wing-caſes varied with black; dorſal ſpot at the baſe and tip black. Fabr.

Native of Italy.

Solani. Dull; wing-caſes with raiſed lines, black, dotted with cinereous. Fabr.

Inhabits Saxony. The head is black; legs greyiſh.

Gravis. Black; wing-caſes varied with ferruginous; thighs grooved. Oliv.

Native of the Cape of Good Hope.

5-Punctatus. Wing-caſes at the ſuture, and two dots white. Linn.

Found on plants in Europe.

Guttula. Thorax tuberculated and black; wing-caſes ſtriated, with a white dot behind. Fabr.

Found in Saxony.

Abbreviatulus. Fuſcous, ſprinkled with greyiſh dots; wing-caſes abbreviated. Fabr.

Same country as the preceding.

Echii. Black; thorax and wing caſes lineated with white. *Curculio geographicus*, Oliv.

Found in Germany.

Didymus. Above fuſcous; wing-caſes ſtriated, with a tranſverſe white ſpot at the ſides. Paykull.

Inhabits Germany, on the nettle.

Lamii. Black; thorax tuberculated; wing-caſes varied with cinereous; ſnout arched and black. Fabr.

Native of Germany.

Brassicæ. Villous-grey; ſnout arcuated and deep black. Fabr.

A ſmall European ſpecies. The thorax is ſmooth, duſky, and greyiſh; legs blackiſh.

Borraginis. Villous-grey; feet rufous. Oliv.

Inhabits France.

Hæmorrhoidalis. Thorax fuſcous; ſides greyiſh; wing-caſes at the ſuture and tip ferruginous. Fabr.

Native of New Holland, in the Bankſian Cabinet.

Trimaculatus. Wing-caſes black, with three cinereous ſpots; the poſterior forming a common lunule. Paykull.

Found in Alſace by profeſſor Hermann.

Litura. Varied white and black; ſnout deep black. Paykull.

Lives on the thiſtle. A native of Europe.

Villosus. Villous-grey; ſcutel, and oblique poſterior band on the wing-caſes white. Herbſt.

Native of Germany.

Raphani. Blackiſh; thorax tuberculated; ſnout bent and deep black. Fabr.

Varians. Black; wing-caſes rufous; margin black. Paykull. *Curculio beccabungæ*.

Found on the pine in Sweden.

Troglodytes. Fuſcous; thorax with a dorſal cinereous line; wing-caſes and legs teſtaceous. Paykull.

Inhabits Europe near Kiel.

Carbonarius. Oblong, deep black; antennæ club-villous; wing-caſes marked with crenated ſtriæ. Fabr.

Native of Europe.

Aterrimus. Black; tip of the thorax bidentated; wing-caſes gloſſy. Fabr.

Cerasi. Deep black; thorax bidentated at the tip; wing-caſes oblong. Linn.

Native of Europe.

Violaceus. Black; wing-caſes ſtriated and violaceous. Linn.

Inhabits the north of Europe, on the pine.

Proboscideus. Griſeous; ſnout twice as long as the body. Fabr.

Native of North America.

Nucum. Body greyiſh, and length of the ſnout. Fabr.

Inhabits Europe, and feeds on the nut.

Gulosus. Duſky-brown; legs teſtaceous. Fabr.

Found near Paris.

Parasita. Ferruginous ſprinkled with cinereous; thighs with a black ſpot. Fabr.

Native of Cayenne.

Esuriens. Griſeous; ſcutel, dorſal line on the thorax, and common ſpot on the wing-caſes behind whitiſh. Fabr.

Inhabits France.

Nasutus. Brown; wing-caſes ſtriated, cinereous, with the tips brown. Oliv.

Deſcribed from a ſpecimen in the Britiſh Muſeum. Its native place unknown.

Haustellatus. Cheſnut; wing-caſes ſtriated; ſnout four times the length of the body. Oliv.

Native of the Cape of Good Hope.

Varius. Grey and black varied; ſnout and legs rufous. Fabr.

Inhabits Cayenne.

Cerasorum. Fuſcous, ſcutel and wing-caſes with obſolete cinereous bands. Paykull.

An European ſpecies.

Amoenus. Deep black; two dots on the thorax and five on the wing-caſes ſnowy. Oliv.

Native of New Holland.

Metallinus. Braſſy-black; thorax dotted; wing-caſes ſtriated with dots. Fabr.

Inhabits South American iſlands.

Bicornis. Griſeous; head bidentated. Fabr.

Native of New Zealand.

Tenuirostris. Black, with numerous white waves; antennæ rufous.

Native of Europe. The club of the antennæ is grey, as is alſo the ſcutel.

Druparum. Wing-caſes teſtaceous, obſoletely faſciated. Linn.

Native of Europe.

Fraxini. Ferruginous-brown; head and back black. Paykull.

Found on the aſh in Sweden.

Melanocephalus. Brown; head fuſcous; ſnout deep black. Fabr.

Native of Saxony.

Depressus. Thorax depreſſed; ſides obtuſely angulated. Linn.

Inhabits South America.

Pomorum. Body grey clouded. Linn.

Found on the flowers of fruit-trees.

Vorax. Grey and fuſcous ſpotted; ſnout bent and deep black. Fabr.

An Italian ſpecies.

Tortrix. Body teſtaceous; breaſt fuſcous. Linn. *Curculio ferrugineus*, Geoffr.

Native of Europe.

Tremulæ. Blackiſh; wing-caſes ſtriated, and ſprinkled with grey. Paykull.

Found on the poplar in Sweden.

Æstuans. Fuſcous, lineated with cinereous; legs pale. Fabr.

Native of South America.

Tæniatus. Thorax black; anterior and poſterior margin rufous; wing-caſes pale, ſpotted with black. Paykull.

Native of Europe. Snout black; mouth ſanguineous.

Elongatus. Thorax elongated; anterior ſhanks bidentated. Fabr.

Native of Jamaica.

Section *** *Snout long; poſterior Thighs formed for leaping.*

Alni. Wing-caſes teſtaceous, with two duſky ſpots. Paykull.

Inhabits England and other parts of Europe.

Pilosus. Black, varied with cinereous. Fabr.

Native of England, in the Bankſian Cabinet.

Hortorum. Deep black; band and half band, with the legs, teſtaceous. Fabr. *Curculio mutillatus*, Laichart.

Native of Germany.

Salicetti. Deep black; ſhanks teſtaceous. Fabr.

Found on the willow in Sweden.

Salicis. Wing-caſes deep black, with two white bands. Linn.

A native of Europe; found on the willow.

Viminalis. Body teſtaceous. Paykull. *Curculio quercus*, Linn. *Curculio ulmi*, Degeer. *Curculio rufus*, Geoffr.

Inhabits ſame country as the former.

Ilicis. Blackiſh; wing-caſes ſtriated, varied with cinereous; ſuture at the baſe white. *Curculio roboris*, Bonſd. Curcul.

Feeds on the oak.

Fagi. Body deep black; thighs white. Paykull.

Fragariæ. Fuſcous; antennæ and feet teſtaceous. Fabr.

Native of Germany.

Populi. Deep black; ſcutel white; antennæ and legs teſtaceous. Fabr.

Found on the poplar.

**** *Short ſnouted; Thighs unarmed.*

Argyreus. Body ſilvery-green, ſpotted with gold. Linn.

Native of India.

Splendidus. Wing-caſes ſtriated, and ſpotted with gold; baſe gibbous, tip pointed. Fabr.

Native of Braſil. Size of the diamond beetle, and far leſs common.

Sumptuosus. Wing-caſes greeniſh, with raiſed black dots; baſe gibbous. Oliv.

Found in Cayenne.

Imperialis. Deep black, with alternate longitudinal black raiſed lines, and ſtreaks of green-golden ſpots; tip of the wing-caſes pointed. Fabr.

This is the reſplendently coloured inſect, known by the name of the diamond beetle. The ſpecies inhabits South America, chiefly Braſil.

Chrysis. Whitiſh; wing-caſes pointed; two bands and two dots of gold. Fabr.

Deſcribed by Olivier, from a ſpecimen in the collection of the late French king.

Regalis. Body ſilky green, with broad golden bands. Linn. Donov. Inſ. India.

An extremely rich and elegant ſpecies. This beetle is ſo very ſcarce in India, that the wing-caſes, or ſometimes the whole inſect, is mounted like a gem on rings, and worn by the great as an ornament on the finger. *Vide* Donovan's Inſects of India.

Marginatus. Fuſcous; wing-caſes at the ſuture, and the margin of the abdomen golden. Fabr.

Native of Cayenne. Dr. Hunter.

19-Punctatus. Whitiſh-hoary; thorax with four black ſpots; wing-caſes with nineteen. Oliv.

Same country as the laſt.

16-Punctatus. Blueiſh; four ſpots on the thorax, and twelve on the wing-caſes black. Oliv.

A Braſilian ſpecies. The head is ſulcated.

Decorus. Above fuſcous; thorax and wing-caſes marked with two green-gold ſtripes. Fabr.

Native of Braſil.

Nitidulus. Covered with green ſcales; wing-caſes dotted. Fabr.

A Cayenne ſpecies.

Candidus. Wing-caſes ſpinous and white; with a lateral fuſcous ſpot. Fabr.

Native of Cayenne.

Niveus. Snowy; thorax and back of the ſnout fuſcous; wing-caſes ſpinous and pointed. Fabr.

Native of Cayenne.

Lacteus. White, with a golden gloſs; wing-caſes ſulcated and pointed. Fabr.

Native of Jamaica.

Pulverulentus. Cinereous; head flat and grooved. Fabr.

Inhabits Tranquebar.

Smaragdulus. Greeniſh; wing-caſes dotted, with a ſtrong erect ſpine before, and another behind. Fabr.

Native of Cayenne.

Octotuberculatus. Varied fuſcous and cinereous, dotted, and gibbous behind; tubercles eight. Fabr.

Native of Cayenne.

Modestus. Cinereous; thorax and wing-caſes ſpotted with brown. Fabr.

Inhabits New Zealand. Bankſian Cabinet.

Flavescens. Dull; thorax and wing-caſes acuminated, the ſides yellow. Fabr.

Native of South America.

Lateralis. Covered with green ſcales; ſides of the thorax and wing-caſes yellow. Fabr.

Native of India.

Viridis. Green; ſides of the thorax and wing-caſes yellow. Linn.

Found on the plumb in Europe.

Aurifer. Body ferruginous, ſpotted with gold. Oliv.

Native of South American iſlands.

Splendidulus. Shining-green; wing-caſes in the diſk cinereous, banded with black. Fabr.

A Siberian ſpecies.

Morbillosus. Thorax and wing-caſes fuſcous and grey varied, with numerous elevated dots of deep black. Fabr.

Inhabits France and Barbary.

Nebulosus. Hoary; wing-caſes banded obliquely with black. Linn.

Native of Europe.

Marmoratus. Black, and rough with white lines; wing-caſes white, ſprinkled with black ſquariſh ſpots. Fabr.

Inhabits Germany.

Sulcirostris. Oblong, cinereous, and ſomewhat clouded; ſnout triſulcated. Linn.

Found on plants in Europe.

Porculus. Blackiſh, varied with cinereous; head retuſe, and with the ſnout carinated. Linn.

Native of Hungary.

Perlatus. Black; abdomen white, with raiſed glabrous black dots; ſnout grooved. Fabr.

Native of China.

Glaucus. Snout carinated; thorax unequal and dull; wing-caſes glaucous; an elevated dot behind. Fabr.

Dispar. Oblong, fuſcous, with villous grey ſpots. Fabr.

Native of the Eaſt Indies.

Vetula. Griſeous; wing-caſes rugged, black, with cinereous ſpots; ſnout deep black. Fabr.

Inhabits Tranquebar.

Crenulatus. Cinereous, with three crenulated waved lines on the wing-caſes. Oliv.

Native of New Holland.

Incanus. Oblong, and fuſcous; thorax flat on the back. Linn.

Found on plants in Europe.

Costatus. Cinereous; thorax black, with four cinereous lines. Fabr.

Native of the ſouth of France.

Longimanus. Fuſcous, margin of the thorax, and two dots ferruginous; anterior legs long. Oliv.

Native of Braſil.

Spinifex. Cinereous ſprinkled with brown; thorax acutely ſpined. Fabr.

Micans. Brown-golden, legs ferruginous. Fabr. *Curculio pyri*, Paykull.

Found in gardens in Denmark.

Murinus. Fuſcous, with the thorax trilineated; wing-caſes with alternate pale and duſky lines, and dotted with black. Fabr.

Native of Europe.

Polygoni. Thorax lineated; wing-caſes cinereous, marked with three fuſcous lines, and dotted with black. *Curculio polygoni*, Linn., &c.

Inhabits Europe. The ſnout is grey, with a longitudinal white line.

3-Guttatus. Blackiſh; wing-caſes grey, with two white dots; the poſterior one large and common. Fabr.

Native of Britain.

Arundinis. Yellowiſh; two dorſal fuſcous lines on the thorax. Paykull. *Curculio luteus*, Knoch.

An European ſpecies.

Gressorius. Griſeous; head and thorax black, with a white dorſal line. Fabr.

Native of Italy.

Gramineus. Black; wing-caſes ſtriated; antennæ and legs ferruginous. Fabr.

Found on graminiferous plants in Germany.

Coryli. Cinereous and fuſcous varied; wing-caſes at the ſuture half way down black. Fabr.

Inhabits England.

Lineatus. Fuſcous, with three paler ſtreaks on the thorax. Linn.

Found on plants in Europe.

Cinerascens. Cinereous; back fuſcous. Fabr.

Native of Italy.

Fulvipes. Downy greyiſh; legs teſtaceous. Paykull.

Inhabits Saxony. Hybner.

Ruficollis. Teſtaceous; head and wing-caſes ſtriated, cinereous brown. Fabr.

Fulvicornis. Brown; wing-caſes with undulated bands of cinereous. Fabr. *Curculio ruficornis*, Paykull.

Found on trees in Europe.

Hirsutulus. Cinereous, and hiſpid; wing-caſes ſtriated; antennæ and legs yellowiſh. Fabr. *Curculio echinatus*, Bonſd.

Scabriusculus. Cinereous; head and thorax canaliculated; wing-caſes hiſpid. Linn. Bonſd.

Found in ſandy places in Europe.

Limbatus. Deep black; marginal ſtripe down the wing-caſes, and the ſcutel golden. Fabr. *Curculio lateralis*, Paykull.

Inhabits Europe.

Parvulus. Green; antennæ and ſhanks teſtaceous. Fabr.

Native of Italy.

Viridicollis. Thorax green and ſcaly; wing-caſes ſtriated and black. Fabr.

Inhabits Germany, on the oak.

Striatus. Fuſcous; wing-caſes ſtriated, cinereous, with black dots. Fabr.

Native of Barbary.

Lacerta. Griſeous; wing-caſes ſtriated; antennæ black at the tip. Fabr.

An Eaſt Indian ſpecies, in the Bankſian Cabinet.

Ruficornis. Deep black, with rufous antennæ; thorax on each ſide bituberculated. Linn.

Found on plants in Europe. The wing-caſes are ſtriated.

Canaliculatus. Cylindrical, deep black, with the legs rufous; thorax canaliculated. Fabr.

A ſmall ſpecies, and inhabits American iſlands.

Cloropus. Cylindrical, black; wing-caſes ſtriated; antennæ and legs rufous. Linn. *Curculio piniperda,* Herbſt.

Native of Europe; found on the oak.

Triſtis. Black; wing-caſes grooved, cinereous. Fabr.

Native of Sweden and England.

Raucus. Black; wing-caſes ſtriated, fuſcous, with cinereous ſpots. Paykull.

Inhabits Saxony.

Adſperſus. Deep black; wing-caſes behind ſpotted with white. Oliv.

Deſcribed from a New Holland ſpecies in the Bankſian Cabinet.

Punctatus. Fuſcous; wing-caſes with elevated ſilky dots. Paykull.

Native of Sweden.

Maxilloſus. Ovate, black; jaws exſerted and bent. Fabr.

Native of Hungary. Hybner.

Rotundatus. Black; wing-caſes with dotted ſtriæ; antennæ and ſhanks rufous. Fabr.

Native of Germany.

Varioloſus. Black; thorax carinated, and variolous; wing-caſes ſtriated. Fabr.

Found in Saxony.

Succinctus. Deep black; margin of the wing-caſes, and two ſmall lines white. Fabr.

Native of the Cape of Good Hope.

Cameleon. Braſſy; ſuture of the wing-caſes, and abbreviated ſtripe green-gold. Oliv.

Inhabits Jamaica.

Vittatus. Deep black; wing-caſes marked with abbreviated white and red lines. Linn.

An elegant ſpecies, found in Jamaica.

Spengleri. Wing-caſes yellow, with very glabrous abbreviated lines of black. Linn.

Native of American iſlands.

Bivittatus. Wing-caſes with ſtriæ of dots, and a marginal and an interrupted dorſal band of yellow. Fabr.

Inhabits the iſland of St. Thomas.

Lividus. Griſeous; thorax and wing-caſes cinereous and black ſpotted. Oliv. *Curculio hiſtrionicus,* Sparmann.

An inſect of large ſize, found in South America.

Feſtivus. Wing-caſes yellowiſh, with abbreviated black ſtreaks, and a marginal one ſanguineous. Fabr.

Native of South America.

Impreſſus. Black; thorax and wing-caſes with impreſſed dots of white. Fabr.

Inhabits Jamaica.

Rivuloſus. Black; thorax ſpotted with rufous; wing-caſes with three impreſſed cinereous lines. Fabr.

Native of the Eaſt Indies.

Verrucoſus. Braſſy-black, with raiſed dots; wing-caſes warted behind. Fabr.

Native of the Cape of Good Hope.

Capenſis. Black; thorax with elevated dots; wing-caſes with crenated ſtriæ. Linn.

Inhabits ſame country as the former; the ſnout is ſulcated.

6-Vittatus. Black; thorax rough and lineated with white; the wing-caſes pointed. Oliv.

Native place unknown.

Inæqualis. Thorax unequal, prominent in front; wing-caſes grooved, and ſulcated behind; ſnout tri-ſulcated. Fabr.

An African ſpecies, in the Bankſian cabinet.

Acuminatus. Cylindrical, fuſcous; wing-caſes pointed at the tip. Fabr.

Native of New Zealand.

Emeritus. Black; thorax and wing-caſes ſpinous; front excavated. Linn.

Native of India.

Cultratus. Cinereous; thorax with two compreſſed tubercles; wing-caſes tuberculated, the poſterior part cinereous. Fabr.

Inhabits New Holland.

Tribulus. Cinereous; thorax ſcabrous, the anterior part impreſſed; wing-caſes ſpinous. Fabr.

Inhabits ſame country as the laſt.

4-Dens. Cinereous; thorax ſcabrous; wing-caſes ſpinous; four poſterior ſpines longeſt. Fabr.

Native of New Holland.

Clavus. Whitiſh; thorax canaliculated; wing-caſes ſpinous; three ſmall red lines at the baſe. Oliv.

Inhabits New Holland.

Rubifer. Cinereous; thorax ſcabrous; wing-caſes with ſanguineous ſpines. Fabr.

Native of the Cape.

Globifer. Thorax ſcabrous; wing-caſes ſpinous, acuminated behind. Fabr.

Inhabits the Cape of Good Hope. The ſnout is ſmooth and thick at the tip; legs black.

Pillularius. Thorax armed each ſide with a nodulous ſpine; wing-caſes with tuberculated ſtriæ; tip acuminated.

Native of the Cape of Good Hope.

Glandifer. Dull; thorax ſcabrous; wing-caſes with three elevated ſpinous lines. Fabr.

Inhabits the Cape of Good Hope.

Section ***** *Snout ſhort; Thighs dentated.*

Spectabilis. Body black, varied with green ſpots. Oliv. Donov. Inſ. New Holland.

This is the elegant inſect known by the name of the diamond beetle of New Holland, to which part of the world this ſpecies is peculiar.

Pinguis. Anterior thighs toothed; gibbous, and blackiſh; throat with yellowiſh lines; wing-caſes with two yellowiſh ſtreaks, and a ſmall line at the tip. Fabr.

Native of Cayenne.

Tridens. Cinereous; wing-caſes emarginate at the tip, with three teeth. Fabr.

Native of New Zealand, in the Bankſian cabinet.

Fuſco-maculatus. Black; thorax and wing-caſes ſmooth, and ſpotted with brown. Fabr.

Found in the north of Germany.

Zebra. Black; wing-caſes variegated with white. Fabr.

Native of Saxony.

Liguſtici. Body duſky; thorax rough and cinereous. Oliv.

Found on the liguſticum leviſticum.

Nubilus. Gray; wing-caſes with numerous darker, and nearly ſquare ſpots. Fabr.

Inhabits Hamburgh. The antennæ are black, with the club pointed.

Calcaratus. Black; antennæ and legs rufous. Fabr.
Native of Auſtria.

Gemmatus. Black; wing-caſes with green dots. Oliv.
Inhabits Europe.

Picipes. Grey; wing-caſes clouded, ſtriated with ſub-ocellate dots. Fabr.

Bisulcatus. Black; thorax and wing-caſes rough; ſnout with two grooves. Fabr.
Native of Italy. The ſnout marked with impreſſed grooves; thorax ſubcinereous at the ſides.

Pyri. Bronzed, changeable to yellow, red, brown, or green; legs rufous. Linn. Donov. Brit. Inſ.
Not uncommon. Inhabits Britain, and moſt other parts of Europe.

Dentifer. Cinereous; ſnout grooved before; poſterior thighs tridentated. Fabr.
Native of the Eaſt Indies.

Curvicornis. Grey, with the ſides white; middle pair of thighs bidentated. Fabr.
Inhabits ſame country as the former.

Argentatus. Covered with fine green bronzed ſcales; antennæ and legs brown. Linn.
Very abundant in May and June on the birch and alder, in Britain. Donov. Brit. Inſ.

Albo-lineatus. Cinereous; thorax and wing-caſes with white lines; ſnout black beneath. Fabr.
Native of Saxony.

Atellaboides. Snout and wing-caſes with a ſingle tubercle. Fabr.
Inhabits Braſil.

Æruginosus. Green; thighs ferruginous; antennæ long. Bonſd.
Native of Sweden.

Anthracinus. Black; wing-caſes with ſtriate dots; thighs ſingle toothed. Fabr.
Found by Scopoli in Carniola.

Lugubris. Brown; wing-caſes rough, ſubſtriated, rather downy and connected. Fabr.
Native of Italy.

Cœlestrinus. Blue; antennæ and legs ſanguineous. Scopoli.
Native of Germany.

Roeselii. Thorax dull green, with a longitudinal white line; wing-caſes fulvous, brown with raiſed lines. Fabr.
Inhabits ſame country as the preceding.

Argenteus. Silvery green; antennæ and ſhanks rufous; thighs brown and clavated. Fabr.
Native of Europe.

Hæmorrhodus. Brown; antennæ, legs, and tip of the abdomen rufous; wing-caſes greeniſh brown.
Native of Europe.

Section ***** *Lip bifid; Jaws bifid and ſhort; ſnout ſhort. Anthribus,* Fabricius.

Albinus. Black; front, and tail white. Degeer.
Inhabits Europe; rarely found in Britain. Donov. Brit. Inſ.

Latirostris. Snout very broad and flat; tip of the wing-caſes white, with two black dots. Fabr.
Native of Saxony; ſcarce in England. Donov. Brit. Inſ.

Albirostris. Snout very broad, flat, and white; wing-caſes black, white at the tip, with a palmated black ſpot. Herbſt.
Inhabits Saxony.

Macroceros. Grey; wing-caſes cinereous behind. Fabr.
Native of New Holland.

Scabrosus. Black; wing-caſes with raiſed ſtriæ, rufous with ſcattered black dots. Fabr.
Native of Europe.

Undatus. Black; wing-caſes brown, with white waved ſtreaks. Fabr.
A ſpecies of middle ſize, found on flowers in Africa.

Varius. Wing-caſes ſtriated with alternate white and black dots. Paykull.

Sepicola. Varied with cinereous and brown, and raiſed hairy dots. Fabr.
Inhabits Germany, and is found in hedges.

Section ****** *Lip rounded, horny; Feelers very ſhort.—Brachycerus,* Fabricius.

Apterus. Thorax ſpinous, with an impreſſed croſs; wing-caſes dotted with ferruginous. Fabr.
Inhabits India.

Ocellatus. Thorax ſpinous, excavated before; wing-caſes cinereous, with black ſubocellate dots. Fabr.
Native of Madagaſcar.

Scalaris. Thorax ſpinous, unequal; body black; wing-caſes with rufous denticulated ſtriæ. Fabr.
Inhabits the Cape of Good Hope.

Obesus. Thorax ſpinous and unequal; body black; wing-caſes red, with clouded black dots. Fabr.
Inhabits the Cape of Good Hope.

Globosus. Thorax ſpinous, and marked with five grooves; wing-caſes ſmooth.
Native of India.

Rostratus. Brown; head and thorax cylindrical and narrow; wing-caſes ſpinous behind. Fabr.
Inhabits the warmer parts of Africa.

Inequalis. Thorax rough; wing-caſes with raiſed crimped lines; head bidentated. Fabr.
This is of a large ſize, and inhabits the Cape of Good Hope.

Crispatus. Black; thorax ſpinous and grooved; wing-caſes cinereous, the outer angle crimped and toothed. Fabr.
A native of Barbary. The head is black; thorax punctured.

Cornutus. Cinereous; thorax and wing-caſes ſub-ſpinous; ſpines of the wing-caſes with faſciculate hairs. Olivier.
Native of India.

Algirus. Cinereous; thorax ſpinous, grooved; wing-caſes with two raiſed ſpinous lines, and between theſe two raiſed dots. Fabr.
Native of Africa.

Retusus. Grey-brown; wing-caſes retuſe, and toothed behind. Oliv.
Inhabits the Cape of Good Hope.

Spectrum. Brown; thorax and wing-caſes globular. Oliv.
Inhabits ſame country as the laſt.

Muricatus. Thorax ſpinous, grooved, black, opaque; wing-caſes with three raiſed crenated lines. Oliv.
Native of Hungary.

Uva. Thorax ſpinous, and unequal; wing-caſes with numerous raiſed obtuſe tubercles. Oliv.
This is of the middle ſize, and inhabits the Cape of Good Hope.

CURCUM, in *Ancient Geography*, a town placed by Ptolemy in the interior of Libornia.

Curcum, in the *Materia Medica of the Arabians*, the name of the largeſt celandine; the roots of which, when dried, were uſed by the dyers of thoſe times as a yellow colour, and by the phyſicians as deobſtruents.

CURCUMA, in *Botany*, (from the Arabic name curcum, or hercum.) Roſcoe. Linn. Tranſ. 8. 354. tab. 20. fig. 12.

Eſſ. Ch. Anther double, two-ſpurred. Filament petal-ſhaped, three-lobed; middle lobe bearing the anther.

Claſs and order, *monandria, monogynia*. Nat. Ord. *Scitamineæ*, Linn. Roſc. *Cannæ*, Juſſ.

Obſ. As Mr. Roſcoe, in his reformed arrangement of the plants belonging to this natural order, has ſtated that the calyx, corolla, and nectary differ greatly in the different ſpecies of the ſame genus, we have not attempted a detailed natural character of curcuma. He obſerves that this genus is not leſs diſtinguiſhed from amomum and zingiber by its general habit and infloreſcence, than by the parts of its fructification. In all the ſpecies the leaves are radical; but amomum and zingiber are both cauleſcent. Curcuma has a ſimple ſcapus and the flowers are enveloped in large looſe bractes, not in compact ſcales as in zingiber. From ſome circumſtance not eaſy to be accounted for, Linnæus has characterized this genus as having four barren ſtamens, beſides the fertile one, which no ſubſequent obſerver has been able to diſcover. Mr. Dryander ſuppoſes that the generic character of Linnæus was derived from his C. rotunda, now referred to Kæmpferia.

Sp. 1. C. *Zedoaria*. Roſc. 1. (Amomum zedoaria; Mart. Willd. A latifolium; Lam.) "Leaves egg-ſhaped, acuminate; bractes emarginate." See Amomum *Zedoaria*. 2. C. *montana*. Roſc. 2. Roxb. Pl. corom. 2. tab. 151. "Leaves egg-ſhaped, acuminate; bractes lanceolate, coloured at the tip." 3. C. *longa*. Turmeric. Roſc. 3. Linn. Sp. Pl. 2. Mart. 2. Willd. 2. Woodv. med. bot. tab. 132. Lam. 2. (Amomum curcuma; Jacq. Hort. Vind. 3. tab. 4. Curcuma radice longa; Herm. Ludgb. tab. 209. Curcuma; Rumph. Amb. 5. 162. tab. 67. Manjella-kua; Rheed. Mal. 11. 21. tab. 11. Cannacorus radice crocea, ſive curcuma officinarum; Tourn. 367.) "Leaves ovate-lanceolate, bractes ſpatulate." *Root* perennial, creeping, fleſhy, palmate with cylindrical branches, and jointed with parallel rooting circles; bark thin, pale; fleſh ſaffron-coloured, with a bitteriſh taſte, and a ſomewhat fragrant ſmell. *Stem* none. *Leaves* broad-lanceolate, large, quite entire, ſmooth, annual, pale-green, denſely furrowed with oblique ſlender lines; petioles long, erect, dilated at the baſe, mutually ſupporting and claſping each other. *Scape* external, three inches long, ſlender, nearly erect, almoſt naked, approximating to the cluſter of leaves. *Spike* thick, ſomewhat egg-ſhaped, three inches long; ſcales membranous, a little acute, whitiſh, half-ſpreading, united laterally below the middle. *Flowers* ſeſſile, white, with a yellow nectary, one within each ſcale of the ſpike. *Calyx*. Perianth ſuperior, bifid; ſegments oblong-egg-ſhaped, erect, concealed by the ſcales of the ſpike. *Corolla* monopetalous, funnel-ſhaped; tube ſlender, equal to the perianth, dilated towards the top; border four-parted; ſegments nearly equal in length; two lateral ones obtuſe, undulate-plaited; uppermoſt acute, incurved; loweſt broader, bifid, with roundiſh ſegments. *Nectary* large, incurved, three-lobed and the middle lobe emarginate, adnate at the baſe to the exterior ſegment of the corolla. *Stamen*. Filament one, broad, flat, ſhort, rounded at the top, ſtanding on the uppermoſt ſegment of the corolla; anther not cloſely adhering to the filament (exotica), ſomewhat cubical, bifid, with an awl-ſhaped appendage ſtanding out on each ſide. *Piſtil*. Germ roundiſh; ſtyle capillary, equal to the ſtamen, included in the groove of the anther; ſtigma concave. *Pericarp*. Capſule roundiſh, ſmooth and even, three-valved, three-celled. *Seeds* round, few. We have literally tranſlated the above deſcription from Loureiro, becauſe it was taken from a recent plant which grew in its native ſoil, though it does not accord with Mr. Roſcoe's ideas concerning the anther. Loureiro ſeems to have confined the term to the upper or middle lobe of what Mr. Roſcoe calls the anther, and to have conſidered all the lower part, with its two lateral lobes, as one of the ſegments of the border of the corolla; but in this caſe he muſt, through an overſight, have committed an error in his deſcription of the ſituation of the filament, and have written laciniæ ſummæ corollæ inſiſtens, inſtead of laciniæ infimæ, &c. We are rather confirmed in our conjecture by an attentive conſideration of Koenig's deſcription, as publiſhed by Retzius and tranſlated by profeſſor Martyn (for we have not the original at hand); and which Mr. Dryander aſſures us belongs to the preſent plant. See Linnæan Tranſactions, vol. ii. p. 212. It ſtands thus: Tube of the corolla erect, or a little bent in, round, ſmooth, ſtiffiſh, white, above the middle bell-ſhaped, ſomewhat compreſſed, keeled at the back; border double, each three-parted. Filament ſingle, erect, lanceolate-ovate, *between the two dorſal ſegments growing to the dorſal border*, flattiſh, ſomewhat convex in front, marked with a line behind half the length of the *approximating ſegments*, ſtiffer than they, but of the ſame colour. A native of the Eaſt Indies, China, and Cochinchina, where alſo it is generally cultivated for the ſake of its root, which is the turmeric of the ſhops. See Turmeric. 4. C. *pallida*, Mart. 3. Loureiro Cochin 1. 9. (Curcuma agreſtis; Rumph. amb. 8. p. 164.) "Leaves lanceolate; bractes ſhort; bulbs knotty." *Roots* perennial, horizontal, creeping, oblong, cylindrical, twiſted, knotty, pale within and without, fleſhy, with little ſmell and taſte. *Plant* annual, three feet high, ſtemleſs, erect. *Leaves* lanceolate, large, with numerous oblique ſlender furrows; petioles dilated at the baſe, embracing the inner ones. *Scape* external, eight inches long, cloathed with ſhort bractes; ſpike oblong; ſcales ovate-lanceolate, lax, reflexed, reddiſh, one-flowered; corolla yellowiſh white, four-cleft; nectary three-lobed; ſtamen one. A native of China about Canton and Cochinchina. The pounded root is uſed externally in caſes of contuſion and local pains. Loureiro has given no deſcription of the filament and anther: but its want of a ſtem and general habit ſeem to indicate that it really belongs to this genus as it is ſettled by Mr. Roſcoe.

CURD, in *Rural Economy*, is the coagulum, or whitiſh ſolid ſubſtance produced from milk, from which cheeſe is formed. See Cheese and Dairying.

Curd-*Mill*, is a kind of mill contrived for the purpoſe of reducing and breaking down the coagulum or curd, in making cheeſe. It conſiſts of two cylinders or rollers of about ſix inches in diameter, and fifteen inches long; one being placed above the other in a thin deep cheſt, as in the common cyder mill of the more ſouthern diſtricts. The ſuperior upper roller is ſtudded with iron ſpikes an inch in length, and an inch and half aſunder, while the lower one is cloſely beſet with bevil-headed nails, riſing with a ſharp angle about a tenth of an inch out of the ſurface of the roller. The curd, after being partially broken over, is put into a hopper, the bottom of which is formed by the upper roller, which, by working againſt the ſide of the box, prepares the curd for the lower roller, which being finer, and working cloſer, reduces it to ſmall particles or granules. The rollers are turned by a crank placed on one end of the axle of the upper one; the oppoſite ends of them having each a wooden-toothed wheel, which wheels work in each other, by which means the lower one is turned with facility. This is a ſort of machine which muſt be highly uſeful in large cheeſe dairies, where the breaking of the curd by the hand is a buſineſs of vaſt labour, and which requires much time. It is principally employed in the final breaking down of the curd, by which it is rendered more fine and equal than could be done by the hand.

CURDISTAN, or Kurdistan, in *Geography*, a mountainous country of Aſia, whence iſſue the different branches of the Tigris, which, ſurrounding the upper part of the great Zab, paſſes to the ſouthward, as far as the frontiers of the Irak-Adjemi, or Perſian Irak. Some geographers conſider it as one of the diviſions of the Turkiſh province of Diarbekir, anciently known by the name of Aſſyria. It lies on the eaſt ſide of the Tigris, towards Perſia, being bounded by that kingdom on the eaſt, and by the Tigris on the weſt, by Irak on the ſouth, and Turcomania on the north. Towards the ſouth it is narrow, ſcarcely exceeding 90 miles in breadth; but northwards it ſtretches near 300 miles from eaſt to weſt, that is, from the 41ſt to the 47th degree of eaſt longitude; and from north to ſouth it reaches from 35° 30′ to 37° 20′ N. latitude. The mountain of Coatras ſeparates it from Perſia on the E., and the Tigris on the W., from Meſopotamia and Chaldæa. According to ancient accounts this country was rich and fertile; but it is now deſolate and barren, abounding with deſerts, except in thoſe few parts which lie near towns, and which are ſomewhat better cultivated. It was in former ages the conſtant field of battle between the Parthians and Romans, and at a later period between the Turks and Perſians, which ſerved to depopulate it, and to render it waſte and unproductive. Its chief towns and hamlets are Betlis, the capital, Schereſal, Arbela, Harpel, Nineveh, Rehobo, Rheſen, Van, and Holwan. It is inhabited by the *Curds*, who are divided into tribes, which are diſperſed over the Lower Aſia, and have widely extended themſelves, eſpecially within the laſt hundred years. Volney ſuggeſts that *Gord* and *Curd* are the ſame, and that the habitations of the Curds are among the Gordæan mountains, or the *Gord-ouæi*, where, according to the Chaldæan Beroſus, and the Armenian Maribas, cited by Moſes Chorenenſis, Xiſuthrus landed, after eſcaping from the deluge. They are ſuppoſed to be the ſame people who are mentioned by Xenophon under the denomination of *Card-uchi*, and who oppoſed the retreat of the ten thouſand. This hiſtorian obſerves, that though ſhut in on all ſides of the Perſian empire, they had conſtantly braved the power of the "Great King," and the arms of his "ſatraps." In their modern ſtate they are little different from what they were formerly; for though they are apparently tributaries to the Porte, they pay little reſpect to the orders of the grand ſignior, or his pachas. According to the account given of them by Niebuhr, who travelled in theſe countries in 1769, they are ſubject, in their mountains, to a ſort of feodal government, ſimilar to that which is obſerved among the Druzes. Each village has its chief, and the whole nation is divided into different and independent factions. The diſputes inſeparable from this ſtate of anarchy have detached from the nation a great number of tribes and families, which have adopted the wandering life of the Turkmans and Arabs. Theſe Curds are diſperſed in the Diarbekir, and over the plains of Arzroum, Erivan, Sivas, Aleppo, and Damaſcus; and all their tribes are eſtimated to exceed 140,000 ſouls, that is, 140,000 armed men. Like the Turkmans, theſe Curds are paſtors and wanderers; they are often ſhifting their poſition in ſearch of paſture for their numerous flocks and herds; and whilſt the men roam in queſt of plunder, the women are occupied in making butter and cheeſe, and training up the children to the trade of the fathers. Their tents are large, and formed of a ſort of coarſe brown cloth, which ſerves as a covering to their houſes, which are conſtructed for temporary uſe of cane hurdles, diſpoſed in a ſquare form, and having the floor matted, ſo as to anſwer the purpoſes both of bed and board. When they diſlodge in order to migrate, they take their huts to pieces, and load their oxen and cows with them, and alſo with their children, and houſhold utenſils. The children are uſed to go almoſt naked in the coldeſt weather. The men are generally well mounted, and take great care of their horſes, which are commonly very ſwift in their motion; the lance is their chief weapon. The women ride either on horſes or on oxen. Both men and women are naturally ſtout and nimble, but not at all agreeable in their perſons, having very ſmall eyes, wide mouths, bad complexions, very black hair, and a very fierce and forbidding aſpect. The Curds differ from the Turkmans in ſome particular cuſtoms. The latter give their daughters a marriage portion; the former receive a premium for them. The Turkmans pay no reſpect to nobility or antiquity of extraction; the Curds highly honour it. The Turkmans do not ſteal; the Curds are almoſt every where conſidered as plunderers; and they are therefore much dreaded in the neighbourhood of Aleppo and Antioch, where they occupy, under the name of "Bagdaſhlia," the mountains to the E. of Beilam, as far as near Kles. In this pachalic, and in that of Damaſcus, their number exceeds 20,000 tents and huts; for they have alſo fixed habitations. They are reputed Mahometans; but they never trouble themſelves about religious rites or opinions. Several of them, diſtinguiſhed by the name of Yazdia, worſhip "Shaitan" or Satan, according to the ancient ſyſtem of the *good* and *evil* principles, which has more or leſs prevailed in the Diarbekir, and the frontiers of Perſia. The language of the Curds is divided into three dialects. It has neither the aſpirations nor the gutturals of the Arabic, and Mr. Volney ſays that it does not reſemble the Perſian; and, if this be the caſe, it muſt be an original language. Conſidering the antiquity of the people who ſpeak it, and that they are related to the Medes, Aſſyrians, Perſians, and even the Parthians; Volney conjectures, that a knowledge of this tongue might throw ſome light on the ancient hiſtory of theſe countries. See Volney's Travels, vol. i. ſect. 2.

CURDLING, the coagulating or fixing of any fluid body; particularly milk, by means of rennet. See Cheese.

Pauſanias ſays, that Ariſtæus ſon of Apollo, and Cyrene daughter of the river Peneus, were the firſt who found the ſecret of curdling milk.

At Florence they curdle their milk for the making of cheeſe with artichoke flowers; in lieu of the rennet uſed for the ſame purpoſe among us.

The Biſaltæ, a people of Macedonia, Rochfort obſerves, live wholly upon curdled milk, *i. e.* on curds. He adds, that curds are the whole food of the people of Upper Auvergne in France, and whey their only drink.

Women newly delivered are ſubject to have their milk curdled, converted into little grumæ, in their breaſts, which occaſion violent pains, with a ſhivering in the back. It is owing to the want of being ſucked; whence the method of remedying, and preventing it, is apparent.

CURE, in *Geography*, a ſmall town of France, in the department of the Yonne, on the river Cure, which falls into the Yonne at Cravan.

CURE, in *Medicine*. See Palliative *cure*.

Cure *of ſouls*, a benefice, the incumbent whereof has the charge and guidance of the ſouls of the people within a certain extent of ground, called a *pariſh.*

Such are a vicar, a rector, &c. in contradiſtinction to a prebend, a dean, a chantor, &c.

Cures, *ſine.* See Sine.

Cure, in *Falconry*, the ſame with *Caſting;* which ſee.

CUREL, in *Geography*, a town of France, in the department of the Upper Marne, one league N. of Joinville.

CUREMA, in *Ichthyology*, the name of a fiſh of the mullet kind, but of a remarkable ſize, growing to two feet long, and having a very large moveable upper lip; the under one being ſmall, triangular in figure, and ſcarcely viſible, being ſomething ſhorter than the upper. Its eyes are large, and its fins of a fine ſilvery white; in all other reſpects it reſembles the common mullet. See Mullus.

CUREMONTE, in *Geography*, a town of France, in the department of the Correze, and diſtrict of Brives, 4½ leagues S.E. of Brives.

CURENA, or Curna, in *Ancient Geography*, a town of Aſia, in Media.

CURENSE, or Corense Littus, a place on the coaſt of Spain, with a gulf over againſt the town of Gades, according to Pliny: ſuppoſed by Hardouin to lie between the Guadalquivir and the Guadalate.

CURES, or Curis, a town of Italy, which was anciently the capital of the Sabines, who from hence aſſumed the name of "Quirites." After the treaty concluded between Romulus and Tatius, which produced a coalition of the two nations, the Sabines were called Romans, and the Romans Quirites, or Sabines. However, that name, as well as Tribus Quirina, was applied, with the greateſt propriety, to that canton of the Sabines inhabiting Cures, and the diſtrict appertaining to it. The principal deity worſhipped here ſeems to have been Juno Quiris, or Curis. She was repreſented with a ſpear or lance in her hand; from which circumſtance ſhe received the appellation of "Quiris or Curis," a word in the Sabine language equivalent to the Latin "haſta." Macrobius mentions a Sabine deity under the name of Janus Quirinus, ſuppoſed to be the "Pater Curis," held in high veneration among the Faliſci.

Cures was ſituated in the territory now called Correze, or Cureze, upon a ſmall river of the ſame name, which falls into the Tiber above La Farſa. In the days of Strabo it was a poor mean village, and was afterwards ſo totally deſtroyed, that its ſituation cannot now be aſcertained. Cluverius, however, believed, that the ruins of it were to be ſeen in his time, about a mile from the town of Salici. If this be admitted, it ſtood near the banks of the river Heinella, the l'Aia of the moderns. Holſtenius thought that Cluverius was miſtaken in fixing upon a place now called "Il Veſcovio" as the ſite of the ancient Cures. The abbé Chauppy, availing himſelf of ſome circumſtances, which we need not recite, diſcovered on the Salar way, where the church of St. Anthime ſtood in the midſt of a wood, very conſiderable ruins of Cures. Theſe ruins were found in the territory of Fare, at a place called "Arci," on the left bank of the river Correze.

CURETES, in *Antiquity*, a ſort of prieſts, or people of the iſle of Crete; called alſo *corybantes.*

The name Curetes, according to Strabo, was given them becauſe of their cutting off the hair before, to prevent the enemy's taking hold thereof: the word being Greek, κουρητες, of κουρα, *tonſure*, from κειρω, *tondo.* Others derive it from κουροτροφια, *the feeding* or *educating of a child;* becauſe they are ſaid to have educated Jupiter.

The Curetes are ſaid to have been originally of Mount Ida, in Phrygia; for which reaſon they were alſo called *Idæi Dactyli.* Ovid ſays, they had their origin from a huge ſhower of rain: Lucian and Diodorus Siculus repreſent them as very expert in caſting of darts; though other authors give them no weapons but bucklers and pikes: but all agree in furniſhing them with tabors and caſtanettas; and relate, that they uſed to dance much to the noiſe and claſhing thereof.

Theſe Curetes are ſaid to have inhabited the mountains, under the ſhade of thick trees, caves, and other places, which naturally afforded ſhelter and covering, as the art of building houſes was not then practiſed. They were very ingenious, and invented a variety of things that proved highly uſeful to mankind; they firſt taught how to manage flocks, to gather honey, to tame horſes, to hunt, and to caſt darts. They formed men into ſocieties and communities, and ſhewed them, by their example, the happineſs of a peaceable and orderly life. They are likewiſe ſaid to have invented ſwords and helmets, and to have introduced the cuſtom of dancing in armour. By the noiſe they made in theſe dances, they prevented Saturn from hearing the cries of Jupiter when he was an infant, and, by that expedient, ſaved him from being deſtroyed by his father. The Curetes deſcribed by Diodorus Siculus (lib. v.) were, according to Herodotus, (lib. v. c. 58.), and Strabo, (lib. x. p. 464.); originally Phœnicians, who accompanied Cadmus out of Phœnicia; ſome of them ſettling in Phrygia, where they were called "Corybantes;" ſome in Crete, where they were known by the name of "Idæi Dactyli"; and ſome in Rhodes, where they bore the name of "Telchines." Accordingly, Voſſius (De Idololat.) diſtinguiſhes three kinds of Curetes; thoſe of Ætolia, who inhabited Pleuron, thoſe of Phrygia, and thoſe of Crete, who were originally derived from the Phrygians.

The firſt, he ſays, took their name from κουρα, *tonſure;* becauſe, from the time of a combat wherein the enemy ſeized their long hair, they always kept it cut; but they are ſaid to have ſuffered the hinder part to grow, that they might be caught by it if they offered to run away: thoſe of Phrygia and Crete, he ſuppoſes, were ſo called from κουρος, *young man;* becauſe they were young; or becauſe they nurſed Jupiter when he was young.

Clemens Alexandrinus (Stromat. lib. i.) calls the Idæi Dactyli barbarians, that is, ſtrangers; and ſays that they were the firſt who brought letters into Greece, Phrygia, and Crete; adding, that by their aſſiſtance Minos built a fleet, and gained the ſovereignty of the ſea. According to the authors now cited, the Curetes and Idæi Dactyli were the ſame people, and did not ſettle in Crete till the time of Minos. Bochart (Canaan, lib. i. c. 15.) traces them to Paleſtine, alleging the ſimilarity of their name to that of the Crethins or Cerethites, a Philiſtine tribe. See Crete.

Some authors, however, give a different account of the Curetes: according to Pezron, and others, the Curetes were, in the times of Saturn, &c. and in the countries of Crete and Phrygia, and among the Titanic Celtes, what the druids and bards were afterwards among the Gauls, &c. *i. e.* they were prieſts who had the care of what related to religion, and the worſhip of the gods.

Hence, as in thoſe days, it was ſuppoſed there was no communication with the gods but by divinations, auguries, and the operations of magic; the Curetes paſſed for magicians and enchanters: to theſe they added the ſtudy of the ſtars, of nature, and poetry; and ſo were philoſophers, aſtronomers, &c.

Such were the Curetes, and after them the druids; with this difference, that the Curetes, in the time of the Titans, went to the wars; for which reaſon they were armed, and were wonderfully dextrous in dancing cap-à-pie, ſhaking their bucklers and javelins: from which action, Pezron conjectures, they took their name Curetes; *curo*, in the Celtic, being the ſame with *κȣρω* in the Greek; *q. d. I ſtrike*, or *beat*.

It is uncertain, however, whether they went to the wars, and encouraged the combatants with their noiſe and dances, or were exempt from that duty as the druids were; but they muſt have been different from the bards, who, though of the ſame order, were, nevertheleſs, obliged to excite and encourage the people to war with their poetic compoſitions and muſical performances.

According to Kircher, the Curetes were what the *ſpirits* are among the Cabbaliſts, the *powers* in Dionyſius, the *dæmons* among the Platoniſts, and the *genii* among the Egyptians.

CURFEU, q. d. *couvre-feu*, a ſignal of retreat, given in cities taken in war, &c. to advertiſe the inhabitants to go to bed, and not to ſtir out any more.

The *curfeu-bell*, wherewith the ſignal was anciently given, was ſometimes hung up as a puniſhment of ſedition. Paſquier ſays, it was called *carfou*, and *garefou;* as being intended to advertiſe the people to ſecure themſelves from the robbers and debauchees of the night.

The moſt ancient curfeu was that eſtabliſhed in England by William the Conqueror; who appointed, under ſevere penalties, that, at the ringing of a bell at eight o'clock in the evening, every one ſhould put out their lights, cover, or rake up their fires, and go to bed. Whence, to this day, where a bell is accuſtomed to be rung about bed-time, it is called *curfeu-bell.* It was aboliſhed by Henry I.

In reference to this ſubject, we may obſerve, that William of Malmſbury ſays, in his account of Henry I., "that he reſtored, *in his court*, the uſe of lamps in the night, which had been intermitted in the time of his brother." This is the ſingle paſſage in any hiſtorian before Polydore Vergil, which ſeems to allude to the curfew, ſuppoſed by that author (lib. ix.) to have been introduced by an ordinance of William I., and mentioned by ſome later writers, as a mark of the ſlavery, in which he held the conquered Engliſh. It is plain, however, from theſe words, ſays lord Lyttelton, (Hiſt. Henry II. vol. i. p. 473.) that William of Malmſbury thought it was introduced by William Rufus, and extended to the whole court, that is, to the Norman nobles, as well as to the Engliſh, and, conſequently, was no proof of the ſervitude of the latter. M. Voltaire ſays (Univ. Hiſt. t. i. p. 240.) "that the law, far from being tyrannical, was only an ancient *police*, eſtabliſhed in almoſt all the towns of the North, and which had been long preſerved in the convents." He adds this reaſon for it, "that the houſes were all built of wood, and the fear of fire was one of the moſt important objects of general *police.*" From the expreſſion of William of Malmſbury, above cited, one ſhould think that, in England, it had only been practiſed in the king's court, or was taken off *only there* by Henry I. And the foregoing words, *effæminatos curia propellens*, which introduce the whole ſentence, and have a connection with it, appear to imply, that ſome unnatural crimes had been committed in the court, under the cover of the darkneſs; on which account the uſe of lamps was *there* reſtored by that prince. Upon the whole, as Polydore Vergil is too modern a writer to be of any authority, and all the ancient hiſtorians are ſilent about it, lord Lyttelton thinks there is reaſon to doubt, whether the law, or regulation he mentions, was made by William I., or was ever ſo general as he repreſents it. The curfew-bell may have been only rung in the convents, and probably took its name from an old practice there, of putting out their fire and candles at 8 o'clock every night. In the "Leges Burgorum" of David I., king of Scotland, mention is made of it as marking the time when the watch ſhould go out. As, therefore, the practice of it exiſted in Scotland, no leſs than in England, and as it was alſo a law of police, which William had previouſly eſtabliſhed in Normandy, it could be no badge of a *conqueſt*, nor any evidence of a nation being enſlaved.

Curfeu, Fr. An alarm bell. Formerly in ſtrong, encloſed and fortified places, and particularly in frontier towns, it was cuſtomary to have a high tower or ſteeple, from which they could diſcover the movements of the enemy. He who obſerved, or kept a look-out, rung the large bell in it as ſoon as he diſcovered or ſaw from it any thing extraordinary. If he ſaw infantry coming towards the place he hoiſted colours on the ſide by which it was approaching; but a ſtandard, if he perceived cavalry; and both, if he obſerved infantry and cavalry. The moment he perceived fire in any place he alſo rung it. It was by the *beffroi*, or the large bell in the ſaid tower or ſteeple, that they rung the curfew, when an officer went immediately to ſee the gates ſhut. In the morning the ſame bell was rung for the opening of them. After the ſounding or ringing of the curfeu, the inhabitants were not permitted to leave or go out of their houſes.

CURGIA, in *Ancient Geography*, a town of Spain, in Bœtica. Ptol.

CURGIE, in *Geography*, a village of Scotland, with a ſmall harbour, on the coaſt of the county of Wigton, in Luce bay; 3 miles N. from the Mull of Galloway.

CURGOS, or Kurgos, a large iſland of Egypt, ſituated on the Nile, ſeveral miles long, full of villages, trees, and corn, oppoſite to which is the mountain Gibbainy, a ſcene of ruins conſiſting of broken pedeſtals, plainly deſigned, ſays Bruce, for the ſtatues of the dog, and ſome pieces of obeliſk, with hieroglyphics, almoſt totally obliterated: this is conjectured by the ſame traveller to be the ancient city of Meroë, whoſe latitude ſhould be 16° 26′, and in this iſland, as he conceives, was the obſervatory of that famous cradle of aſtronomy. Curgos, he ſays, ſhould, probably, be Purgos, the Ethiopians not being able to pronounce P, and not having ſuch a letter in their alphabet; and Purgos was the tower or obſervatory of that city. Travels, vol. iv. 539.

CURIA, in our *Ancient Cuſtoms*, was ſometimes uſed for the perſons, as feudatory and other cuſtomary tenants, who did their ſuit and ſervice at the court of the lord. And it was uſual for the kings of England to ſummon the biſhops, peers, and great men of the kingdom, to ſome particular place, at the chief feſtivals in the year; and this aſſembly is called, by our hiſtorians, *curia;* becauſe they were conſulted about the weighty affairs of the nation: whence it was ſometimes alſo called *ſolemnis curia*, *generalis curia*, *Auguſtalis curia*, and *curia publica*, &c.

Curia, in *Ancient Geography*, *Coire*, a conſiderable town of Rhætia.

Curia, Francesco, in *Biography*, a Neapolitan painter, was born about the year 1538, and ſtudied under Lionardo da Piſtoja. The churches of Naples poſſeſs many of his works, which, although they ſomewhat partake of the mannered ſtyle introduced by Vaſari and the Zuccheri, are much eſteemed for the ſpirit with which they are compoſed, the beauty of character in the heads, and truth of colouring.

His altar-piece of the circumciſion in the church of the Pieta, was, by the common conſent of Spagnoletto, L. Giordano, and Solimene, ranked amongſt the fineſt productions of the pencil which Naples could boaſt. He died about the year 1610. Dominici.

Curia, among the *Romans*, denoted a portion, or diviſion of a tribe.

In the time of Romulus, a tribe being the third part of the 3000 foot of which his columns conſiſted, comprehended ten curiæ, beſides 300 horſemen, each curia being 100; ſo that this legiſlator made the firſt diviſion of his people into thirty curiæ or wards. Theſe curiæ were again ſubdivided into 10 decuriæ.

Over the curiæ were appointed officers, called *curiones*, and over the decuriæ, others called *decuriones*: each curia and decuria having its peculiar commander. Romulus afterwards divided his ſmall territory, which was not above five or ſix miles in extent, into three unequal parts; one of which was appropriated to the expences of religious worſhip, another reſerved for the king's revenue and the exigencies of the ſtate, and the third, which was the moſt conſiderable, divided into 30 portions, correſponding to the 30 curiæ. In the forming of a ſenate, conſiſting of 100 perſons, each tribe named three ſenators, and each of the curiæ the like number, amounting in all to 99, and Romulus named the 100th, who was the head or prince of the ſenate, and the chief governor of the city, when the king was in the field. (See Senate.) Romulus alſo ordered the curiæ to chooſe for him a guard of 300 young men, ten out of each curia, who were called *celeres*, which ſee. In regulating the concerns of religion, he ordained, that each curia ſhould have its own temple, and its peculiar gods and prieſts. He who preſided over each curia was called Curio, and he who preſided over them all Curio Maximus.

Afterwards, *curia*, or *domus curialis*, became uſed for the place where each curia held its aſſemblies for performing divine ſervice.

Hence, alſo, curia paſſed to the ſenate-houſe; and it is from hence the moderns come to uſe the word *curia, court*, for a place of juſtice, and for the judges, &c. there aſſembled. See Court.

Varro derives the word from *cura, care, q. d.* an aſſembly of people charged with the care of public affairs: others deduce it from the Greeks; maintaining, that at Athens they called κυρια the place where the magiſtrate held his aſſiſes, and the people uſed to aſſemble: κυρια, again, may come from κυρος, *authority, power;* becauſe it was here the laws were made.

Curia *Curſus Aquæ*, in *Law*, a court held by the lord of the manor of Graveſend, for the better management of barges and boats uſing the paſſage on the river Thames from thence to London, and plying at Graveſend bridge, &c. mentioned in ſtat. 2 Geo. II. c. 26.

Curia *Domini*, the lord's-houſe, hall, or court, where all the tenants attend at the time of keeping courts.

Curia *militum*, a court ſo called; anciently held at Cariſbrook caſtle, in the iſle of Wight.

Et idem dominus Willielmus de inſula facere debit ſectam ad curiam *domini caſtri de Cariſbroc, de tribus ſeptimanis in tres ſeptimanas, in* curia *quæ vocatur* curia militum.

Curia *Penticiarum*, a court held by the ſheriff of Cheſter, in a place there called the "Pendice," or "Pentice;" probably deriving its denomination from its being originally kept under a pent-houſe, or open ſhed, covered with boards. Blount.

Curia, *Rectus in.* See Rectus.

Curia *Maria*, in *Geography*, an iſland in the Arabian Sea, near the SE. coaſt of Arabia; 40 miles long, and 16 broad. N. lat. 17° 20′. E. long. 55° 14′.

CURIÆ *Auxilium*, in *Law*. See Auxilium.

CURIACO, in *Geography*, a bay in Terra Firma, S. America, on the N. Sea.

CURIALITAS *Angliæ*. See Curtesy *of England*.

CURIAM, *Accedas ad*, in *Law*. See Accedas.

CURIANUM, in *Ancient Geography*, a promontory of Gallia Aquitanica, according to Ptolemy; ſuppoſed by M. D'Anville to be Cape Fernet, between the Adour and the Garonne.

CURIAS, *Cape Cavati*, or *Delle Gatti*, a promontory of the iſle of Cyprus, at the extremity of the moſt advanced peninſula to the ſouth of the iſland.—Alſo a town ſituated on the above-mentioned promontory.

CURIATA, *Comitia*. See Comitia *curiata*.

CURIATII, in *Roman Hiſtory*, three brothers, ſelected by the Alban general as champions for a conteſt with three other brothers, named Horatii, choſen by Tullus Hoſtilius, king of Rome, in order to decide the difference ſubſiſting between Alba and Rome. A. U. C. 87. B. C. 667. On an interview between the two commanders of the hoſtile armies, the Alban general, declining to terminate the diſpute by a ſingle combat with Tullus Hoſtilius, according to the propoſal of the latter, ſuggeſted that three champions ſhould be choſen out of each camp for determining the quarrel. As ſoon as the agreement was known in the two armies, it excited a ſtrong emulation among the young warriors for the honour of being choſen to this important combat. During the intermediate ſuſpence, Fuffetius caſt his eyes upon three Albans, of the circumſtances of whoſe birth, Dionyſius Halicarnaſſenſis (lib. iii.) has given the following account: Sequinius, an illuſtrious citizen of Alba, had two daughters; one married to Curiatius, a citizen of Alba, and the other to Horatius, a citizen of Rome. Theſe two ſiſters were brought to bed on the ſame day, each of three male children, who were at this intereſting period in the flower of their age, and remarkable for their ſtrength and dexterity. The Alban general having fixed on the three Curiatii, the king of Rome having his attention directed to the three Horatii, propoſed the matter to them, who conſulted their father on the occaſion. The father, dreading the event, and apprized of the betrothment of one of his daughters to one of the Curiatii, heſitated for ſome time in complying with the wiſhes of his ſons; but the love of his country ultimately prevailing over every other conſideration, he left his ſons to their own choice. When he was informed that in imitation of the Curiatii, they preferred a glorious death, or an important victory, to an inglorious life, he lifted up his eyes to heaven, and, embracing his children, exclaimed, "I am a happy father!" and then commanded them to announce to the king his conſent.

The combat of the Horatii and the Curiatii being proclaimed in both camps, Tullus led the former, and Fuffetius the latter, whilſt the people ſtrewed the way, as they paſſed, with flowers, and put garlands on their heads; for they were conſidered as victims, who had voluntarily devoted themſelves for their country. A plain lying between the two camps was choſen for the place of combat; and the two kings advanced with their champions and feciales to the middle, where, before the combat began, they concluded a treaty which ſerved as a pattern for moſt of the treaties that were ever after made by the Romans. When this ſolemnity was finiſhed, the champions advanced with a ſlow pace towards each other; and before they commenced the hoſtile attack, they embraced each other with all the expreſſion of the moſt tender and ſincere friendſhip. The ſpectators ſhed tears at the ſight, and muttered complaints againſt the kings for cauſing ſuch affectionate relations to ſhed the blood of one another. The tenderneſs of the young heroes, however, did not abate their courage; each of them reſumed his arms, and ſelected his adverſary. The combat then began with great impetuoſity; the noiſe of their arms was heard at a great diſtance; and the air reſounded with a confuſed mixture of ſhouts and acclamations from both camps, as either of the combatants appeared to have the advantage. The victory was long held in ſuſpence, by the ſkill and valour of the combatants. At length the eldeſt of the Horatii received a mortal wound, and fell. At this ſight the Albans triumphed, and the Romans were thrown into great conſternation, which was ſoon followed with deſpair when they ſaw the ſecond Horatius, pierced through by another of the Curiatii, expire on the body of his brother. However, the three Alban brothers were wounded, and the ſurviving Horatius appeared unhurt and vigorous. Thinking he was an unequal match for the three brothers together, he had recourſe to a ſtratagem, and retreated as if he fled: Upon this the Curiatii purſued him at different diſtances as their reſpective ſtrength allowed; Horatius, perceiving the ſucceſs of his ſtratagem, and that they were ſeparated from each other, haſtily returned, and ſlew them all ſingly, before one could advance to the aſſiſtance of the other; and, elated with his victory, ſeized the ſpoils of the vanquiſhed:—the Roman camp in the mean while reſounding with joyful acclamations in honour of their hero. Thus Rome gained the ſuperiority over Alba, its mother-city; which Fuffetius acknowledged on the field of battle, ſaluting Tullus as his ſovereign, and aſking him what were his commands. Tullus replied; "I command you to keep the Alban youth in readineſs to march at my orders, in caſe I make war with the Veientes."

As Horatius was returning to the city, he was met by his ſiſter, who, perceiving him loaded with the ſpoils of the three brothers, among which was a military robe which ſhe had wrought with her own hands for the Curiatius to whom ſhe had been betrothed, could not forbear tearing her hair, beating her breaſt, and reviling her brother with the moſt reproachful and provoking words, for imbruing his hands in the blood of his relations. Horatius, fluſhed with his late victory, and enraged at his ſiſter's unſeaſonable grief, killed her upon the ſpot, and then proceeded to the houſe of his father; who not only approved the action, but would not allow his daughter to be buried in the ſepulchre of the Horatian family. However, upon the return of Tullus to Rome, Horatius was brought by ſome illuſtrious citizens before the tribunal, to take his trial. Thinking it dangerous to relax the rigour of the laws in favour of conquerors, they inſiſted on his being tried, and condemned, if found guilty. Tullus, anxious to manifeſt his regard for the laws, and at the ſame time ſolicitous for ſaving young Horatius, and alſo foreſeeing that he would be cenſured by ſome for condemning, and by others for acquitting the criminal, dextrouſly changed the affair into a ſtate crime, the cognizance of which did not belong to him, but to two commiſſioners, or duumviri, whom the king was to name. The crime was notorious, nor was it diſowned by the priſoner; the duumviri, therefore, without delay, pronounced ſentence againſt him, in theſe words: "We judge you to be guilty of treaſon; go, lictor, and tie his hands." As ſoon as judgment was given, Horatius, by the king's advice, appealed to an aſſembly of the people, who revoked the ſentence of the duumviri, rather through admiration of his courage, ſays Livy, than for the juſtice of his cauſe. However, that the crime might not eſcape wholly unpuniſhed, Horatius was condemned to paſs under the yoke, an ignominy with which it was uſual to treat priſoners of war, who had ſurrendered their arms. The king alſo appointed expiations to pacify the anger of the gods, provoked by this violation of the laws. Beſides, the pontifices erected two altars, one to Juno, and the other to Janus, which were ſtill remaining in the time of Auguſtus, together with the yoke, known by the name of "Sororum tigillum," under which they made the criminal paſs. Liv. lib. i. cap. 25. 26. Dionyſ. Hal. lib. iii.

CURICACA, in *Ornithology*, the name of a Braſilian bird, the wood-pelican of Cateſby, and wood-ibis of Pennant. See Tantalus *loculator*.

CURICTA, in *Ancient Geography*, an iſland of the Adriatic Sea, on the coaſt of Illyria, according to Pliny and Ptolemy; called by Strabo *Cyractica*; the preſent iſle of Vegia.

CURICUM, a town of the fore-mentioned iſland, now called *Vegia*.

Curicum, a town of Aſia, in Iſauria.

CURIGLIANO, in *Geography*, a river of Naples, which runs into the gulf of Tarento; 5 miles N.E. of Corigliano.

CURIMATA, in *Ichthyology*, a name by which ſome authors have called the lavaretus, a ſmall fiſh, of a ſort of middle nature, between truttaceous and the herring kind, and caught in the American and German lakes.

CURING, is uſed for preſerving fiſh, fleſh, and other animal ſubſtances, by means of certain additions of things, to prevent putrefaction. One great method of doing this, is by ſmoaking the bodies; that is, the making them to imbibe a great quantity of vegetable fumes: for this is uſually done where wood is burnt. The reaſon of this ſort of preſervation is eaſily ſeen by the curious enquirer, ſince wherever wood, or any vegetable of the acid tribe is burnt, the acid particles go off with the ſmoke, and in this form penetrate into, and lodge themſelves in animal ſubſtances expoſed thereto; by which means this ſmoke acts upon them in the ſame manner that the fumes of ſpirit of nitre would do: and whether it be not a nitrous acid that tinges hams, herrings, &c. to a redneſs in the drying, is a ſubject worthy of enquiry. Shaw's Lectures, p. 152.

CURINI, in *Botany*, or Curiginil. Lam. Enc. Rheed. Mal. 7. 47. tab. 45. Baccifera indica; Rai. Hiſt. iii. 357. A plant little known, which has ſomewhat of the habit of a meniſpermum, and ſeems to have ſome affinity to ciſſus. *Stems* cylindrical, ſarmentous, ſomewhat woody, leafy. *Leaves* oppoſite, petioled, oval-acute, entire, ſoft, ſmooth, whitiſh-green above, deeper green underneath, with ſomewhat projecting nerves. *Flowers* ſmall, yellowiſh-white, axillary, forming branched corymbs ſhorter than the leaves; petals five, green without, white and woolly within, a little hooked at the tip; ſtamens five, ſmall; germ ſuperior, roundiſh. *Fruit.* Drupe oval-oblong, bright green, with whitiſh and rather bitter fleſh; nut hard, whitiſh; kernel white, ſlightly bitter, and aſtringent. A native of the Eaſt Indies.

CURIO, Caius Scribonius, in *Biography*, a Roman orator, diſtinguiſhed for the part which he took in the civil war between Pompey and Cæſar. He was at firſt a partizan of Pompey, and ſelected to oppoſe the ambitious deſigns of Cæſar: but being of licentious manners, and overwhelmed with debts, he could not withſtand the temptation of a high bribe offered him, and became the opponent of him in whoſe cauſe he had joined. In battle, with the troops of Pompey, he fought with vigour and ſucceſs, but being afterwards led into an ambuſcade, his troops were cut to pieces, and he himſelf fell either by his own hand, or in the general ſlaughter. This happened B. C. 48. By the poet Lucian, Curio is ſpoken of in extravagant terms of applauſe, but, by the hiſtorian Velleius Paterculus, he is deſcribed as "a man of noble birth, an accompliſhed ſpeaker, bold, laviſh alike of his own fortune and perſon, and of thoſe of others, moſt ingeniouſly profligate and miſchievouſly eloquent, one whoſe luſt for money and for pleaſure, no wealth, no enjoyments could ſatiate." By Plutarch, Curio is repreſented as the friend and aſſociate of Cato in his early years. Plutarch. Univerſ. Hiſtory.

Curio, Coelius Secundus, was born at Cherico, in Piedmont, in the year 1503. He was educated at Turin, and made great proficiency in polite literature. He had not attained his 20th year, when he became attached to the doctrines of Zuinglius and Luther, and his zeal in their defence cauſed him to be thrown in priſon, where he was confined for ſeveral months. Perſecution did not in the leaſt abate his ardour; his diſpoſition being frank and engaging, he was diſmiſſed the place of confinement, with recommendations that might have promoted his worldly intereſts; but having acceſs to the relics of the monaſtery in the abbey of St. Benigno, he conceived and executed the plan of carrying away the holy ſhrine, and leaving in its place what to him was more holy and eſtimable, the Bible, inſcribed with theſe words, "Hæc eſt arca fœderis, ex qua vera ſciſcitari oracula liceat, et in qua veræ ſunt ſanctorum reliquiæ." The day, however, was approaching, when the fraud would be diſcovered, and when, he was aware, the fury of the populace would not permit him to eſcape with his life, if he were even ſuſpected of it; he, therefore, thought it prudent to retire, and we find him afterwards at Milan, and other cities of Italy. At the former place he reſided many years, employed in the arduous and honourable taſk of education; but what raiſed his reputation the higheſt, were the courage and humanity which he diſplayed during a dreadful plague which ravaged that city. Neither dread of danger, nor the diſguſting nature of the duties prevented him from viſiting the ſick, and ſupplying the various wants of the poor and the dying. In 1530, he married, and afterwards met with very unhandſome treatment from his own relations. At Turin he was, after the lapſe of many years, arreſted, on account of the ſhrine, and impriſoned. It was ſuppoſed that the moſt rigorous puniſhment would befal him, but he contrived to eſcape, went firſt to Milan, and afterwards to Pavia, where he gave lectures on the belles lettres: but his enemies were ever on the alert, and the inquiſitors had orders to ſeize him; his ſcholars, however, and the people, in general, entertained for him ſo high a reſpect, that they formed for his defence a ſort of body-guard; and thus he lived three years, when the pope himſelf interfered, and he was obliged to ſeek a retreat in Venice, and from thence he went to Lucca, where he not only met with a favourable and kind reception, but was appointed profeſſor. Scarcely had he been at Lucca a ſingle year, when orders were ſent to the ſenate to arreſt him; from them he received intimation of the deſign, and he determined to quit Italy for ever. He went to Lauſanne, and was choſen principal of the college: his wife and children he had left at Lucca, till he knew whither he might conduct them in ſafety. When he thought himſelf ſecure, he went to Piſa, in order to bring his family to his new reſidence; here, while he was at dinner in a public inn, he was arreſted; the officer, out of reſpect probably, came alone into the room, to make known his buſineſs: Curio, advancing with his knife in his hand, ſo alarmed him, that he fainted, and the profeſſor, who ever poſſeſſed great preſence of mind, walked down ſtairs, through the attendants, who were not acquainted with his perſon, and eſcaped. He got to Lauſanne in ſafety, and had the ſatisfaction of taking with him his wife and family, whom he met with on his road. He reſided at Lauſanne four years, and in 1547 he removed to Baſil, where he held the office of profeſſor of eloquence and the belles-lettres with the higheſt reputation for more than twenty years. He died, Nov. 24, 1569, in the 67th year of his age. He was author of many works written and publiſhed in the Latin, Italian, and French languages. On theological ſubjects, the moſt important were "Chriſtianæ religionis inſtitutio, et de liberis educandis:" and "De amplitudine Regni Dei;" in the latter he endeavoured to prove that the number of the elect was greater than that of the reprobated: for this, one might ſuppoſe, harmleſs doctrine, he was denounced; and ſubmitted to write an apology, which was publiſhed in the 12th volume of the Amænitates Literariæ. Franc. 1730. Gen. Biog.

Curio, the chief and prieſt of a curia.

Romulus, upon dividing the people into *curiæ*, gave each diviſion a chief, who was to be prieſt of that *curia*, under the titles of *curio*, and *flamen curialis.*

His buſineſs was to provide and officiate at the ſacrifices of the curia; which were called *curionia;* the curia furniſhing him with a ſum of money on that conſideration: which penſion or appointment was called *curionium.*

Each diviſion had the election of its curio; but all theſe particular curiones were under the direction of a ſuperior, or general, called *curio maximus;* who was the head of the body, and elected by all the curiones, aſſembled in the *comitia curialis.*

All theſe inſtitutions were introduced by Romulus, and confirmed by Numa, as Halicarnaſſeus informs us. Godwin will have two curiones in each *curia.*

CURIOSOLITES, in *Ancient Geography*, an ancient people of Gaul, in Armorica, ſo called by Cæſar, and placed by M. D'Anville N.W. of the Redones.

CURIOSI *Naturæ*, *Academy of the.* See Academy.

CURIOSUS, an officer of the Roman empire, during the middle age, appointed to take care that no frauds and irregularities were committed; particularly no abuſes in what related to the poſts, the roads, &c. and to give intelligence to the court of what paſſed in the provinces. This made the curioſi people of importance; and put them in a condition of doing more harm than they prevented: on which account, Honorius caſhiered them, at leaſt in ſome parts of the empire, anno 415.

The curioſi came pretty near to what we call controllers: they had their name from *cura, care;* "quod curis agendis & evectionibus curſus publici inſpiciendis operam darent."

CURIRI, in *Ornithology*, a variety of the Todus *paradiſæus;* which ſee.

CURISCHE-HAF, in Latin *Lacus* or *Sinus Curonicus*, in *Geography*, a lake, bay, or inland ſheet of water formed at the eſtuary of the river Memel, in Pruſſia, joining the ſea near Memel, and ſeparated from the Baltic by a narrow ridge of land. It is 60 Engliſh miles in length, and about 30 in its greateſt breadth, and derives its name from its ſituation in the ancient duchy of Curland or Courland. The crafts are inhabited by fiſhermen, who ſtill go by the name of Cures, or Curen.

The Curiſche-Haf is full of dangerous ſand-banks, and expoſed to frequent and violent ſtorms.

CURISCHE-NEHRUNG, that tongue or narrow ridge of land which ſeparates the Curiſche-Haf from the Baltic Sea.

CURIUM, in *Ancient Geography*, a town and alſo a mountain of Greece in Ætolia.—Alſo, a town which, according to Strabo, was near the promontory of Curias, in the iſle of Cyprus, lying to the N.E.; but, according to Ptolemy, it was ſeparated from the promontory by the river Lycus. Curium was alſo the name of one of the ſmall kingdoms into which the iſle of Cyprus was divided. Strabo mentions an altar of Apollo, ſituated in this canton, ſo that any one who approached it riſked being precipitated into the ſea. The town is now called Piſcopia; and the promontory Cape Cavati. See CURIAS.

CURIUS, DENTATUS MANLIUS, in *Biography*, an ancient Roman, who raiſed himſelf from almoſt the loweſt rank, to the higheſt and moſt important offices in the ſtate. He attained the rank of conſul, B. C. 290, and ſhortly put an end to the long war that had been carried on between his countrymen and the Samnites: his courage and prudence fitted him for the difficult times in which he flouriſhed. In ſome inſtances, the enemies of his country who were unable to conquer, or to cope with him, attempted, what has often proved a ſafer and a ſhorter enterpriſe, namely, to bribe him. The perſons once employed to aſſail his virtue, found him cooking his humble meal with his own hands: he heard their offer, and manfully replied, “the man that could dine as he did had no occaſion for gold:—that he accounted it more honourable to command the poſſeſſors of wealth, than to be rich himſelf; and that they might aſſure their countrymen, they would find it as difficult to corrupt as to conquer him.” Inflexible as the integrity of this patriot was, ſtill he had his enemies: jealous of his ſuperior talents, and envious of his well-earned fame, they accuſed him of converting, to his own purpoſes, part of the ſpoil taken from the enemy. He was examined on the ſubject, and confeſſed the fact—he had retained for his own uſe, a wooden oil-veſſel, for the purpoſe of making libations to the gods. On many occaſions after this, he conferred on his country the moſt ſignal benefits; and on the defeat of Pyrrhus he had a magnificent triumph, exhibiting not only a vaſt quantity of rich ſpoils, but ſeveral captured elephants, animals that had never before been ſeen in Rome. The ſenate, on this occaſion, offered him fifty acres of land, which the virtuous and ſelf-denying conſul refuſed, ſaying, that ſeven acres, the common ſhare of every citizen, was enough for any man to live on. Of the latter days of this citizen we have no account: it is, however, recorded, to his honour, that he expended a large part of what he gained from the enemy in bringing the water of the river Anio to Rome. Plutarch. Univerſ. Hiſt.

CURL, in *Agriculture*, is a vegetable diſeaſe which frequently attacks potatoe crops, producing a ſort of criſped-up or curled appearance in the leaves. It is an affection which has been aſcribed to various cauſes, by writers on vegetation; but the real nature of which does not ſeem to be well underſtood. Some ſituations are more expoſed to the attacks of it than others; and in ſome it is ſaid not to occur at all. This is the caſe, according to Mr. Headrick, in the little iſland of Arran in Scotland. It is likewiſe found by experience to be more common in ſuch lands as have been long in the ſtate of tillage, than in thoſe which have been newly broken up, or brought into the ſtate of cultivation; and in grounds of the fenny and moſſy kinds leſs frequently than in thoſe of the more dry deſcriptions.

It has been ſtated in an intereſting paper, inſerted in the ſecond volume of “Communications to the Board of Agriculture,” as having generally been ſuppoſed to be a ſpecific diſeaſe, produced ſolely by contagion, not being conceived capable of ariſing without it; and that this contagion of neceſſity produces the diſeaſe in all crops with which it is permitted to come in contact. But this opinion is ſuggeſted, as appearing not to be well founded; as the diſeaſe does not neceſſarily propagate itſelf, which is ſufficiently evident, it is imagined, both from obſervation and the reſult of experiment: for it is often found in fields of this ſort of crops, that the moſt healthy plants are ſurrounded with thoſe which are in the curled ſtate; and that they not only continue in a ſtate of health and vigour, while the crops remain on the land, but may even be afterwards mixed with them for a conſiderable length of time, without ſuffering any contamination. It is likewiſe aſcertained, that healthy potatoes are afforded not only from ſuch as have been thus mixed with thoſe which were curled, but that it has been ſhewn by experiment, that they may be obtained from curled potatoes themſelves, as will be ſeen below. It is alſo well known to farmers, that the curl often occurs where not any thing of contagion was communicated, nothing being more common than abundance of curled plants from roots ſelected with the greateſt circumſpection; from lands as well as diſtricts, in which the diſeaſe has never been perceived. A farmer, whoſe potatoes had for two or three years been greatly injured by this diſeaſe, conceiving that it happened from infected ſeed, procured a large ſupply for himſelf, as well as ſome of his friends, from a diſtrict on the Tweed, where the diſeaſe at that time had never been ſeen: but it ſo happened, that, while ſome of the crops from theſe potatoes were entirely free from the curl, others, and particularly thoſe planted by the farmer himſelf, were more injured by it than they had ever been before; which ſhould not have been the caſe, if the common opinion were well founded, that the diſeaſe ariſes from an affection in the original ſet or root. Other cauſes muſt of courſe be ſought for; and it is ſuggeſted, that thoſe who take notice will find that whatever renders a crop poor and weakly is the moſt apt to produce the diſeaſe, and that it proceeds in a great meaſure, if not entirely, from this cauſe: and it is added, that the weakly ſtate which affords it may be cauſed by a variety of circumſtances, among which the following are the moſt frequent.

“I. In this diſtrict, the moſt frequent cauſe of it, perhaps, is the planting potatoes on ground altogether unfit for them. Potatoes require a light pervious or open mould, their germs not being of a nature that can penetrate a ſtiff ſoil. This, for a great length of time after potatoes firſt appeared in this country, met with ſuch marked attention, that they were never planted but in the lighteſt ſpots upon the farm, and with ſuch care that the plough was never employed for them: they were planted entirely with the ſpade, by which the ſoil was completely broken; hence they had vigorous plants, and rarely any appearance of curl. But on farmers wiſhing to extend the culture of potatoes, and being thereby induced to plant them on every variety of ſoil, as they now frequently do, the crops became weak, and the curl frequent. In the culture of every other crop, farmers take care to appropriate particular ſoils to each; for they know that they commonly fail, if this neceſſary piece of attention be overlooked. Thoſe who have light ſand only do not ſow beans; while, on ſtiff clay ſoils, the culture of turnips is never attempted. In like manner, potatoes require a peculiarity of ſoil; and in ſo far as this is deviated from, the crop is commonly weak, and liable to curl. In a field of ſeveral acres, which every fourth year was planted with potatoes, about half an acre, or thereabouts," the writer ſays, "was ſtiff clay, while the reſt was a free dark coloured loam, rather tending to ſand than clay. On all this part of the field the crop was uniformly ſtrong, and free of curl; while on the half acre of clay, although manured with the ſame quantity of dung, planted with the ſame ſeed, and in every circumſtance managed in the ſame manner, the plants were all weak, and a great proportion of the whole curled.

"II. But imperfect culture is perhaps the moſt frequent cauſe of curl. This will be found to hold with ſuch uniformity, that a crop of potatoes is commonly ſtrong, abundant, and free of curl, in proportion to the previous culture given to the ſoil, and care taken to keep it clean after they are planted. This indeed is ſo remarkably the caſe, that, excepting in very kindly ſoils, the additional produce from trenching and planting with the ſpade is commonly more than ſufficient to repay all the difference of expence between this mode of culture and that of planting with the plough. On a large ſcale, indeed, the ſpade cannot be employed, and plentiful crops are no doubt often obtained with the plough; but many are not ſufficiently aware of the full neceſſity of ploughing and cleaning their grounds well before the crop is planted: for if the mould is not previouſly well broken, it cannot be done afterwards, ſo that the plants are weak from their firſt appearance, and a great proportion of the whole curled. The effect of complete previous tillage, in the culture of potatoes, is indeed ſo remarkable, that there is reaſon to believe, that the amount of our potatoe crop, in a great proportion of caſes, would be more than double of what it commonly is, if the ground on which they are planted was previouſly put in better order. Of this many proofs might be given, but the writer only mentions two. A farmer, who every year planted ſeveral acres of potatoes with the plough, allowed his ſervants to plant nearly two acres for their own uſe; but theſe laſt, being commonly on ſpots of difficult acceſs, could not eaſily be managed with the plough, and, being always in bad order, they were planted with the ſpade, in the form of what is uſually termed lazy beds. The effect of this uniformity was, that although the crops, even of thoſe planted with the plough, were always good, being ſometimes at the rate of three hundred Wincheſter buſhels on the Scotch acre, and weighing from eight to ten tons; the others, in different inſtances, weighed more than the double of this, and for the moſt part were entirely free of curl. And the writer ſoon after getting poſſeſſion of a farm, being late in overtaking his potatoe crop, a conſiderable part of a field, which happened to be both full of root weeds and not ſufficiently broken, was in that ſituation planted by his ſervants, before he knew of it; but half an acre, or thereabouts, being ſtill worſe than the reſt, it was kept either with a view to give it a complete fallow, or to ſow it with tares. The ſeaſon, however, being dry, which favoured the cleaning of ground, this piece was three times ploughed, well harrowed after each ploughing, and the root weeds gathered and carried off. Being now in fine order, it received the ſame quantity of dung which was given to the reſt; it was planted with potatoes taken from the ſame quantity, and in every other circumſtance managed in the ſame manner: but the event was widely different. Although a week later in planting, the crop was ſooner above the ſurface; the plants were ſtronger from their firſt appearance, and ſcarcely a curled ſtem to be met with: while in every row of the others the curl was frequent. The ground was kept clean with leſs than a fourth part of the expence and trouble, the produce was more than double, the enſuing crop of wheat was conſiderably better on this piece, and the ground continued in every reſpect in better condition till the third crop, when more pains were taken with the reſt of the field.

"III. The writer has reaſon from experiment to think, that ſmall roots, or too ſmall a portion of ſtrong roots, being given to each ſet, has an influence in producing a weak crop, and curled plants. It is perhaps equally neceſſary, in the culture of potatoes, as in that of wheat, or any other crop, to make a choice of healthy full-grown ſeed; but this is not always done. Small potatoes are often indeed purpoſely kept for planting, inſtead of thoſe that are full grown, and therefore more capable," the writer ſuppoſes, "of producing a vigorous progeny. In like manner, there is cauſe to ſuſpect," he ſays, "that our frequent attempts of late years to diſcover new varieties of potatoes, by raiſing them from ſeed inſtead of the root, have had ſome influence in rendering the curl more frequent; plants raiſed from the ſeed being commonly, for the firſt two or three years, very weak and feeble. Sixty-four ſets were planted: ſixteen of which were full-grown potatoes; ſixteen from ſmall roots, in which no curl appeared when in the field; ſixteen from roots raiſed from the ſeeds two years before; and ſixteen from roots of plants ſtrongly curled. They were all planted in the ſame manner, in a light ſoil, and in furrows parallel to each other, with a moderate quantity of dung to each, and covered to the depth of three inches. Of thoſe taken from large potatoes, none were curled, and the plants were all ſtrong and healthy. Some good plants appeared in each of the other rows, but nearly a half of the whole was curled. The proportion of curled plants was greateſt in thoſe lately raiſed from the ſeed; in the other two rows, they were nearly the ſame. The row planted with curled potatoes had ſeven curled plants, and the other only ſix; but in this laſt row, the other three were ſo weak from the firſt, that, although not obviouſly curled, they ſoon began to ſhrivel, and, in the courſe of two or three weeks, diſappeared entirely.

"IV. It has," the writer ſays, "been mentioned by a noted planter of potatoes, that ſets taken from roots that have ſprouted early, and from which the germs have been rubbed, as is commonly done, with a view to the preſervation of the ſets, never fail to produce curl. The plants which ſucceed to the ſecond production of germs are always very weak, and with ſuch certainty produce curl, that he is induced to conſider this as the only cauſe of it; but this attentive obſerver will find, that whatever tends to render a crop, or even particular plants in the crop, weak and delicate, will in like manner ſeldom fail to produce curl.

"V. Too much as well as too little dung appears," the writer ſays, "to have influence in producing curl: the firſt may probably act by corrupting the germ of the young plant; the latter, by not being ſufficient to produce vigorous plants. This effect, reſulting from an unequal application of dung, may perhaps be conſidered as the moſt frequent cauſe of that partial appearance of the curl, that we often meet with in fields managed all apparently in the ſame manner: for dung is often ſpread in ſuch a careleſs ſlovenly manner, that, while ſome of the plants have none, others have it in too great a proportion, being ſometimes covered with it to the depth of ſeveral inches.

“ VI. Too deep as well as too ſhallow planting,” he thinks, “are both apt to produce the curl; but the firſt of theſe errors is perhaps the moſt frequent. The ſets ſhould never be placed deeper at firſt than three inches, however uſeful it may afterwards prove to lay the earth up to the ſtems; but inſtead of this, by the uſual method of planting in drills, or ribs, as they are termed, and throwing two deep furrows over the plants, they are frequently covered to the depth of nine or ten inches: by which, from a total excluſion of air, and perhaps from other cauſes, the crop is always late in piercing the ſurface, and many of the plants are weak and curled. Theſe ridges are indeed commonly harrowed down at laſt, but often not till it is too late. And where the plants are placed too near the ſurface, if the ground itſelf is dry, they riſe in weak feeble ſtems; and many are curled from want of moiſture alone. With a view to aſcertain the beſt depth for ſets of potatoes, twelve were planted at eighteen inches deep, the ſame number at the depth of ſixteen inches, fourteen, twelve, ten, eight, ſeven, ſix, five, four, three, and two inches; and twelve were ſo lightly covered, that they were not perhaps at the depth of one inch. The ſets were all from large roots of the ſame crop, and all as nearly as poſſible cut of the ſame ſize. They were all planted at the ſame time, in the firſt week of April, in a light dry ſoil; and they all got the ſame quantity of dung; and in every other circumſtance were managed in the ſame manner. The plants at the depth of one and two inches appeared firſt; but they were weak, and ſome of them curled. Thoſe at three, four, and five inches were all ſtrong, healthy, and entirely free of curl. At ſix and ſeven inches, they were alſo healthy and free of curl; but they were three weeks later in getting above the ground than thoſe that were thinly covered, and the plants neither ſo ſtrong, nor the roots ſo large. Thoſe planted at the depth of eight inches were ſtill later in piercing the ſurface; they were all weak, and nine out of the twelve were curled. Only four ever appeared of thoſe planted ten inches deep; and they were ſo weak, that they very ſoon withered and died. Of thoſe placed at the depth of twelve, fourteen, ſixteen, and eighteen inches, none ever appeared: and on digging them up at the end of two months, thoſe at ſixteen and eighteen inches deep were found juſt in the ſtate in which they were planted, without any appearance of vegetation on any part of them; while ſome of thoſe at the depth of twelve and fourteen inches had put forth ſome feeble germs, none of them exceeding the length of an inch. Thoſe planted at the depth of three and four inches were evidently the ſtrongeſt plants during the whole ſeaſon, and their roots largeſt. Thoſe at five inches deep were nearly equally good; but they were ten days later in appearing above the ſurface, and the ſtems never became ſo ſtrong, nor the roots ſo large, as the others not ſo deeply covered. The writer is therefore convinced, from the reſult of this, as well as other experiments on the ſame ſubject, that about three inches is the beſt depth at which potatoes can be planted; that the crop will be more or leſs early, abundant, and, in general, more or leſs injured with curl, according as the roots are placed at a greater or leſs depth than this. The reſult even of the ſame experiment, upon this point, may indeed be different in different ſorts and ſeaſons; but he has much reaſon to think that in general it will be nearly the ſame.

“ VII. Whatever injures the new planted ſets, or the germs afterwards, may produce curl: ſuch as the ſets being trampled upon and broken by the horſes' feet, in the time of planting; particular ſets being partially covered with ſtones, or impenetrable clods of earth; ſevere and deep harrowing, when the young ſhoots are advancing; and grubs, ſnails, and other inſects, deſtroying the germs at firſt, or the ſtems afterwards.

“ VIII. Some years ago, when on a journey, the writer obſerved a field with a greater proportion of curled potatoes than he had ever before ſeen, by which he was induced to inquire into the culture of the crop. The ground he found was ſtiff, and not having been ſufficiently broken before the crop was planted, the farmer had paſſed a roller over it, about a fortnight after planting: the effect of which was, that many of the plants did not appear at all, and a very uncommon proportion of thoſe that came forward were curled. This might in part be owing to the ſtate and nature of the ſoil; but, in a great meaſure, it ſeemed to depend upon the ſolidity given to it by the roller: for in the contiguous field, where the ſoil was exactly ſimilar, the plants were more vigorous, and the curl not ſo frequent.

“ IX. The ſtate of the weather, while the crop is young, has an obvious effect in rendering the curl more or leſs frequent. It does not appear that rain, in whatever quantity it may fall, has any effect, if it be not allowed to lodge, and if the ſoil is ſuch as potatoes ought to be planted in, that is, a light pervious loam, with little or no tendency to clay: But we frequently find that a long continuance of dry weather, when the ſhoots firſt come forth, particularly when accompanied with ſevere cold winds, is very apt to produce curl. In the early ſtate of the crop, too, froſt ſeldom fails to produce it, particularly hoar-froſt. This ſhould lead farmers,” the writer thinks, “to fix on that ſeaſon for planting, in which they find from experience that their diſtrict of country is leaſt liable to be injured by theſe cauſes, and chiefly by cold winds, froſt, and a long continuance of dry weather. So far as the writer has obſerved, the firſt, ſecond, or third weeks of April anſwer beſt for the ſouth of Scotland, and north of England. Potatoes planted at this period do not appear till the middle or end of May; after which, if it be not in low fields, contiguous to rivers or marſhy grounds, in which hoar-froſts are frequent, they ſeldom ſuffer from froſt; at the ſame time that dry weather does not hurt them ſo much as it commonly does, when they do not appear till the middle of June, when, the heat and evaporation being more conſiderable, any ſcarcity of rain proves more particularly hurtful to all ſuch plants as require a full ſupply of moiſture, and which certainly is the caſe with potatoes, while the plants are young, and do not cover the ground. For although good potatoes cannot be raiſed on ſoils naturally wet, every farmer may obſerve, that nothing tends with more certainty to prevent curl, and produce vigorous perfect roots, than frequent ſhowers in the early ſtate of the crop. As a proof of the influence of winds on crops of potatoes, and in the production of curl, may be mentioned what the writer of this paper has ſeveral times obſerved, that, in the diſtrict of country in which he reſides, where eaſterly winds commonly prevail during the months of April, May, and June, all ſuch fields as are ſheltered from this wind by high walls and hedges do not ſo readily produce curled potatoes as others commonly do. In two inſtances, in his own fields, it has happened, that the plants on theſe ridges immediately weſt of a ſtone-wall have been ſtrong, and entirely free of curl, while the reſt of the crop was poor, with ſeveral curled plants in every ridge, although the ſeed and culture were the ſame over the whole. The general reſult of all theſe obſervations,” the writer ſays, “is, therefore, that the curl is not a diſeaſe, but only an accidental debility of thoſe plants in which it occurs. We are not,” he thinks, "therefore, to ſeek for a cure, or preventative, in a change of ſeed alone, as many have all along done, but in complete attention to all that experience ſhews to be neceſſary for an accurate culture of the crop; from which alone there is much reaſon to think, that this very uſeful article of life may be cultivated with the ſame ſucceſs as before this dreadful enemy, the curl, made ſuch havock in our crops. By proper attention to theſe obſervations, it is probable that this troubleſome diſeaſe may in a great meaſure be removed."

It has, however, lately been contended by others, that this affection of the leaves of the potatoe plant may proceed from the attacks of inſects on the nutritive part of the ſet under ground, ſoon after it has been put in. This has been ſuggeſted as a cauſe, from the circumſtance of having found ſome of the ſtems which came from a potatoe ſet very weak, and their leaves affected with the curl, while others from the ſame ſet were ſtrong, vigorous, and free from the diſeaſe; and on the ſet being examined, its being diſcovered that the part from which the curled ſtems proceeded was wholly excavated, and the ſubſtance conſumed by inſects, while that portion from which the healthy ſtems came was perfectly free from their depredations. And in ſome caſes it is imagined that the diſeaſe may ariſe from the leaves only, being attacked by numerous minute *animalculæ*, without the ſubſtance of the ſet being hurt. The former is, however, ſuſpected to be the much more general cauſe. The ſubſtance of the ſets is found to be deſtroyed by inſects of the ſnail, centipede, and beetle kinds.

And it has ſtill more lately been ſuppoſed, by Mr. Knight, to be occaſioned by moulding the plant; and that the method of preventing it is by permitting the potatoes to remain in a moderate ſtate of heat, during the winter; and that the young ſhoots which appear in the ſpring ſhould be taken off, when two or three inches in length, from the tuber, and planted out as ſets, the plants from which will be perfectly free from the diſeaſe. From whatever cauſe this diſeaſe of the potatoe plant may, however, have its origin, there cannot be any doubt but that great benefit in preventing it may be derived, from having a nice attention to the preparation of the land on which it is to be planted, to the proper ſeaſon of planting, and to having the culture of the crop afterwards well executed, as upon theſe much in all ſituations is found to depend. See POTATOE.

CURLEW, in *Ornithology*, the Engliſh name of the *arquata* or *numenius*, or SCOLOPAX *arquata*; which ſee. See alſo SCOLOPAX *phæopus* and TANTALUS.

CURLEW *Mountains*, in *Geography*, are ſituated in the county of Sligo, Ireland, between Loughs Gara and Arrow, on the borders of the county of Roſcommon.

CURLEW, *ſtone*, in *Ornithology*, a ſpecies of the *charadrius œdicnemus* of Linnæus and Gmelin, the pluvialis major of Briſſon, the thick-kneed buſtard of Latham, and the Norfolk plover of Pennant. It is called *œdicnemus* from its thick legs, with a remarkable ſwelling below the knee. Its ſpecific character is, that it is grey, its two primary wing-quills are black, in the middle white; its bill is ſharp, and its feet are cinereous. It is a migratory bird, appears in England about the middle of April, and retires in autumn. It is remarkable for a piercing ſhrill noiſe, which it begins in the evening, repeating the cries *túrrlui*, *túrrlui*, which re-echoe from hill to hill, during the months of September, October and November, in the provinces of Picardy, Orleannois, Beaune, Champagne and Burgundy, in France; and as theſe reſemble the articulated ſounds of the curlew, it has hence been called the land-courlew, or courlis de terre. It breeds in rabbit-burrows, and alſo lays its eggs, which are two, of a copper colour, among the ſtones on the bare ground. It feeds in the night on worms and caterpillars, and it is ſaid they will catch mice. Its fleſh is eſteemed very delicate food. In habit, make, and manners, this bird approaches near to the buſtard. See OTIS.

CURLIGNANO, in *Geography*, a town of Naples, in the province of Otranto, 8 miles W. of Otranto.

CURMI, a name given by the ancients to a ſort of malt liquor or ale. It was made of barley, and was drank by the people of many nations inſtead of wine, according to Dioſcorides's account. He accuſes it of cauſing pains in the head, generating bad juices, and diſordering the nervous ſyſtem. He alſo ſays, that in the weſtern part of Iberia, and in Britain, ſuch a ſort of liquor was in his time prepared from wheat inſtead of barley.

CURMILIACA, in *Ancient Geography*, a place of Belgic Gaul, ſituated, according to the itinerary of Antonine, between Samacobriva and Cæſaromagus; correſponding to the preſent Corneille D'Anville.

CURNOCK, a meaſure of corn, containing four buſhels or half a quarter. Fleta, l. ii. c. 12.

CURNONIUM, in *Ancient Geography*, a town of Spain, placed by Ptolemy in the Tarragonenſian territory, in the country of the Vaſconi.

CUROBIS or CURABIS, now *Gurba*, a town of Africa in Zeugitania, 7 leagues from Clybea, or ancient Clypea or Clupea. This is the Curobus of Ptolemy, who places it on the ſea-coaſt near the promontory of Mercury, between the towns of Clypea and Neapolis, over againſt Sicily. It was formerly epiſcopal, and a conſiderable place; but at preſent the ruins of a large aqueduct, with the ciſtern that received the water, are the only antiquities which it affords.

CUROPALATA, or CURAPALATI, in *Antiquity*, an officer of the palace of Conſtantinople, to whom the care and ceremonies of the palace were entruſted. This officer occupied an illuſtrious rank in the age of Juſtinian, but was ſupplanted by the "Protoveſtiare," whoſe primitive functions were limited to the cuſtody of the wardrobe, from whence his juriſdiction was extended over the numerous menials of pomp and luxury; and he preſided with his ſilver wand at the public and private audience.

CUROPOLIS, a town of Aſia Minor in Caria.

CURRADI, CAV. FRANCESCO, in *Biography*, a Florentine painter, who was born in the year 1570, and ſtudied under Batiſta Naldini. The churches and palaces of Florence poſſeſs many of his works, which, as he lived to the great age of 91, differ much from each other in point of ſtyle. One of his beſt altar-pictures is that of S. Saverio in the church of S. Giovanniſio. His works upon a ſmaller ſcale are much admired. Of this kind the gallery of Florence exhibits ſtories of Mary Magdalen, and the Martyrdom of S. Tecla, executed in his beſt ſtile. Lanzi Stor. Pitt.

CURRAGH, *the*, in *Geography*, a celebrated common in the county of Kildare, Ireland, where there is a remarkably fine race courſe, and which is alſo uſed occaſionally for encampments. It conſiſts of above three thouſand acres of a ſoft and verdant turf compoſing one uninterrupted lawn, varied only by the pleaſing undulations of a few gentle hills. It was formerly covered with wood, and was ſacred to religious purpoſes. It is near the town of Kildare, and affords paſture to an immenſe number of ſheep. Beaufort. Robertſon.

CURRAGHROE MOUNTAINS are ſituated in an angle of the county of Tyrone, Ireland, adjoining Donegal.

CURRAN, a town of Hindooſtan, in the country of Allahabad; 30 miles N.W. of Allahabad.

Curran-*Lough*, a lake of the county of Kerry, Ireland, in the wild barony of Inveragh, the river iſſuing from which falls into Ballinaſkelig's bay. It is of an oval form, 3 miles in length and about half as broad, and abounds with white trouts and ſalmon. There are ſome ſmall iſlands, on one of which are the ruins of a church and other buildings. Smith's Kerry.

CURRANT, in *Botany*, See Ribes.

Currant-*Tree*, in *Gardening*, is a ſmall well known fruit tree or ſhrub, of which there are different ſpecies and varieties. See Ribes.

This uſeful fruit-ſhrub is ſaid to have been brought from the iſle of Zant, and planted in this country about the year 1533; and different ſorts have ſince been introduced from Holland. In the different ſorts of theſe kinds of fruit-buſhes, there are different colours in the fruits which they afford; thus we have red, white, and black currants, as well as various ſhades of the red, from which circumſtance, when the two firſt ſorts are uſed at the table in mixture well arranged, they produce a very pleaſing effect. From the juice of the red kind a jelly is prepared by boiling with lump ſugar, which is much employed in ſauces and other culinary purpoſes. And from the black kind a rob is frequently made, which is in high eſtimation by ſome as a ſimple remedy in caſes of ſore throat, and from the great uſe of the fruit in quinſies, the produce has ſometimes been denominated ſquinancy berries.

The produce of the red and white currant, beſides being much eſteemed as a table fruit, and for kitchen uſes, is likewiſe valuable in febrile complaints from its grateful cooling effect on the ſtomach, and quenching thirſt. It has alſo conſiderable reſtringent property; and the black ſort is highly aſtringent; from which circumſtance, and its ſtrong diſagreeable flavour, it is more rarely admitted to the table.

All the different kind of theſe trees are propagated with much facility by planting out cuttings made from the ſtrong ſtraight ſhoots, as well as by layers from the ſide branches; which, when they have become well rooted, ſhould be removed in the autumn, or early ſpring months, into nurſery rows, where they ſhould be properly managed till they have attained a proper growth for being placed out where they are to remain for fruiting. In doing this they may either be put out as ſtandards in rows, at four or five feet diſtance from each other, and ſix, eight, or ten feet apart in the rows, or be ſet out againſt walls or palings, to which they may be nailed, or trained as eſpaliers, in which latter methods they occupy leſs room, and afford finer fruit. Being trained horizontally they will require to have nearly the ſame diſtances as in the ſtandard method, in theſe modes of planting them; the beſt ſeaſon of doing which is in the early autumn. And they ſucceed the beſt in ſoils of a rich ſandy quality which has been well trenched over to the depth of two feet, and well rotted dung put in, and where the ſituation is open.

Theſe ſorts of fruit buſhes ſtand in need of a regular annual pruning, after they have arrived at the ſtate of bearing fruit. They produce their fruit on the preceding year's wood as well as on ſtuds or ſpurs. Therefore all the laſt year's lateral ſhoots ſhould be cut off ſo as to leave only an eye or two on each, being careful not to rub off or injure the ſpurs; and the young leading ſhoot of each bearing branch ſhould be ſhortened generally to about one-third of its length, but more or leſs according to the ſtrength of the bearing branches in general. From the general luxuriant growth of the ſhoots of the currant, they moſtly require conſiderable ſhortening. When the bearing branches become weak and unfruitful, they ſhould be cut out, and ſtrong young ſhoots be let come from the ſtem or roots to ſupply their places.

Thus, in the ſtandards, by permitting the buſhes to extend in height, only in a gradual manner, and keeping the bearing branches ſufficiently thin, they produce better fruit, and in greater abundance; beſides, the bearing branches become ſtrong, and are not liable to be forced down to the ground by its weight. This way of pruning has alſo the advantage of enabling the bearing branches to throw out ſpurs on every part of them, ſo that fruit is afforded on every part of the buſhes from the ſtem near the ſurface of the ground to the very extremities of the ſhoots, ſcarcely any portion being naked of a ſupply. See Ribes.

This is a ſort of fruit which, by proper management in reſpect to ſituation, may be preſerved much longer upon the plants than moſt others. In this view ſome ſhould be planted againſt pales or walls which have a ſouthern aſpect, by which the fruit may become ripe more early, as in June; and others againſt northern fences of the ſame kinds, which, by being well protected from the early autumnal froſts, and well ſecured from birds by being covered with mats, may have their fruit continued hanging upon them until the end of October or longer; which is an advantage in reſpect to its culinary as well as other uſes.

Currants, in *Commerce*, a kind of little raiſins, or dried grapes of different colours, black, white, or red; brought from ſeveral places of the Archipelago, and among others, from the iſthmus of Corinth; whence their name, *currants*, q. d. *Corinths*.

They muſt be choſen new, ſmall, and in large maſſes; and care be taken, that the little Spaniſh currants be not foiſted in their room. When made up in bales, they may keep two or three years, without ſtirring, or giving them air. Their uſe is in ſeaſoning ſeveral viands, and in ſome medicinal compoſitions; where they ſerve in lieu of raiſins. Sir George Wheeler's account of theſe fruits, and the manner of preparing them, is very curious. The iſland of Zant, he obſerves, is the chief place whence currants are brought: the Morea, or the iſthmus of Corinth, which was anciently the principal plantation, and whence the Latins denominated them *uvæ Corinthiacæ*, now produces no more, as having been much neglected; the jealouſy of the Turks not allowing large veſſels to enter the gulph to take them off their hands.

They do not grow on buſhes, like our gooſeberries, though that be the common opinion, but on vines, like other grapes; except that the leaves are ſomewhat thicker, and the grapes ſomewhat ſmaller; they have no ſtone, and, in this country, are all red, or rather black.

They gather them in Auguſt, diſpoſe them in couches on the ground till they be dry, clean them, and lay them up in magazines, which the natives call *ſeraglios*; pouring them in at a hole, till the magazine be full. They cling ſo faſt together by their own weight, that they are forced to be dug out with iron inſtruments.

To barrel them for ſending abroad they have people who greaſe their feet and legs, and tread them cloſe, that they may keep the better. They are ſold for about twelve crowns the thouſand weight; and pay as much cuſtom to the ſtate of Venice.

Zant produces enough yearly to load five or ſix veſſels; Cephalonia three or four; and the other iſlands one. The Engliſh have a factory at Zant; the Dutch two or three merchants, and the French one: the Engliſh conſuming more than ſix times the quantity that both France and Holland do together. Thoſe of Zant know but little of the uſe we make of them; being perſuaded they only ſerve in dyeing of cloth; and being entirely ignorant of the luxury of Chriſtmas pyes, and Engliſh puddings.

CURRANT, COURANT or CURRENT *money*, good money, or that which paſſes in commerce from one to another. See COURANT.

CURRANT *accompts*. See BOOK, COIN, and PRICE.

CURRANT, *Curranto*, alſo denotes a ſort of running French dance; ſometimes, a muſical air in triple time. See COURANT.

CURRE, an Engliſh name for the fiſh called by authors *cuculus*, and by us more frequently named the red gurnard. See TRIGLA *Cuculus*.

CURRENCY, in *Commerce*, denotes the coin or paper uſed in any country as a circulating medium for the purpoſes of commercial intercourſe. See CIRCULATION and PAPER-*Money*.

CURRENT, *Subſtantive*, (from the Latin *currens*, running) denotes the progreſſive movement of any thing; but it is chiefly applied to the progreſſive movement of fluids, eſpecially of air, of electricity, and of water.

Currents of Air.—The various movements of the air have obtained a variety of ſpecific names under the generic appellation of winds, and thoſe names are principally derived from the velocity, direction, and duration of the movements. Hence we have the names breezes, gales, trade winds, monſoons, &c. A peculiar movement of the air is likewiſe the principal propagator of ſound; though not the only one; for ſound is alſo propagated through ſolids. But the difference between wind and ſound is, that the former conſiſts in a progreſſive motion of the air from one place to another; whereas ſound is propagated and conveyed from the ſonorous body to the ear, by means of a vibratory motion of the air, the particles of which, in that caſe, move a very little way backwards or forwards, from their ſituations, and at the end of every other vibration, are to be found preciſely at their original places. See the article SOUND.

The winds generally owe their origin to the rarefaction or condenſation of the atmoſpherical fluid; and, in the ſtrict ſenſe of the word, they actually are currents of air; yet the laſt denomination has been peculiarly applied to a conſtant and general movement from eaſt to weſt, which the air of our atmoſphere has been obſerved to have; but the nature of this current, as well as the probability of other aerial currents, being intimately connected with the common winds, the whole will be examined under the article WIND.

Currents in Electricity. The extenſive and wonderful phenomena of electricity exhibit two powers diametrically oppoſite to each other; and it ſeems, that if it were not for the mutual oppoſition of thoſe two powers, hardly any electrical effect would take place. By friction and other means ſeveral bodies are electrified, or have an electric power excited in them, which power is conveyed from the excited body to another, through certain ſubſtances, which are therefore called *conductors*; but it is not conducted by other ſubſtances, which, therefore, are called *non-conductors* of electricity. When glaſs is thus excited by friction with the human hand, and a pointed metallic wire is preſented to it in a dark room, a ſmall luminous ſpark, nearly globular, will appear on that point. When a ſtick of ſealing-wax, or of roſin is excited by the like means, and the pointed wire is preſented to it, a pretty long luminous bruſh, nearly of a conical form, will be ſeen with its apex touching the point of the wire. Theſe appearances are the diſtinctive characteriſtics of the two electric powers, one of which has thereby been called the *vitreous*, and the other the *reſinous* electricity. Another very remarkable diſtinction is, that if two or more bodies are poſſeſſed of the ſame kind of electricity, *viz.* either of the vitreous or of the reſinous, and are freely ſuſpended by means of flexible nonconductors within a certain diſtance of each other, they will manifeſt a conſiderable degree of repulſion; but if one or more bodies be electrified with the vitreous, and an equal number of ſimilar bodies be equally electrified with the reſinous electricity, and all theſe bodies thus differently electrified be brought within a certain diſtance of each other, a powerful attraction will be obſerved between the ſame, which brings them into contact, and as ſoon as they touch, every appearance of electricity will vaniſh. It is farther to be obſerved, that theſe two oppoſite electrical powers always appear together, or the one cannot exiſt without the other; for inſtance, if a body be electrified with the vitreous electricity, then the other bodies, or the air which is contiguous to it, will of courſe acquire the reſinous power, and *vice verſa.* If one of theſe powers be communicated to one ſide of a plate of glaſs, the other ſide will naturally acquire the other power. Upon an attentive conſideration of theſe phenomena, and of others of a ſimilar nature, two principal theories have been formed, beſides ſeveral others, which, being evidently defective or abſurd, are at preſent entirely diſregarded. One of theſe theories ſuppoſes that there are two diſtinct electric fluids; *viz.* the vitreous and the reſinous. Each of theſe fluids is attractive of the other, but itſelf elaſtic, that is, its own particles repel each other, hence bodies poſſeſſed of different electricities attract each other. The other theory, which goes under the name of the Franklinian theory, ſuppoſes that there is only one electric fluid whoſe particles repel each other, but they attract every other kind of matter; in conſequence of which this fluid is diſperſed throughout the univerſe, and every body poſſeſſes a certain quantity of it. According to this hypotheſis, when a body is excited, either an additional quantity of electric fluid is accumulated upon it, which muſt have been taken away from other bodies, or a portion of its natural quantity has been abſtracted from it. In conſequence of this ſuppoſition the two electric powers have been called the *poſitive* and the *negative* electricities; the poſitive anſwering to the vitreous, and the negative to the reſinous powers. Now both theſe theories have been ſo well adapted to the phenomena as that either of them is ſufficient to account for the phenomena of electricity, excepting, however, thoſe of one kind; namely, of thoſe experiments which manifeſt an evident current from the poſitive or vitreous, to the negative or reſinous power; for theſe reſults can only be explained upon the Franklinian hypotheſis of a ſingle electric fluid. Therefore, in the preſent article it is incumbent upon us to point out the nature of electrical currents, briefly deſcribing the principal of thoſe experiments which ſhew the direction of theſe currents in a clear and decided manner; and it is for the purpoſe of elucidating the nature or the dependance of theſe currents, that the above ſhort ſtatement of the leading phenomena of electricity has been premiſed.

Two ſorts of electrical currents muſt be remarked. One ſort conſiſts of thoſe which move in the ſame direction, whethey be cauſed by the vitreous or by the reſinous electricity. The currents of the other ſort are thoſe which always proceed from the vitreous or poſitive, and run towards the reſinous or negative power.

If a pointed metallic body proceeds from an electrified prime conductor of an electrical machine, and the face or the hand be preſented to it at the diſtance of a few inches, a ſlight but perceptible wind will be found to proceed from the point; and this is the caſe whether the prime conductor be electrified poſitively or negatively. The cauſe of this reſult is, that bodies poſſeſſed of the ſame kind of electricity, repel each other; for as ſoon as each particle of air, contiguous to the pointed body, has received ſome electricity from the point, it is immediately repelled by it, and other particles ſucceed, which are electrified in their turn, and are immediately repelled; hence a continual current or wind proceeds from the point. This effect may be rendered ſtill more evident by preſenting the flame of a candle to the point, for this will be always blown from it. The ſame effect takes place when the electrical fly (*viz.* a little apparatus of metallic wires, ſee *Electrical* Fly) is uſed; *viz.* the fly will always turn the ſame way, whether it be electrified with the vitreous or with the reſinous electricity; for the wind which proceeds from each point of the fly, produces a counterpreſſure which impels the fly the contrary way.

If the wire at the end of the prime conductor be furniſhed with a braſs ball of about three quarters of an inch in diameter, and whilſt the machine is in action, the flame of a candle be preſented to it, this will be blown from the ball when the prime conductor is electrified with the vitreous or poſitive electricity, and towards the ball when the prime conductor is electrified with the reſinous or negative power. The reſult of this experiment is evidently in favour of the Franklinian theory of a ſingle electric fluid. It may, however, be aſked why the flame of the candle is blown towards the wire when the ball is upon it in the latter caſe, and from it when it terminates in a point? The anſwer is, that the electricity which proceeds from the point, being incomparably more copious than that which proceeds from the ball, electrifies the air contiguous to it, and produces a current of it which counteracts the direction in which the mere afflux of electric power would impel the flame. In the performance of this experiment care muſt be had not to uſe a ball too large or too ſmall; the action of the machine muſt, likewiſe, be regulated in a manner ſuitable to the ſize of the ball. But with reſpect to theſe particulars, experience alone can inſtruct the operator.

Place a lighted piece of wax-candle between the knobs at the ends of the wires of the univerſal diſcharger, (ſee *Univerſal* Discharger) ſo that the flame may ſtand midway at the diſtance of about one inch from each knob. Then connect one of thoſe wires with the outſide coating of a charged electrical jar, and touch the other wire with the knob which communicates with the inſide-coating of the jar; and thus on making the diſcharge which muſt paſs from one wire to the other, through the flame of the candle, it will be found that the flame is always driven in the direction of the electric fluid, that is, it will be blown upon the knob of that wire which communicates with the negative ſide of the jar. For this experiment the jar muſt contain an exceedingly ſmall charge, *viz.* juſt ſufficient to paſs through the interval in the circuit, which experience will readily determine; otherwiſe the experiment will not ſucceed. If it be aſked why this experiment does not ſucceed with a great charge as well as with a very ſmall one? The anſwer is, that when the jar is highly charged, and is brought near one of the wires of the univerſal diſcharger, it creates an atmoſphere about the knob of that wire which diſturbs the flame of the candle, before the diſcharge actually takes place. Beſides, the electric fluid in a great exploſion, being actuated by its great elaſticity, which is proportionate to its condenſation, paſſes through the flame of the candle too ſwiftly to communicate any diſtinct motion to it, in the ſame manner as when a bullet is diſcharged from a gun againſt an open door, which makes a hole through the door without ſhutting it.

Bend a card in the form of a half cylinder, *viz.* ſo as to form a ſemi-circular groove. Lay it upon the circular board of the univerſal diſcharger, and place a pith-ball of about half an inch in diameter in the middle of it. Let the two braſs knobs on the wires of the univerſal diſcharger be diſpoſed ſo as to ſtand on each ſide of the pith-ball at the diſtance of about three quarters of an inch from it. The card muſt be perfectly dry and rather hot. Now, if you connect one of thoſe wires with the outſide of a charged jar, and touch the other wire with the knob of the jar, the charge will be ſent from one wire to the other, along the channel in which the pith-ball is ſituated, and this will be found to be driven from the poſitive to the negative ſide. In this experiment, alſo, the charge of the jar muſt be very low, the card muſt be very clean and dry, alſo the diſtance of the braſs knobs from the pith-balls muſt be nicely adjuſted, otherwiſe the experiment is apt to fail.

Let a card be laid upon the circular board or tablet of the univerſal diſcharger, and place the pointed wires of the ſame ſo that one point may touch the upper, and the other may touch the lower ſurface of the card. Let the interval between theſe extremities of the two wires be about one inch; then ſend the charge of a pretty powerful jar through thoſe wires, in the ſame manner as directed in the preceding experiment, and it will appear from the luminous track, that the electric fluid runs over that ſurface of the card which touches the wire that communicates with the poſitive ſide of the jar, and in order to paſs to the extremity of the other wire, it breaks a hole through the card juſt over the extremity of that other wire, which is connected with the negative ſide of the jar.

The laſt experiment which we ſhall mention muſt be performed with an electrical battery, or at leaſt, with three or four large jars connected together. When the charge of ſuch a battery is ſent through a ſlender wire of any metallic ſubſtance, and of a conſiderable length; *viz.* of a foot or upwards, the diſcharge generally melts and diſperſes either part of the wire, or the whole of it; but if the charge of the ſaid battery be diminiſhed, ſo that the diſcharge be juſt able to render the wire red-hot, without actually melting it, then it will be found that the redneſs appears firſt at one end of the ſlender wire; *viz.* that which communicates with the poſitive ſide of the battery, and thence proceeds ſucceſſively to the other end of the wire. This reſult is an ocular demonſtration of the theory of a ſingle electric fluid. Indeed the wire is not rendered red-hot at one end before the other, in conſequence of the electric fluid paſſing firſt through the former, and then through the latter; that difference of time being by far too ſmall to be obſerved; but, becauſe the electric fluid loſes part of its impetus or velocity, in going through the wire; ſo that the extremity of the wire which the electric fluid enters at, ſuffers the greateſt effect of the ſhock, and, of courſe, becomes red-hot ſooner, in a greater degree than the reſt.

Currents, in *Hydrography.* Two movements of different kinds have been obſerved, by which the waters of the ſea are impelled in ſome horizontal direction from one ſpot towards another; namely, *tides* and *currents.* The motion of the waves when the wind prevails, ſeems to urge the water in the direction of the wind; but in truth they do not; they only raiſe and depreſs the water of the ſame ſpot alternately. (See Wave.) The action of the wind, however, undoubtedly urges the waters in its direction; but that movement is ſo very ſlow, as hardly to be perceived, even in a pretty hard gale; for inſtance, if a man on ſhore fixes his ſight on a piece of wood floating at the diſtance of about a mile, he will find that the piece of wood riſes and falls alternately, according as the waves do; but its motion from that ſpot will perhaps not exceed a quarter of a mile in an hour; and ſuch is nearly the motion of the waters which ſurround the floating piece of wood.

The difference between tides, and currents properly ſo called, is, that the former follow, with alternate riſing and falling, the daily motion of the moon, and, likewiſe, in ſome meaſure of the ſun; whereas the currents continue in one direction much longer. As both the tides and the currents are matters of the utmoſt conſequence in navigation, no pains have been ſpared to examine, and to inveſtigate the cauſes of all the various phenomena which attend them; ſuch as, their periods, their velocities, their directions, the places in which they prevail, and ſo forth. The obſervations of navigators, the experiments and the calculations of philoſophers, on this intereſting ſubject, are very numerous; and, though they have not as yet been able to form a general theory ſufficient to account for all the phenomena; yet it muſt be acknowledged, that they have furniſhed the preſent generation with much uſeful information, which is daily deriving additional lights from the aſſiduity of numerous able and induſtrious obſervers.

The tides, which are rendered more apparent on the coaſt, by their flowing and ebbing, depend principally on the attraction of the moon, but in ſome meaſure alſo upon the attraction of the ſun; for when thoſe two celeſtial bodies happen to be in the ſame direction, the tides are ſenſibly greater than when the moon alone acts upon the waters of the ſea, which is the caſe when the ſun is at ſome apparent diſtance from it. "Every day, about the time of the moon's paſſing over the meridian, or a certain number of hours later, the ſea becomes elevated above its mean height, and at this time it is ſaid to be high water. The elevation ſubſides by degrees, and in about ſix hours it is low water, the ſea having attained its greateſt depreſſion; after this it riſes again when the moon paſſes the meridian below the horizon, ſo that the ebb and flood occur twice a day, but become daily later and later by about $50\frac{1}{2}$ minutes, which is the exceſs of a lunar day above a ſolar one; ſince $28\frac{1}{2}$ lunar days are nearly equal to $29\frac{1}{2}$ ſolar ones." Thus much concerning the tides has been thought neceſſary to be inſerted in this place, for the purpoſe of making a proper diſcrimination between them and the currents; but the full account of the numerous and intereſting particulars relative to the former, will be found under the article TIDE.

CURRENTS *at Sea*, are progreſſive movements of the waters, which carry veſſels, or any thing floating upon them, in their directions, and preciſely with their own velocity, when no wind prevails; or, if any wind acts upon the veſſel, the current will increaſe or check its rate of going, according as the wind happens to blow with, or contrary to its direction. Hence, in reckoning the ſhip's run, due allowance muſt be made for the action of currents.

The currents do not, like the tides, change their directions after the lapſe of a few hours; yet ſome of them run one way during a few days; others continue a few months in one direction, and then alter their courſe, or vaniſh altogether, whilſt others run continually the ſame way. The extent of currents, their breadths, their depths, and their velocities, are alſo various, and often fluctuating. Some, for inſtance, run along immenſe tracts, and ſpread a vaſt way, whilſt others are obſerved cloſe to ſome particular coaſt or ſtrait, and not farther. Some reach very deep, and others are very ſuperficial. The velocities of ſome currents are remarkably great; but in general when the periodical currents are near the period of their termination, they generally ſlacken their pace.

Currents are either *general*, *particular*, or *variable*.

General currents are thoſe which are always directed towards the ſame point of the compaſs.

Particular currents ſhift from one direction to its oppoſite in the courſe of about ſix months.

And variable currents are thoſe which have no ſtated period, and are generally affected by the wind; one twenty-ninth part of the velocity of the wind being equal to that of the current.

There are alſo upper and under currents; that is, the waters at the ſurface move in a contrary or oblique direction to thoſe at the bottom. And there are currents at the ſurface, at no great diſtance from each other, which move in oppoſite directions.

The principal current of the aqueous part of our globe is obſerved in its broader and more expoſed ſurface. Its general direction is from the eaſt towards the weſt; *viz.* contrary to the motion of the earth in its diurnal revolution. This current comes from the Pacific and Indian oceans, round the Cape of Good Hope, along the coaſt of Africa; thence it paſſes over to America, where it divides itſelf into two branches, one of which is reflected ſouthward, toward the coaſts of the Brazils, and the other northward, into the gulf-ſtream (ſee GULF-*ſtream*), which proceeds round the Mexican gulf, advances north-eaſtward in the vicinity of Newfoundland, after which it probably returns eaſtward and ſouth-eaſtward, croſſing the Atlantic once more. "The atmoſphere alſo ſeems affected by a general current from eaſt to weſt, like that of the ſea; and there is reaſon, from aſtronomical obſervations, to ſuppoſe that a ſimilar circumſtance happens in the atmoſphere of Jupiter, on account of the actions of his ſatellites, which muſt be conſiderably more powerful than that of the moon."

"Theſe currents," Dr. Th. Young obſerves, "as well as the general current of the ſea, have been attributed, by ſome aſtronomers, to the immediate attractions of the ſun and moon, and of the ſatellites of Jupiter, which they have ſuppoſed to act in the ſame manner as the attraction of the ſun operates in retarding the lunar motions. But the fact is, that according to Mr. Laplace, the diſturbing force of the ſun produces this effect on the moon only in proportion as it increaſes her diſtance from the earth; conſequently, no ſuch retardation can poſſibly be produced by the force of gravitation in the rotation of the ſea, or of the atmoſphere, and the whole effect muſt be attributed to the operation of meteorological cauſes, producing firſt the trade winds, and ſecondly occaſioning, by means of the friction of thoſe winds, a ſimilar motion in the ſea."

Another remarkable conſtant current is that which runs from the Atlantic into the Mediterranean, through the ſtraits of Gibraltar; a channel of about ſeven leagues. The velocity of this current is in ſome meaſure influenced by the ſtate of the winds, according as they may either conſpire with, or blow againſt it. However, its ordinary velocity, at the narroweſt part, is about two miles an hour; but this velocity ſlackens as ſoon as the channel becomes wider, and ſoon after diſappears. It is ſaid that at the ſides, and eſpecially on the ſouth ſide of the Straits, there is a current outwards. (Phil. Tranſ. vol. xxxiii.) It has likewiſe been aſſerted that the currents run in contrary directions on the oppoſite coaſts. (Phil. Tranſ. for 1762.) And Mr. Robiſon ſays that the current ſometimes runs outwards in the middle of the Straits. It appears, however, from the conſtant obſervations of mariners, that if any ſuch outward currents do really exiſt, the breadth of that which runs into the Mediterranean is incomparably larger than the former. Now the queſtion is, what becomes of that immenſe quantity of water which thus continually runs into the Mediterranean, which ſea has no other viſible communication with the ocean? A variety of conjectures have been offered in explanation of this remarkable phenomenon; and though ſome of theſe conjectures are attended with an appearance of probability, yet we are by no means poſſeſſed of a clear and ſatisfactory theory concerning it. We ſhall briefly ſtate the principal hypotheſes reſpecting this queſtion, together with the reaſons by which they ſeem to be ſupported or invalidated. But previouſly to this, it will be neceſſary to mention certain facts of importance in the preſent caſe. The ſtraits of Gibraltar are unfathomable; hence the depth of the water muſt at leaſt exceed one mile. The ſurface of the Mediterranean ſeems to have remained at the ſame level during at leaſt a century or two; nor are the low lands on the coaſt of Africa, or elſewhere, ever overflowed. But between the preſent time and a remote antiquity, *viz.* a period of about 2000 years, the riſing of the water a few feet has been deduced from the following documents. The floor of the cathedral of Ravenna is at preſent ſeveral feet lower with reſpect to the ſea, than it is ſuppoſed to have been formerly. Some ſteps have been found in the rock of the iſland of Malta, apparently intended for aſcending it, which at preſent remain under water. In the bay of Naples, and on that part of the coaſt which is neareſt to the famous grotto of Poſilipo, veſtiges of ſeveral ancient houſes are at preſent viſible under water, which formerly muſt undoubtedly have been out of it. The like thing is alſo to be obſerved on ſeveral other parts of the coaſt. Yet a conſiderable degree of uncertainty is thrown upon the evidence of theſe documents, by other obſervations. Thus in the bay of Puzzuoli, near the city of Naples, the ancient piers of maſſive ſtone which have reſiſted the efforts of about 2000 years (whether they belonged to the bridge of Caligula, as tradition ſays, or to a mole which was intended for the protection of the Roman galleys) ſeem at preſent to remain at ſuch an height above the ſurface of the water, as might have anſwered either of thoſe purpoſes. Since the riſing of the level of the water in the Mediterranean has not been perceived within this century or two, and conſidering all the above-mentioned facts, it will be difficult to determine whether the level of the ſea has riſen a few feet in the courſe of eighteen or twenty centuries; or the ground has ſubſided in ſome parts of the coaſt in conſequence of earthquakes, and other cauſes. It is laſtly to be obſerved, that the ſpecific gravity of the Mediterranean waters is a little greater than that of the Atlantic water, indicating the preſence of a little more ſalt in the former than in the latter, which may be naturally expected, conſidering that the waters of the Mediterranean are ſurrounded by a proportionably greater extent of coaſt than thoſe of the Atlantic.

One of the conjectures concerning the diſpoſition of the water, which is continually brought into the Mediterranean by the current of the Straits, is, that there is an aperture, or paſſage, at a conſiderable diſtance below the ſurface of the ground, which joins the Mediterranean with the Red Sea; ſo that the water, which enters the Mediterranean through the Straits, runs out of it through the above-mentioned paſſage. This conjecture, however, being not eſtabliſhed upon any actual facts, is not likely to prove very ſatisfactory. Another conjecture is, that the influx of water is carried away by evaporation, conſidering the ſolar heat to which the Mediterranean is expoſed; and ſo Dr. Halley is inclined to think. It has been calculated, that in one ſummer's day about 5280 millions of tuns of water are, in all probability, evaporated from the ſurface of the Mediterranean. It has alſo been calculated, (admitting the great uncertainty to which ſuch calculations are liable,) that all the rivers, or at leaſt the nine principal ones, which diſcharge their water into the Mediterranean, do not furniſh more than 1827 millions of tuns of water a day. (Phil. Tranſ. N°212.) The deficiency then is ſuppoſed to be ſupplied by the rain. and by the current from the Atlantic. But, ſince the vapour of ſea-water does not take up any ſaline partenes, it follows that the Mediterranean ſea, after ſo many centuries of evaporation, which leaves the ſaline particles behind, and of influx by the current, which introduces ſalt and water, would by this time have almoſt been converted into a ſolid rock of ſalt; which is by no means the caſe. The laſt hypotheſis we ſhall mention, and which, upon the whole, ſeems to be the moſt probable, is, that at the Straits of Gibraltar there are two currents in different directions, one above the other; *viz.* that a current runs into the Mediterranean at the ſurface, and to a certain depth, whilſt another current runs out of it near the bottom; which, conſidering that the evaporation continually tends to increaſe the ſpecific gravity of the Mediterranean waters, may take place in conſequence of that circumſtance; "for the ſame reaſon," Dr. Thomas Young obſerves, "as the air, when it is denſer in a paſſage than in the adjoining room, blows a candle towards the room at the lower part of the door, and draws it towards the paſſage at the upper."

The probability of the exiſtence of two oppoſite currents, one above the other, in the Straits, is corroborated, firſt, by this hypotheſis anſwering to the phenomena better than any other ſuppoſition; and, ſecondly, by the obſervation, that oppoſite currents, one below the other, have been actually found to exiſt in other parts of the ſea. Thus, in ſupport of the above-mentioned lower current, Dr. Smith, in the 14th volume of the Philoſophical Tranſactions, relates an experiment made in the Baltic Sound, which was communicated to him by an able ſeaman, who was preſent at the making of it. Being at that place with one of the king's frigates, they went with their pinnace into the midſtream, where they were carried away violently by the current. Whilſt thus running with the current, they ſunk a baſket with a large cannon-ball to a certain depth of water, by which means the boat's motion was checked; but by ſinking the baſket ſtill lower and lower, the motion of the boat was checked more and more, until at laſt it was driven a-head to the windward, againſt the upper current, which ſeemed to reach not lower than about four or five fathoms. He added, that the lower the baſket was ſunk, the ſtronger the under-current ſeemed to be. Dr. Smith derives another argument in favour of an under-current at the Straits, from the offing between the north and ſouth Foreland, where it runs tide and half tide; *viz.* it is either ebb or flood in that part of the Downs three hours before it is ſo off at ſea: a certain ſign that, though the tide of flood runs above, the tide of ebb muſt run below, *viz.* cloſe to the ground; and ſo at the tide of ebb it will flow cloſe to the ground.

A remarkable current exiſts in the Atlantic, about the coaſt of Guinea, which runs from the weſt towards the eaſt, in a direction contrary to the general motion of the ſea, from Cape Verd towards the curvature or bay of Africa. This current, which is known by the name of "Fernando Poo," is ſaid to be ſo ſtrong as to impel veſſels powerfully towards the bay, when they happen to come too near the coaſt. Its ſtrength is ſuch that a veſſel may, in two days, go from Maura to Rio de Beuin, diſtant 150 leagues; and the time required to return is often about ſix weeks. From Cape Spartelle to Sallée a current ſets nearly according to the trend of the coaſt; and from thence it inclines towards the weſt.

Of the currents, which may be properly called partial and ſhifting, a vaſt number have been obſerved, and new ones are met with in different parts of the world, by attentive navigators. They are generally occaſioned by the monſoons and other winds, or by the peculiar configurations of promontories, ſtraits, coaſts, gulfs, &c.: for the water, which, by the continuance of the wind in a certain quarter, is driven againſt bays, gulfs, ſtraits, and the like, muſt run off ſome way or other, and muſt thus produce a current or two, which laſt no longer than the cauſe continues to act.

“ At Java, in the ſtraits of Sunda, when the monſoons blow from the weſt, *viz.* in the month of May, the currents ſet to the eaſtward, contrary to the general motion.

“ Alſo, between the iſland of Celebes and Madura, when the weſtern monſoons ſet in, *viz.* in December, January, and February, or when the winds blow from the north-weſt, or between the north and weſt, the currents ſet to the ſouth-eaſt, or between the ſouth and eaſt.

“ At Ceylon, from the middle of March to October, the currents ſet to the ſouthward, and in the other parts of the year to the northward; becauſe at this time the ſouthern monſoons blow, and at the other the northern.

“ Between Cochinchina and Malacca, when the weſtern monſoons blow, *viz.* from April to Auguſt, the currents ſet eaſtward, againſt the general motion; but the reſt of the year ſet weſtward: the monſoon conſpiring with the general motion. They run ſo ſtrongly in theſe ſeas, that unexperienced ſailors miſtake them for waves that beat upon the rocks, known by the name of *breakers*.

“ So, for ſome months after the 15th of February, the currents ſet from the Maldives towards India on the eaſt, againſt the general motion of the ſea.

“ On the ſhore of China and Cambodia, in the months of October, November, and December, the currents ſet to the north-weſt, and from January to the ſouth-weſt, when they run with ſuch a rapidity of motion about the ſhoals of Parcel, that it ſeems ſwifter than that of an arrow.

“ At Pulo Condore, upon the coaſt of Cambodia, though the monſoons are ſhifting, yet the currents ſet ſtrongly towards the eaſt, even when they blow to a contrary point.

“ Along the coaſts of the bay of Bengal, as far as the cape Romania, at the extreme point of Malacca, the current runs ſouthward in November and December.

“ When the monſoons blow from China to Malacca, the ſea runs ſwiftly from Pulo Cambi to Pulo Condore, on the coaſt of Cambodia.

“ In the bay of Sans Bras, not far from the Cape of Good Hope, there is a current particularly remarkable, where the ſea runs from eaſt to weſt to the landward; and this more vehemently as it becomes oppoſed by the winds from a contrary direction. The cauſe is undoubtedly owing to ſome adjacent ſhore, which is higher than this.” Varenius.

It is ſaid that a current runs towards the eaſt in St. George's Channel, in conſequence of which ſome ſhips have been driven by it ſo far from their intended courſe, as to enter the Engliſh, inſtead of the Briſtol, Channel. (Phil. Tranſ. vol. xxii.) There is reaſon, however, to ſuppoſe, that this miſtake aroſe from their not accurately knowing the variation of the magnetic needle in thoſe parts.

A current is ſaid to prevail on the weſtern coaſt of Scilly, which is ſuppoſed to come out of the Bay of Biſcay, towards the N.W. by W., in conſequence of the weſterly winds of the Atlantic.

Near Sumatra there are ſome rapid currents, which run from ſouth to north, and which, according to Buffon, have probably formed the gulf which is between Malay and India. Between the eaſtern coaſt of Africa and the iſland of Madagaſcar, particularly between Terra de Natal and the Cape of Good Hope, upon the African coaſt, there are very conſiderable currents. In the Pacific ocean, on the coaſt of Peru, and other parts of the American coaſt, the current ſets from ſouth to north: a direction which appears to be occaſioned by a wind which conſtantly blows from the ſouth. This is alſo the caſe with the current upon the coaſt of Brazil, from Cape St. Auguſtine, as far as the Antilles.

In the ſea bordering on the Maldive iſlands, and between them, there are very ſtrong currents, which run conſtantly during ſix months from eaſt to weſt. They follow the courſe of the winds, and are probably produced by them. See Buffon's Nat. Hiſt.

Between Jamaica and Cuba the currents run towards the W.; and at Cape de Croix, towards the N.W.; but on the Caimanes, towards the N. and N.E., to fall in with the ſmall channels of the Jardines; and by the Iſle of Pines, they ſet to the S.W., till they come to Cape de Corrientes; and from thence to the W.N.W. and N.W., and by the coaſt of Apalachy, they return to the E. and E.S.E. and S.E., at the edge of the Soundings, near Tortugas; and from thence run towards the E. to fall into the channels of Bahama, according to their ſituation.

The ſtrongeſt currents of the waters are in the gulf of Florida, where they run to the N., until they come out at the cape of Canaveral; and from thence they ſet towards the N.E., loſing much of their force and ſtrength near Bermudas.

By the north ſide of Cuba the current ſets from Cape Mayſi, towards the N.W., and through the old ſtraits of Bahama, to the W.N.W. with a ſmall ſtream; but coming to the point of Hicacos, it runs to the N. and N.E. to fall in with the other channels; and from the port of Cavannas it runs to the E. and E.N.E., ſometimes violently into the ſaid channels; but from Cavannas, towards the weſt part of the coaſt, the current alters its courſe, and runs to the S.W. to fall in with the little channels of St. Iſabel or Coloradoes. With the north and land winds the current ſets into the aforeſaid gulf, and along the coaſts of Havannah and Florida, in the ſame manner as with the trade-winds. Upon the coaſts of Caraccas, Venezuela, Maracaïbo, and St. Martha, the currents ſet with the trade-winds, towards the W. and W.N.W. With the land winds the currents are in general ſtrong, eſpecially on the coaſt of St. Martha; but during the time of the north wind, the currents become weak. In the channel between Cape St. Nicholas, in the iſland of Hiſpaniola, and Cape Mayſi, in the iſland of Cuba, the current ſets towards the N.W. and W.N.W.; and thoſe currents that fall in with the ſouth coaſt of the above-mentioned cape run along it, towards the weſt, by the coaſt of Cuba; and thoſe that take their courſe by Cape St. Nicholas, on the land ſide, run towards the eaſt, and fall in between the coaſt and the iſland Tortugas. From thence they ſteer a courſe between the N. and N.W., in order to fall into the channels formed by the iſlands and ſhoals to the northward of the iſlands of Cuba and Hiſpaniola, &c. In the bay of Piliguao, the current runs in eddies with a ſlow motion; and along the north and ſouth coaſts of Hiſpaniola, the current ſets with the trade-winds towards the weſt; and on the north coaſt, its direction is towards the north-weſt. On the eaſtern ſide of the above-mentioned iſlands, the currents run in very contrary directions, particularly in the bay of Samana; on the Virgin iſlands, and Porto Rico, the current ſets towards the weſt with the trade-winds; and along Puſaie, runs towards the N.W.; and in the weſternmoſt part of the iſland of Porto Rico, the currents are changeable, inclining more towards the W.N.W. as they run to the bay of Samana.

Captain Vancouver obſerves, that from the iſland of St. Antonio, one of the Cape Verd iſlands, till croſſing the latitude of St. Auguſtine, (perhaps the cape ſo called on the coaſt of Brazil, in lat. 8° 48′ S.) were material currents; and from 6 degrees of N. latitude to the equator, ſtrong riplings. But they were irregular in direction, and not uniform, as Mr. Nicholſon ſtates in his Indian Directory of 1787. Our current was not northward, as he ſtates, but ſouthward, or ſouth-eaſt. Mr. Vancouver alſo diſapproves his notion of finding longitude by the variation of the compaſs: for theſe obſervations, though made with the greateſt care, ſays he, differ from one to three, or even four degrees from each other.

Other authorities ſtate, that in the long. 26° 16′ W. upon the line, a current has been found to ſet N. by E. half a knot an hour, and to continue nearly ſo for a month's ſail or more to the northward. It afterwards begins to ſet to the ſouthward of weſt. But in the long. of 9° 25′ W., ſcarce a degree N. of the line, a current has been found ſetting N.E. eight knots in 24 hours, making an error in reckoning from St. Jago of 3° more to the eaſt than by account. After croſſing the line, the S.E. trade-wind ſeems to ſet the current weſtward, as a ſhip will then outſtrip her reckoning. Perhaps theſe currents have been leſs attended to, becauſe, in this track, they commonly balance each other to the Cape of Good Hope.

M. de la Perouſe remarked, after leaving Eaſter iſland, in April, 1786, that a current ſet toward the Sandwich iſlands, at firſt about 3 leagues in 24 hours, making a degree to S.W. It then changed to eaſt at the ſame rate, till in 7° N.; after that to the weſtward. Hence the longitude by account was 5° too far eaſt, on arriving at thoſe iſlands; and hence the Los Majos, La Maſa, La Diogra, Ciada, &c. of the Spaniſh charts, probably no other than the Sandwich iſlands, have from theſe currents been laid down too far eaſterly. He found alſo on the North American coaſt uncommonly ſtrong currents, about the latitudes of 46 and 47 degrees.

The following notices of currents were alſo made in the courſe of captain Vancouver's voyage. He found that in paſſing through the Atlantic ocean, in going towards the equator a current ſet 6 miles to E.N.E. in 24 hours, when he was arrived in lat. 42° 34′ N. and long. 12° 31′ W. After paſſing the iſland of St. Antonio, the currents became extremely variable and uncertain. After paſſing the ſouthern tropic, he found, on arriving at the parallel of 38° 20′ of S. lat. and in long. 43° 43′ E., that a current had ſet the ſhips 26 miles to the north of their reckoning. When he was on the coaſt of New Holland, near King George's Sound, in lat. 35° 5′ S. and long. 118° 17′ E. he concluded that the current ſet eaſtward. When he had entered the North Pacific ocean, and had reached the north-weſt American coaſt, he obſerved that a current ſet northward half a league in an hour, (perhaps a miſtake in printing, or tranſcribing, for half a mile,) which ſet the ſhip 10 or 12 miles daily to the north of her reckoning. On returning ſouthward, he noted alſo that a current ſet weſtward, when he was in latitude 9° 27′ N. and long. 96° 24′ W.

Captain Cook obſerves as follows: "From the time of our leaving that iſland (Teneriffe) till the 15th Auguſt, being then in lat. 12° N. and long. 24° W., the ſhip was carried 1° 20′ of longitude to the weſtward of her reckoning. At this ſtation the currents took a contrary direction, and ſet to E.S.E. at the rate of 12 or 14 miles a day, or 24 hours, till we arrived in the latitude of 5° N. and longitude of 20° W., which was our moſt eaſterly ſituation after leaving the Cape Verd iſlands, till we got to the ſouthward. For in this ſituation the wind came ſoutherly, and we tacked, and ſtretched to the weſtward, and for two or three days could not find that our reckoning was affected by any current; ſo that, I judged, we were between the current that generally, if not conſtantly, ſets to the eaſt upon the coaſt of Guinea, and that which ſets to the weſtward of the coaſt of Braſil.

"The weſterly current was not conſiderable till we got into 2° N. and 25° W. From this ſtation to 3° S. and 30° W. the ſhip, in the ſpace of four days, was carried 115 miles in the direction of S.W. by W. beyond her reckoning: an error by far too great to have any other cauſe than a ſtrong current running in the ſame direction. Nor did its ſtrength abate here; but its courſe was afterwards more weſterly, and to the north of weſt; and off Cape Auguſtine, north, as I have already mentioned. But this northerly current did not exiſt at 20 or 30 leagues to the ſouthward of that cape, nor any other, that I could perceive, in the remaining part of the paſſage." He farther obſerves, (vol. iii. p. 479.) "that from the 21ſt of March, when we were in latitude 27° 22′ S. long. 52° 25′ E., to the 5th of April, when we got into latitude 36° 12′ S. long. 22° 7′ E., we were ſtrongly affected by the currents, which ſet to the S.S.W. and S.W. by W., ſometimes at the rate of 80 knots a day."

It was alſo obſerved by ſir Eraſmus Gower, captain of the Lion, on an embaſſy to China, which left England in September, 1792, that all veſſels from England to Madeira will diſcover their way is affected by a current from the weſtern ocean into the bay of Biſcay, and alſo into the Mediterranean. He ſuppoſed, on an eſtimate from five voyages, that it ſet S.E. about 11 miles in 50 leagues. From the Madeiras to the Canaries a current was obſerved to ſet ſouthward, about 22 miles in the whole run of 66 hours, or 1 mile in 3 hours. But captain Mackintoſh of the Indoſtan, on an eſtimate of 20 voyages, ſtates a current from the 39° of latitude to the Canaries, which ſets 3° 20′ E.S.E. It is ſtrongeſt oppoſite the Straits of Gibraltar, and it once appeared to ſet 40 miles a day. Near the Canaries it was more ſoutherly; but on the coaſt of Africa, near Cape Bajadore, in lat. 26° N., it ſtrikes the ſhore, and goes one way northward for the Mediterranean, and the other ſouthward for the coaſt of Guinea. From Rio Janeiro, on the coaſt of Brazil in South America, a ſmall current ſets all the way towards the S.E. till it comes within about 4° of longitude W. from the Cape of Good Hope; but from about 3° W. to 3° E. of the ſame cape, a counter current ſets ſtrongly to the weſtward. On the coaſt of Cochinchina a current conſtantly ſets from the eaſtward, or eaſtern Indian ocean, towards the land, between the Paracel's iſlands and the large iſland of Hai-nan, into the gulf of Tonquin. Whilſt the ſhips, after leaving Turon, ran 100 miles to the N.E. in 24 hours, a current drove them 30 miles to the N. 67° W. The water which returns to thoſe ſhores is too weak to counteract the conſtant eaſtern tide, and is conſequently forced northward along the coaſt into that gulf. Here the tides are, from theſe cauſes, very ſtrong and high. Farther to the northward, the reflux from the eaſt coaſt of the iſland of Hai-nan occaſions a current to the N.E.; but ſtill farther to the northward, it again ſets in from the eaſtward, nearly in the parallel of the northern channel of Hai-nan, about 13 miles in 24 hours. But about the lat. of 22° N. in the long of 114°, or upwards, not far from the coaſt of China, a current was found to ſet N. by E., about a mile an hour for 24 hours.

Having thus ſtated the moſt known currents, it now remains for us to ſhew how the exiſtence of a current, and the velocity of it, may be aſcertained; for though the time of the ſetting in and duration of moſt currents have been examined by various attentive navigators, yet both their durations and their velocities are influenced by a variety of meteorological circumſtances. Beſides, it frequently happens that a new current is met with in particular ſeas, of which no mention is made in any book on navigation. Hence it is highly neceſſary for the mariner to know the beſt method of obſerving the exiſtence and the velocity of a current, in which he actually is, or expects to be. If the ſhip is near the coaſt, ſo as to ride at anchor, both the direction and the velocity may be readily aſcertained by caſting the log, and looking at the compaſs. But when the ſea is too deep, and the ſhip is under ſail, the method which has been found more efficacious by the mariners is as follows: a common iron pot, capable of containing four or five gallons, is faſtened to a ſmall rope, which muſt be tied to its handles, ſo that, when ſuſpended, the aperture of the pot may remain upwards and horizontal. The rope, which may be from 70 to 100 fathoms in length, is to be coiled in the boat, which is hoiſted out of the ſhip at a convenient opportunity; *viz.* when there is little or no wind to ruffle the ſurface of the ſea. The pot then being thrown overboard into the water, and immediately ſinking, the rope is ſlackened until about 70 or 80 fathoms have run out, after which the rope is faſtened to the ſtern of the boat, which is by it reſtrained, and rides as it were at anchor. The velocity of the current is then eaſily tried by means of the log and half-minute glaſs, in the ſame manner as the ſhip's rate of ſailing is uſually aſcertained. It is evident, however, that this method is grounded upon the ſuppoſition that the current does not reach ſo low below the ſurface of the ſea as the place to which the iron pot has been ſunk; which, though perhaps moſtly true, cannot be always ſo. Therefore, when the iron pot is not out of the influence of the current, or when it happens to come within an under-current, the reſult of the above-deſcribed method muſt unavoidably prove fallacious: nor does the preſent knowledge of navigation afford any other ſafer method for the purpoſe.

When the direction and velocity of a current has been aſcertained, the application of it to the purpoſes of navigation is eaſy and evident: for if the ſhip ſails along the direction of the current, its progreſs is the ſum of the current's velocity and the rate given by the log; if the ſhip ſails directly againſt the current, then its real progreſs is the difference of the two above-mentioned particulars, and is directed the ſame way with the ſtrongeſt: hence it may happen that a veſſel, which appears to proceed in full ſail towards the north, may actually go backwards towards the ſouth, in conſequence of a ſtrong current. If the current runs aſlant to the direction of the ſhip, then, ſince the ſhip is impelled by two forces, *viz.* by the force of the wind in one direction and by the current in another direction, its real courſe muſt be in the diagonal of a parallelogram, of which the ſides are the velocity of the current and the velocity with which the wind impels the ſhip. See Varenius' Geography, Naval Gazetteer, &c.

CURRENT *Iſland*, in *Geography*, a ſmall iſland in the Pacific ocean, diſcovered by captain Carteret, in October, 1767, and ſo called on account of the ſtrong ſoutherly current which ſet the ſhip, in this part of the ocean, from 24 to 30 miles ſouthward every day, beſides the difference it might make in its longitude. N. lat. 4° 40′. E. long. 134° 3′. Near this iſland are two other ſmall iſlands, which captain Carteret called St. Andrew's iſlands, in N. lat. 5° 18′. E. long. 133° 40′.

CURRENT *Sailing*, is the method of reſolving thoſe problems in navigation, in which the effect of a current is taken into conſideration.

That point of the compaſs to which a current runs, is called its *ſetting*, and the rate of its motion *per* hour is called its *drift*.

In a calm, it is evident, a ſhip will be carried in the direction, and with the velocity, of the current.

Hence, if a ſhip ſails in the direction of the current, her rate will be augmented by the velocity of the current; but if ſailing directly againſt it, the diſtance made good will be equal to the difference between the rate of the ſhip as given by the log, and that of the current; and the abſolute motion of the ſhip will be a-head, of her rate exceeds that of the current; but, if leſs, the ſhip will make ſternway. If the ſhip's courſe be oblique to the direction of the current, her true courſe and diſtance will be compounded of the courſe and diſtance given by the log, and of the ſetting and drift of current; and the diſtance made good in a given time, will be repreſented by the third ſide of a triangle, of which the diſtance given by the log and drift of the current in the ſame time, are the other two ſides. The two firſt caſes are evident, and the laſt may be illuſtrated as follows.

In the parallelogram A B C D, (*Plate* I. *Navigation*, *fig.* 3.) let A B be the diſtance run by the ſhip, in the ſame time that a current ſets from B to C, and A M a meridian; then A C being joined, will be the diſtance made good; the angle M A B the courſe *per* compaſs, and M A C the true courſe, or that reſulting from the combined motions of the ſhip and current. For ſince the current neither aſſiſts nor prevents the ſhip from approaching the line B C, the wind will bring it there, in the ſame time as if no current exiſted; and as the wind has no tendency on the current, and the direction of the ſhip being in the line A B, the current will bring the ſhip to the line C D, in the ſame time as if in a calm; therefore, the ſhip will be found to be at C, the point of interſection of the lines B C, C D; and, conſequently to have ſailed in the direction A C, the diagonal of the parallelogram contained between the diſtance run, and the drift of the current in the ſame time.

The ſetting and drift of the principal currents, are in general known nearly, but with reſpect to unknown or doubtful currents, the following method is uſually employed to aſcertain their ſetting and drift.

In the open ocean, in calm weather, the ſetting and drift of a current are eaſily found by taking a boat to ſome little diſtance from the ſhip, which being brought up, by ſinking from the ſtern a heavy iron pot or loaded kettle, to the depth of about 100 fathoms; then, the log being hove, its bearing will be the ſetting of the current, and the number of knots run out in half a minute will be its drift. See CURRENT.

When in ſight of land, the ſetting and drift of a current may be found by obſerving ſome remarkable place, or places on ſhore, at certain intervals of time.

Examples.

I. A ſhip ſailed S. by W. 21 hours, at the rate of 8 knots an hour, in a current that ſet E.N.E. 3 miles an hour, required the courſe and diſtance made good in that time.

By Conſtruction.

Deſcribe the circle N.E., S.W., (*fig.* 4.) in which N.S. repreſents the meridian of the place ſailed from, and E.W. the parallel of that place, theſe lines being at right angles to each other; from the centre C, draw the S. by W. line C B, equal to 168 miles (=21 × 8) the diſtance run in a given time; and from B, draw B D in an E.N.E. direction, which make equal to 63 miles (=21 × 3); join C D, which will be the diſtance made good, and will meaſure 143 miles, and the meaſure of the angle S C D being applied to the line of chords, will be found to be S. 10° 15′ E.

By Calculation.

In the triangle C B D, are given the ſides C B, BD, equal to 168 and 63 reſpectively, and the included angle C B D equal to five points, the ſupplement of the number of points contained between the E.N.E. and S. by W. rhumbs; to find the angles C and D, and the ſide C D.

To find the angles.

Diſtance	B C = 168	
Diſtance	B D = 63	
Sum	231	
Difference,	105	
Angle C B D =	5 points,	
Sum of C and D =	11 points,	
Half	5½ points = 61° 52′	
As the ſum of the ſides	231	2.36361
Is to the diff. of the ſides	105	2.02119
So is the tang. of half ſum angles	61° 52′	10.27189
To tangent of half diff. angles.	40° 22′	9.92947
Angle D - -	102° 14′	
Angle B C D - -	21° 30′	
Angle B C S - -	S. 11° 15′ W.	
True courſe S C D -	S. 10° 15′ E.	

To find the diſtance C D.

As the ſine of B D C -	102° 14′	9.99002
Is to the ſine of C B D, -	56° 15′	9.91985
So is B C - -	168	2.22531
To the diſtance C D -	142.9	2.15514

Remark.

The moſt expeditious method of performing queſtions of this kind, is by inſpection; by this method of operation, the preceding example is reſolved as follows.

Courſes.	*Diſt.*	*Diff. Lat.*		*Departure.*	
		N.	S.	E.	W.
S. by W.	168		164.8		32.8
E.N.E.	63	24.1		58.2	
		24.1	164.8 24.1	58.2 32.8	32.8
S. 10° E.	143		140.7	25.4	

II. A ſhip from a certain headland in the latitude of 34° 00′ N., ſails S.E. by S. 12 miles in three hours, in a current that ſets between N. and E., and then the ſame headland is found to bear W.N.W., and the ſhip to be in the latitude of 33° 52′ N., required the ſetting and drift of the current?

By Conſtruction.

Having drawn the compaſs N.E.S.W., (*fig.* 5.) let A repreſent the place of the ſhip, and draw the S.E. by S. line A B equal to 12 miles, alſo the E.S.E. line A C.

Set off from A upon the meridian AD, equal to 8 miles, the difference of latitude, and through D draw D C parallel to the E. and W. line W.E., meeting A C in C. Join C and B with the right line B C; then C will be the ſhip's place, the angle A B C the ſetting of the current from the S.E. by S. line, and the line B C will be the drift of the current in three hours.

By Calculation.

In the triangle A D C, right-angled at D, are given the difference of latitude A D, equal to eight miles, the angle D A C equal to 67° 30′. Whence for A C the diſtance the ſhip has ſailed, it will be:

As radius - - -		10.00000
Is to the ſecant of the courſe D A C	67° 30′	10.41716
So is the difference of latitude	8	0.90309
To the diſtance	20.9	1.32025

Again, in the triangle A B C, are given A B, equal to 12 miles, A C equal to 20.9, and the angle B A C equal to 33° 45′, the diſtance between the S.E. by S. and E.S.E. lines: Whence for the angle at B, it will be,

As the ſum of the ſides A D and A B	32.9	1.51720
Is to their difference - -	8.9	0.94939
So is the tangent of half the ſum of the angles B and C -	73° 7′	10.51806
To the tangent of half their diff.	41° 43½′	9.95025

Conſequently, the angle B is 114° 51′, and, therefore, the ſetting of the current will be N. 81° 6′ E. or E. by N. 2° 21′ E. Then for BC, the current's drift in three hours, it will be,

As the ſine of B - -	114° 51′.	9.95780
Is to the ſine of A -	33° 45′	9.74474
So is the diſtance run AC	20.9	1.32025
To B C	12.8	1.10719

the current's drift in three hours, and conſequently the current ſets E. by N. 2° 21′ E. 4.266 miles an hour.

III. A ſhip at ſea in the night has ſight of Scilly light, bearing N.E. by N. diſtant four leagues, it being then flood tide, ſetting E.N.E. 2 miles an hour, and the ſhip running at the rate of five knots an hour; what courſe and diſtance muſt the ſhip ſail to make the Lizard, which bears from Scilly E. ½ S. diſtance 17 leagues?

By Conſtruction.

Draw the N.E. by N. line A S = 12 miles, (*fig.* 6.); hence S will repreſent Scilly. From S draw S L = 51 miles, and parallel to the E. ½ S. rhumb; then L will repreſent the Lizard; draw L C parallel to the E.N.E. rhumb, and equal to two miles, and make C D equal to five miles; or, becauſe theſe numbers are too ſmall to determine the triangle with preciſion, let equimultiples of them be taken, as 10 and 25. From A draw A B parallel to C D, meeting L C, L C produced in B, then A B will be the diſtance, and the angle S A B the courſe; the firſt of theſe applied to the ſcale will meaſure nearly 45 miles, and the courſe will be about S. 88° E.

By Calculation.

In the triangle S A L, are given the ſides A S, S L, equal to 12 and 51 reſpectively, and the angle A S L equal to 10½ points, to find the other angles and diſtance A L.

To find the Angles.

Diſtance		S L = 51	
		A S = 12	
Sum		63	
Difference		39	
Angle	A S L	10½ points.	
Sum of	S A L, S L A	5½	
Half ſum		2¾ = 30° 56′	
As the ſum of the ſides		63°	1.79934
Is to the difference of the ſides		39°	1.59106
So is the tangent of half ſum of the angles		30° 56′	9.77763
To the tangent of half diff. angles		20° 21′	9.56935
Angle S A L		51° 17′	
N A S = 3 points		33° 45′	
N A L		85° 2′	
L A E = F L A		4° 58′	
T L B = 2 points		22° 30′	
A L B = D L C		17° 32′	

To find the diſtance A L.

As the ſine of S A L	51° 17′	9.89223
Is to the ſine of A S L	10½ points.	9.94543
So is the diſtance S L	51	1.70757
To the diſtance A L	57.65	1.76077

In the triangle D L C, are given D C = 5 miles, the hourly rate of ſailing, L C = 2 miles, the drift of the current in the ſame time, and the angle D L C = 17° 32′, to find the angle L D C = L A B.

As diſtance D C	5	0.69897
Is to the diſtance L C	2	0.30103
So is the ſine of L D C	17° 32′	9.47894
To the ſine of L D C	6° 55′	9.08100
Angle N A L	85° 2′	
N A B	91° 57′	
Courſe	S. 88° 3′ E.	

Laſtly, in the triangle A B L, the ſide A L, together with the angles are given, to find the diſtance A B.

As the ſine of A B L	155° 33′	9.61689
Is to the ſine of A L B	17° 32′	9.47894
So is the diſtance A L	57.65	1.76077
To the diſtance A B	41.96	1.62282

For more examples on this ſubject the reader is referred to Dr. Mackay's "Treatiſe on Navigation."

Currer, in *Geography*, a town of Hindooſtan, in the country of Viſiapour; 60 miles W. of Viſiapour.

CURRESO, in *Ornithology*, a name given by Dampier to the Crax *Alector*, which ſee.

CURRICULUS, in our *Ancient Writers*, denotes the year, or courſe of a year.

"Actum eſt hoc annorum dominicæ incarnationis quater quinquagenis & quinquies, quinis luſtris, & tribus *curriculis*;" *i. e.* in the year 1028; for four times fifty makes two hundred, and five times two hundred makes one thouſand; five luſtres are twenty-five years, and three *curriculi* are three years.

CURRIED Hide. See Hide.

CURRIERS are thoſe who dreſs and colour leather, after it comes from the tan-yard. No currier ſhall uſe the trade of a butcher, tanner, &c. or ſhall curry ſkins inſufficiently tanned, or gaſh any hides of leather, on pain of forfeiting for every hide or ſkin 6*s*. 8*d*. Curriers not currying the leather ſufficiently ſhall forfeit the ware or the value, &c. Stat. 1 Jac. I. c. 22. If curriers do not curry leather that is ſent to them, within ſixteen days between Michaelmas and Lady-day, and in eight days at other times, they are liable to a forfeiture of 5*l.* on conviction before a juſtice, to be levied by diſtreſs, &c. but ſubject to a mitigation. 12 Geo. II. c. 25. Curriers and ſuch as deal in leather, may cut and ſell it in ſmall pieces in their ſhops, to any perſons whatſoever. Stat. Id.

Currier's *Shaves*, or *paring-knives*, in *Heraldry*, inſtruments uſed by the curriers, and borne in the arms and creſt of their company.

CURRITUCK, in *Geography*, a county of America, ſituated on the ſea-coaſt of Edenton diſtrict, N. Carolina, and forming the N.E. corner of the ſtate; bounded E. by Currituck ſound, N. by Virginia, S. by Albemarle Sound, and W. by Camden county, containing 6928 inhabitants of whom 1530 are ſlaves. *Diſmal* ſwamp lies in this county, on the S. ſide of Albemarle Sound, and is now ſuppoſed to contain one of the moſt valuable rice eſtates in America. In the midſt of this Diſmal, which contains upwards of 350,000 acres, is a lake about 11 miles long, and 7 miles broad. A navigable canal, 20 feet wide, and 5½ miles long, connects the waters of the lake with the head of Skappernong river. Several ſaw-mills are erected about 500 yards from the lake; and as the water of the lake is higher than the banks of the canal, the company can at any time lay under water about 10,000 acres of rich ſwamp, which is admirably fitted for the culture of rice. See Great Dismal.

Currituck, or Caratuuk, a ſettlement in Maine, 28 miles above Norridge-walk. In 1792 this was the uppermoſt ſettlement on Kennebach river, and then conſiſted of about 20 families, and in 1800 of 136 inhabitants. Morſe.

CURRODREPANUS, formed of *currus*, *chariot*, and δρεπανον, *ſcythe*, or *ſickle*; in *Antiquity*, a kind of chariot armed with ſcythes. The driver of theſe chariots was obliged to ride on one of the horſes, as there was no other ſeat for him; the uſual place for him being all armed with knives, as was likewiſe the hinder part of the chariot. There were no ſcythes pointing down to the earth, either from the beam or axle-tree; but theſe were fixed at the head of the axle-tree in ſuch a manner as to be moveable by means of a rope, and thereby could be raiſed or let down, and drawn forward or let fall backward, by relaxing the rope.

CURRUCA, in *Ornithology*, a name given by Friſch. Av. t. 24. to a variety of the Muscicapa *Atricapilla* of Gmelin: which ſee;—and alſo to varieties of the Motacilla *Atricapilla* of Gmelin; and alſo to the Muscicapa *griſola* of Gmelin. which ſee reſpectively.

CURRUCIS, Geſner's name of the MUSCICAPA *griſola*.

CURRUS TRIUMPHALIS, triumphal chariot. See TRIUMPH.

CURRY-COMB, in *Rural Economy*, is an implement of the comb kind, thickly ſet with ſmall teeth, which is uſed in the operation of currying animals.

CURRYING, the operation of combing and dreſſing any ſort of domeſtic animal by means of a curry-comb, in order that the duſt may be removed from their coats, and they may have a ſleek appearance.

CURRYING is the art of dreſſing cow-hides, calves-ſkins, ſeal-ſkins, &c. principally for ſhoes; and this is done either upon the fleſh or the grain.

In dreſſing leather for ſhoes on the fleſh, the firſt operation is ſoaking the leather in water, until it be thoroughly wet; then the fleſh-ſide is ſhaved on a beam, about ſeven or eight inches broad, with a knife of a peculiar conſtruction, to a proper ſubſtance, according to the cuſtom of the country, and the uſes to which it is to be applied. This is one of the moſt curious and laborious operations in the whole myſtery of currying. The knife uſed for this purpoſe is of a rectangular form, with two handles, one at each end, and a double edge. They are manufactured at Cirenceſter, and compoſed of iron and ſteel; the edge is given to them by rubbing them on a flat ſtone of a ſharp gritty ſubſtance, till it comes to a kind of wire; this wire is taken off by a fine ſtone; and the edge is then turned to a kind of groove wire by a piece of ſteel, in form of a bodkin, which ſteel is uſed to renew the edge in the operation.

After the leather is properly ſhaved, it is thrown into the water again, and ſcoured upon a board or ſtone commonly appropriated to that uſe. Scouring is performed by rubbing the grain or hair-ſide with a piece of pumice-ſtone, or with ſome other ſtone of a good grit, not unlike in thickneſs and ſhape to the ſlate with which ſome houſes are covered. Theſe ſtones force out of the leather a white ſort of ſubſtance called the bloom, produced by the oak-bark in tanning. The hide or ſkin is then conveyed to the ſhade or drying-place where the oily ſubſtances are applied, termed ſtuffing or dubbing; the oil uſed for this purpoſe is prepared by the oil leather-dreſſers, by boiling ſheep-ſkins or doe-ſkins in cod-oil. This is put on both ſides of the leather, but in a greater and thicker quantity on the fleſh than on the grain or hair-ſide.

Thus we have purſued the currying of leather in its wet ſtate, and through its firſt ſtage, commonly called getting out.

When it is thoroughly dry, an inſtrument with teeth on the under-ſide, called a graining board, is firſt applied to the fleſh-ſide, which is termed graining; then to the grain-ſide, called bruiſing; the whole of this operation is intended to ſoften the piece of leather to which it is applied. Whitening or paring ſucceeds, which is performed with a fine edge of the knife already deſcribed, and uſed in taking off the greaſe from the fleſh. It is then boarded up or grained again, by applying the graining board, firſt to the grain and then to the fleſh.

It is now fit for waxing, which begins with colouring. This is performed by rubbing with a bruſh dipped in a compoſition of oil and lamp-black on the fleſh, till it be thoroughly black; it is then ſized, called black ſizing, with a bruſh or ſpunge, dried, tallowed with a woollen cloth; and ſlicked upon the fleſh with a broad ſmooth piece of glaſs, ſized again with a ſpunge; and when dry this ſort of leather, called waxed or black on the fleſh, is curried.

Currying leather on the hair or grain-ſide, termed black on the grain, is the ſame as the firſt operation with that dreſt on the fleſh, till it is ſcoured. Then the firſt black is applied to it, while wet; which black is a ſolution of copperas in fair water, or in the water in which the ſkins, as they come from the tanner, have been ſoaked; this is firſt put upon the grain, after it has been rubbed with a ſtone; then rubbed over with a bruſh dipped in ſtale urine; ſlicked out with an iron ſlicker, in order to make the grain come out as fine as poſſible; and then ſtuffed, in the manner already deſcribed among the firſt operations of currying; and when dry it is ſeaſoned, *i. e.* rubbed over with a bruſh dipped in copperas water on the grain, till it be perfectly black; then ſlicked with a ſtone of a good grit, to take out the wrinkles and coarſe grain as much as poſſible: after this the grain is raiſed with a fine graining board, by turning the ſkin or piece of leather in various directions; and when a little dried, it is bruiſed in order to ſoften it. When it is thoroughly dry it is whitened, bruiſed again, and grained in two or three different ways; and when oiled upon the grain with a mixture of oil and tallow, it is finiſhed.

Bull and cow-hides are ſometimes curried for the uſe of ſadlers and collar-makers; but the principal operations are much the ſame as thoſe we have already deſcribed. It ſhould, however, be obſerved, that only a ſmall portion of fleſh is taken from hides deſigned for theſe purpoſes. Hides for the roofs of coaches, &c. are ſhaved nearly as thin as ſhoe-hides, and blacked on the grain.

CURSED. See ACCURSED, and CORSNED.

CURSHUND, in *Zoology*, the name given by Ridinger to the greyhound, *Canis Curſorius*. See GREYHOUND.

CURSING. See SWEARING.

CURSITORS, officers or clerks belonging to the court of chancery, who make out original writs.

Theſe are alſo called *clerks of the courſe*, (clerici de curſu, 18 Ed. III. ſtat. 5.) and are twenty-four in number; making a coporation of themſelves. To each of them are allotted ſeveral ſhires; in which ſhires they exerciſe their functions (2 Inſt. 670.) This corporation conſiſts of a principal, two aſſiſtants, 21 curſitors, and a bag-bearer.

CURSITOR-*Baron*, an officer in the court of Exchequer, who adminiſters the oath of all high-ſheriffs, under-ſheriffs, bailiffs, auditors, receivers, collectors, controllers, ſurveyors, and ſearchers of all the cuſtoms in England.

CURSOLI. See CURZOLA.

CURSOR, a little ruler, or label of braſs, divided like a line of ſines, and ſliding in a groove, or notch, along the middle of another label, or ruler, repreſenting the horizon, and always at right angles to it. It is uſed in the analemma.

CURSOR is alſo uſed for a point ſcrewed on the *beam* COMPASS; and which may be moved, or ſlidden along the beam thereof for the ſtriking of greater or leſs circles.

CURSULA, in *Ancient Geography*, a town of Italy, in Latium, ſituated 80 ſtadia from Rieti, near mount Coreto, called *Corſulæ* by Tacitus; and ſuppoſed to be the preſent town of Caſſia, in Umbria.

CURSUS, a town of Spain, in Bætica, placed by Ptolemy in the country of the Turdetani.

CURSUS *Achillis*, a point of land lying to the left of the Boryſthenes, at its mouth. *Achilles* is ſaid by Mela to have celebrated games in this place, when he was entering into the Pontic ſea.

CURTA, a town of Lower Pannonia, ſituated on the banks of the Danube; marked in the Itinerary of Antonine between Arrabonæ and Alicanum; ſuppoſed to be *Buda*.

CURTAILING, in the *Manege*, the docking, or cutting off a horſe's tail.

The practice of curtailing is no where in vogue ſo much as in England; it being a popular opinion, that the cutting off the tail renders the horſe's chine or back the ſtronger, and more able to bear burdens.

The amputation is uſually made between the fourth and fifth joints of the tail; a ligature being firſt tied tight about the place, to prevent the flux of blood; and the raw ſtump afterwards ſeared up with a hot iron, till the extremities of the veſſels be all ſtopped.

This abſurd and barbarous cuſtom is now in great meaſure out of faſhion; and horſes are allowed to enjoy the uſe, and retain the beauty of their tails, as given to them by nature.

CURTAIN, in *Fortification*. See CURTIN.

CURTAINS, in a *Fire-ſhip*, are pieces of a coarſe canvas, about three quarters of a yard wide, and a yard long, thickened in a melted compoſition of pitch, ſulphur, roſin, tallow, and tar, and covered with ſaw-duſt on both ſides.

CURTATE DISTANCE, in *Aſtronomy*, the diſtance of a planet's place from the ſun or earth, reduced to the ecliptic; or, the interval between the ſun or earth, and that point where a perpendicular, let fall from the planet, meets with the ecliptic.

CURTATION, in *Aſtronomy*, the interval between a planet's diſtance from the ſun, and the curtate diſtance.

From the preceding article it is eaſy to find the curtate diſtance; whence the manner of conſtructing tables of curtation is obvious.

The quantity of inclination, reduction, and curtation of a planet, depending on the argument of the latitude; Kepler, in his Rudolphin Tables, reduces the tables of them all into one, under the title of Tabulæ Latitudinariæ.

CURTESY *of England, jus curaliatatis Angliæ, Tenant by*. See COURTESY and TENANT.

CURTEUS FALCATUS, Lat.; a chariot armed with ſcythes. The ancients made uſe of them in war; and the invention of them, according to Diodorus, goes back to the higheſt antiquity. Ninus uſed them againſt the Bactrians; and the nations that oppoſed the Iſraelites alſo fought in them.

CURTEYN, CURTANA, a name given to king Edward the Confeſſor's ſword, which is the firſt ſword that is carried before the kings of England at their coronation.

It is ſaid, the point of it is broken, as an emblem of mercy.

CURTI, GIROLAMO, in *Biography*, a Bologneſe painter, called Il Dentone, from the circumſtance of his carrying his mouth half-open, ſo as to diſcover two large front teeth. He was born in the 16th century of very poor parents, who had him taught the buſineſs of a thread-ſpinner. At the age of 25, however, he began to practiſe deſign in company with Lionello Spada; but finding the ſtudy of the human figure too arduous an undertaking, he determined to confine his exertions to the attainment of perſpective, and the practice of that ſpecies of decorative painting which the Italians term *quadratura*. He accordingly received ſome inſtructions in this way from Baglione, and grounded himſelf in architecture by ſtudying Vignola and the fineſt remains of the ancients at Rome. Curti ſoon acquired the reputation of being one of the beſt artiſts in his line, and was eagerly employed in many great works in Rome, Bologna, Parma, and other parts of Italy, and in particular in the firſt-mentioned city, where he painted a hall in the palace of prince Lodoviſi, which was extremely admired, and judged far to ſurpaſs the hitherto unrivalled works of Gio. Alberti in the Sala Clementina in the Vatican. He died at Parma in 1631. Lanzi. Stor. Pitt.

CURTI, FRANCESCO, an engraver, born in Bologna, who flouriſhed in the 17th century. His ſtyle ſeems formed on that of Cherubino Alberti, though the execution is leſs maſterly, and the extremities of the figures drawn with leſs correctneſs. He engraved after Guercino, Parmigiano, Guido, and other celebrated maſters. The following are amongſt the beſt of his works.

"The Virgin teaching the Child Jeſus to read; from Guercino. A drawing-book from the deſigns of the ſame artiſt. A ſet of 16 portraits, 1633. Two heads of the Virgin and St. Catherine, upon the ſame plate." Heinecken. Strutt.

CURTI, BERNARDINO, probably a relation of the preceding, and alſo an engraver. This artiſt executed a great number of portraits, beſides other works, which, however, are not much eſteemed. We ſhall only notice the following:

"An emblematical ſubject from Luc. Ferrar, a middling ſized plate, lengthways. The Virgin, a half figure, with the Infant Jeſus and the Child St. John, 1640." Heinecken. Strutt.

CURTICONE, in *Geometry*, a cone whoſe top is cut off by a plane parallel to its baſis; called alſo *truncated cone*.

CURTILAGE, CURTILAGIUM, in *Law*, a yard, backſide, or piece of ground, lying near a dwelling-houſe.

CURTILES TERRÆ. See COURT-*lands*.

CURTILLA, in *Ornithology*, a name given by ſome to the CORVUS *ſylvaticus* of Geſner, which ſee.

CURTIN, CURTAIN, or COURTINE, in *Fortification*, is the part of a work which joins the flank of one baſtion or demi-baſtion to that of the baſtion or demi-baſtion next to it, whether it be in the body of the place, or in a crown-work, horn-work, &c. The curtains, with the flanks and faces of the baſtions, form the *enceinte* of the body of a place.

Du-Cange derives the word from the Latin *cortina, quaſi minor cortis*, a little county-court, incloſed with walls: he ſays, it was in imitation hereof, that they gave this name to the walls and parapets of cities, which incloſe them like courts: he adds, that the *curtains* of beds take their name from the ſame origin; that *cortis* was the name of the general's, or prince's tent; and that thoſe who guarded it were called *cortinarii* and *curtiſani*.

The *curtin* is uſually bordered with a parapet five feet high; behind which the ſoldiers ſtand to fire upon the covert-way, and into the moat.

Beſiegers ſeldom carry on their attacks againſt the *curtin*, becauſe it is the beſt flanked of any part.

CURTIN, *angle and complement of the*. See ANGLE and COMPLEMENT; ſee alſo *Military* CONSTRUCTION.

CURTIS, WILLIAM, in *Biography*, an eminent botaniſt and entomologiſt, was born at Alton in Hampſhire, in 1746. His family were quakers, and his father a tanner; but he was at the age of fourteen bound apprentice to his grandfather, an apothecary in his native town. It happened that the oſtler of an adjoining inn was a practical botaniſt, verſed in the ſtudy of Gerarde and Parkinſon's herbals. Such an intimacy for their ſon ſober parents might have deprecated, and ambitious ones have contemned; yet hence the youthful Curtis imbibed that taſte for natural knowledge which proved the ſource of his future fame and profit, and above all, of what is not always juſtly appreciated, his happineſs. Some more ſyſtematic works falling in his way ſoon after, inſtilled into his apt and ardent mind principles of method, and of Linnæan philoſophy, which neither his original preceptor, nor the books he ſtudied, could ever have taught. At the age of twenty Mr. Curtis came to London, in order to finiſh his medical education, and to ſeek an eſtabliſhment in the line to which he was deſtined. He was aſſociated with a Mr. Talwin of Gracechurch ſtreet, to whoſe buſineſs he at length ſucceeded; but not without having from time to time received many reproofs and warnings, reſpecting the interference of his botanical purſuits with the more obviouſly advantageous ones of his profeſſion. Nor were theſe warnings without cauſe. The ſtreet-walking duties of a city practitioner but ill accorded with the wild excurſions of a naturaliſt; the apothecary was ſoon ſwallowed up in the botaniſt, and the ſhop exchanged for a garden. Mr. Curtis therefore became a lecturer on the principles of natural ſcience, and a demonſtrator of practical botany. His pupils frequented his garden, ſtudied in his library, and followed him into the fields in his herborizing excurſions. His firſt garden was ſituated at Bermondſey; afterwards he occupied a more extenſive one at Lambeth Marſh, which he finally exchanged for a more ſalubrious and commodious ſpot at Brompton. This laſt garden he continued to cultivate till his death.

Mr. Curtis was very early led to combine the ſtudy of inſects and their metamorphoſes with that of plants, and his various gardens were furniſhed with accommodations for this purſuit. Hence he became an author; his firſt publication being a pamphlet entitled, "Inſtructions for collecting and preſerving Inſects; particularly Moths and Butterflies, illuſtrated with a copper plate," and printed in 1771. In the following year he publiſhed a tranſlation of the *Fundamenta Entomologiæ* of Linnæus, entitled, "An Introduction to the Knowledge of Inſects," many valuable additions being ſubjoined to the original treatiſe. Theſe two pamphlets have contributed more than any ſimilar works to diffuſe a knowledge of ſcientific entomology in England, and to engraft on the illiterate illiberal ſtock of mere collectors, a race of enlightened and communicative obſervers of nature; who no longer hoard up unique ſpecimens, and ſelfiſh acquiſitions, but contribute their diſcoveries and their experience for the benefit of the agriculturiſt, the manufacturer, or the phyſician.

The celebrity which theſe publications procured for their author was ſoon altogether eclipſed by what aroſe from his botanical labours, which have placed him in the very firſt rank of Engliſh writers in that department of ſcience. In 1777 appeared the firſt number of his *Flora Londinenſis*, containing 6 folio plates, with a page or more of letter-preſs conſiſting of a deſcription in Latin and Engliſh, with ſynonyms, of each plant, and copious remarks on its hiſtory, uſes, qualities, and the inſects it nouriſhes. Each number was ſold at half a crown plain, 5 ſhillings coloured, and ſome copies, finiſhed with extraordinary care, were ſold at ſeven ſhillings and ſix pence. The firſt artiſt employed in making the drawings for this work was Mr. Kilburn, who uſed a *camera obſcura* for the purpoſe; his ſketches were ſhaded with Indian ink, before the colours were laid on. The performances of this artiſt have not been excelled in any ſimilar work. When from other engagements Mr. Kilburn was obliged to relinquiſh his taſk, Mr. Sowerby was employed, and maintained undiminiſhed the perfection of the figures. After him Mr. Sydenham Edwards has been engaged by Mr. Curtis, with no leſs credit, both in this publication and the Botanical Magazine hereafter mentioned. Of the plates of the *Flora Londinenſis* too much cannot be ſaid; their beauty and botanical accuracy are alike eminent, and it is only to be regretted that the manufactory of paper, as well as the typographical art, were in ſo degraded a ſtate when this book firſt appeared. For this its author cannot be reſponſible, nor are theſe defects of any moment in the eyes of learned or ſcientific readers. To them the *Flora Londinenſis* is a mine of original, ſolid, practical information, conveyed in a ſtyle of candour and unaffected love of ſcience, by which the author, as well as his ſubject, ſteal the hearts of his readers. It has already been obſerved, (*Tranſactions of the Linnæan Society*, v. iv. p. 280.), that the work in queſtion, "independent of its excellent figures, ranks next to Ray's *Synopſis*, in original merit and authority upon Engliſh plants." It may be added that the works of Curtis have tended, more than any other publications of their day, to give that tone of urbanity and liberality to the ſcience, which every ſubſequent writer, of good character, has obſerved. Wherever their author ſwerved in any degree from this candour, which was very ſeldom, and not always without provocation, it was always to his own loſs, and he was thus led into ſome of the very few miſtakes that he has committed; but theſe we ſhall conſign to oblivion. His mention of Mr. Hudſon's "uſual inaccuracy" is moſt reprehenſible. The author of the *Flora Anglica* was indeed blameable for treating the infant publication of Curtis with lofty neglect, but it is not true that he was "uſually inaccurate" in his own labours. Mr. Curtis conducted himſelf rather more uncandidly towards the work entitled *Engliſh Botany*, becauſe he conceived it an encroachment on his own botanical domain, of which a narrative is given in the preface to its ſeventh volume, unneceſſary to be repeated here. His fame and his work were ſuperior to all rivals, and the object of his unjuſt diſpleaſure is proud to bear teſtimony to his merit, with which no perſon was better acquainted. The *Flora Londinenſis* was extended to ſix *faſciculi*, of 72 plates each. It is to be regretted that the feelings above alluded to occaſioned its author in the latter part to deſcribe, from garden ſpecimens, ſeveral plants out of his originally intended limits, reſpecting which he could give no particular information; while numerous ſpecies growing near London remained unexplained and ill-underſtood. A botaniſt who had like him ſo admirably illuſtrated the genera *Polygonum*, *Rumex*, *Chenopodium*, and ſeveral others, makes us regret that his genius was ever diverted from its original bent. On another occaſion however we rejoice that it was otherwiſe employed. Ten years after the beginning of his *Flora*, Mr. Curtis undertook a new publication, the *Botanical Magazine*, a work whoſe ſale has been extenſive beyond all former example, and which is in every reſpect worthy of its author. No book has more diffuſed a taſte for unſophiſticated nature and ſcience. It rewarded its contriver with pecuniary emolument as well as with merited celebrity, and is ſtill continued with unabated utility. It is deſigned to be a general repoſitory of garden plants, whether previouſly figured or not in other works, but it has often had the advantage of giving entire novelties to the public.

In the year 1782, Mr. Curtis publiſhed a hiſtory of the brown-tailed moth, an inſect confounded by Linnæus under his *Phalæna Chryſorrhoea*. The deſign of this pamphlet was to allay the alarm which had been excited in the country round the metropolis, by an extraordinary abundance of the caterpillars of this moth, and which was ſo great, that the pariſh officers offered rewards for collecting theſe caterpillars, and attended in form to ſee them burnt by buſhels at a time. It was one of thoſe popular alarms which every now and then ariſe among the ignorant multitude, and which vaniſh before the firſt ray of common ſenſe. When the natural hiſtory of the inſect was inquired into, and compared with that of others, no cauſe for any great apprehenſion could be diſcerned; and, indeed, the ſubſequent years were not more abundant in this ſpecies than uſual.

Beſides the above works, Mr. Curtis publiſhed "Practical Obſervations on the Britiſh Grapes," in 8vo.; his truly praiſe-worthy aim being to direct the farmer to a knowledge and diſcrimination of the ſpecies and their qualities. He alſo, from time to time, printed catalogues of his garden. He was induced, by the unfortunate alarm which he conceived at the publication of "Engliſh Botany" above-mentioned, to put forth diminiſhed figures in octavo of his great *Flora;* but theſe met with no approbation nor ſucceſs, and were ſoon diſcontinued. His "Lectures on Botany," rendered needleſsly expenſive by ſuperfluous coloured plates, have appeared ſince his death; but for this publication he is not reſponſible. Two admirable entomological papers of Mr. Curtis are found in the "Tranſactions of the Linnæan Society; of which ſociety he was one of the original fellows. The firſt of theſe is an account of the *Silpha Griſea* and *Curculio Lapathi*, two coleopterous inſects very deſtructive to willows. The other paper is intended to ſhew that the *Aphides,* or lice of plants, are "the ſole cauſe of the honey-dew;" a new theory on the ſubject, and perfectly juſt, as far as concerns the moſt common kind of honey-dew. This paper was digeſted by the preſident from the unfiniſhed materials of its author, and communicated to the ſociety after his death, which happened on the 7th of July, 1799, after he had for near a twelvemonth laboured under a diſeaſe in the cheſt, ſuppoſed to be of a dropſical nature; but which was rather, perhaps, an organic affection of the heart, or of the great veſſels immediately connected with it. His remains were interred at Batterſea church. He left behind him the character of an honeſt friendly man, a lively and entertaining companion, and a good maſter. He was ever ready to encourage and aſſiſt beginners in his favourite ſcience, and always endeavoured to render that ſcience as attractive as poſſible. It muſt not be forgotten that he was one of the firſt who, in ſpite of authority, contributed to remove ſome reproaches to which it was juſtly liable on the ſcore of indelicacy. His example has been followed by other writers (ſee Clitoria); and its ſalutary effects have only in one diſgraceful inſtance, which we ſhall not drag forth from its merited obſcurity, been attempted to be counteracted. This laſt praiſe is juſtly paid to Mr. Curtis by an excellent and very eminent friend, who has given the world a hiſtory of his life and merits in the Gentleman's Magazine for 1799, whence we have derived many of the above particulars. S.

CURTISIA, in *Botany*, (named in honour of William Curtis, author of Flora Londinenſis, &c.) Hort. Kew. 3. 507. Schreb. 1729. Lam. Ill. 186. Willd. 247. Claſs and order, *tetrandria monogynia*.

Gen. Ch. *Cal.* Perianth one-leafed, four-parted; ſegments egg-ſhaped, acute. *Cor.* Petals four, egg-ſhaped, obtuſe, ſeſſile, longer than the calyx. *Stam.* Filaments four, inſerted into the receptacle, awl-ſhaped, ſhorter than the petals; anthers egg-ſhaped. *Piſt.* Germ ſuperior, egg-ſhaped; ſtyle awl-ſhaped, the length of the ſtamens; ſtigma four or five-cleft. *Peric.* Drupe ſomewhat globular, ſucculent, ſmooth. *Seed.* Nut roundiſh, boney, four or five-celled; kernels ſolitary, oblong.

Eſſ. Ch. Calyx four-parted. Petals four. Drupe ſuperior, roundiſh, ſucculent; nut four or five-celled.

Sp. C. *faginea.* Thunb. Prod. 28. Lam. Ill. Pl. 71. (Relhania faginea; Gmel. Syſt. Veg. 247. Junghanſia faginea; Gmel. Syſt. Veg. 259. Sideroxylon foliis acuminatis dentatis, fructu monopyrens flavo; Burm. Afr. 235. tab. 82.) One of the largeſt trees in the African woods. Younger branches pubeſcent. *Leaves* oppoſite, on ſhort petioles, ovate-lanceolate, ſharply toothed, entire at the baſe, ſmooth above, pubeſcent underneath. *Flowers* very ſmall, in a terminal panicle. The Hottentots and Caffres make the ſhafts of their javelins or aſſaguays from its wood. It is called in Dutch wite-elſe, ſtink-hout, and aſſaguay-hout, or aſſaguay-tree.

CURTIUS, M., in *Biography*, a Roman whoſe patriotiſm has been celebrated by Livy; and though the fact, which is recorded in connection with his name, and by which he is rendered illuſtrious, has been the ſubject of much diſcuſſion and doubt, yet there was unqueſtionably ſome foundation for the ſtory, which is thus recorded by the hiſtorian. "In the year 392 of the city, the ground in the midſt of the forum, either from an earthquake, or ſome ſimilar cauſe, opened and left a vaſt chaſm, which could not be filled by any human art. The oracle was conſulted, who declared that the Roman ſtate would endure for ever, provided they threw that into the gulf in which the Romans were moſt powerful. Curtius heard the anſwer, and aſked if his countrymen poſſeſſed any thing ſo valuable as their arms and courage? The courage of the hero was well known; his queſtion cauſed the moſt profound ſilence: Curtius turned his eyes towards the Capitol, and the temples of the gods overlooking the forum, and ſtretching his hands firſt towards heaven, and next towards the bottom of the gulf, ſolemnly devoted himſelf. He then, fully armed, mounted his horſe decorated in all his capariſons, and plunged into the chaſm; the applauding people of both ſexes throwing after him flowers and fruit." This was afterwards called the Curtian lake, in memory of the deed. Livy, tom. ii. p. 67, 68. Mattaire's edit.

Curtius, Quintus Rufus, a Roman hiſtorian, who is known now only for his hiſtory of the reign of Alexander the Great, is ſuppoſed to have flouriſhed in the reign of Veſpaſian or Trajan; but many doubts have been entertained on the ſubject. No notice is taken of his work till the twelfth century, though it is thought that Suetonius refers to the author as one among the eminent rhetoricians of thoſe times. This hiſtory was divided into ten books, of which the firſt two, the end of the fifth, and the commencement of the ſixth are loſt: it has ever been eſteemed for the elegance, purity, and floridneſs of its ſtyle. It is, however, vaſtly defective as a hiſtory, abounding with anachroniſms, and various geographical miſtakes. The Elzevir edition of this work, and alſo the Delphin editions of 1678 and 1724, and the Variorum of 1708, are highly regarded by critics. See Preface to the Delp. edit.

Curtius, Matthew, a native of Padua, acquired conſiderable reputation for his ſkill in medicine, which he taught in ſucceſſion at Padua, at Florence, at Bologna, and at Piſa. From Piſa he was called to Rome by the pope Clement VII., and appointed his phyſician. From an inſcription on his monument, erected to perpetuate his memory, by Coſmo de Medicis, it appears that he died in 1564, aged ſeventy years. His works, ſeveral of which paſſed through many editions, and appear to have been in great vogue, are, "De Venæ ſectione cum in aliis affectibus, tum vel maxime in Pleuritide," Lugd. 1532, 8vo. "In Mundini Anatomen explicatio," 1550, 8vo. "De curandis febribus Ars Medica, 1561, 8vo. For the remainder, ſee Haller Bib. Med. Another Italian phyſician of the name, probably of the family, Nicholas Curtius, taught medicine at Padua for twenty-ſix years. He left "Methodus conſultandi, Venetiis," 1603, folio. "Libellus de Medic. lenientibus, purgantibus, &c." and "Conſilium adverſus peſtem," 1615, in 12mo. Theſe, however, were not publiſhed until ſeveral years after his death, which took place in the year 1576. Haller Bib. Med.

CURTOLONE, in *Geography*, a town of Italy, in the duchy of Mantua, four miles W. of Mantua.

CURVAT, a ſmall town of France, in the department of the Tarn, 15 miles E. of Alby.

CURVATAPINIMA, in *Ichthyology*, a name by which Marcgrave and Piſo call the fiſh named by Engliſh writers the ſcad and horſe-mackrel, the SCOMBER *Trachurus*, which ſee.

CURVATOR COCCYGIS, in *Anatomy*, a name given by Albinus to a muſcle of the coccyx diſcovered by himſelf, and not deſcribed by any other author. It is an oblong, thin, and ſmall muſcle, and for the moſt part tendinous. It ariſes with a double head, one from the inner, and the other from the lower and lateral part of the *os ſacrum*; and deſcending, terminates in three extremities. He calls it the curvator coccygis, from its office, which is the bending the coccyx; and ſays, that he found it in different ſtates, in three ſubjects: one very perfect and entire; in a ſecond, more imperfect and degenerating; and in the third, reſembling a ligament rather than a muſcle.

CURVATURE, in general, means any deviation from ſtraight. The word is commonly uſed in mathematics, in philoſophy, in mechanics, and other ſubjects. In mathematics there are ſeveral ſpecies of curvature (*viz.* of bending or flexure) either of lines or of ſurfaces, the nature of which is particularly examined under various articles. Thus the curvature of a circular periphery is different from that of a parabola, and different from that of a cycloid; the curvature of a globular ſurface is different from that of a ſpheroid, and ſo forth. And all theſe peculiar curvatures, together with their origin and properties, are deſcribed under the articles CIRCLE, PARABOLA, SPHERE, &c.

In philoſophy there are ſeveral caſes of curvature, which demand particular notice and attentive examination; but moſt of theſe caſes are treated of under thoſe articles to which they more immediately belong. Thus the curvature of the images of objects, formed by the tranſmiſſion of light through lenſes, or by the reflection of the ſame from mirrors, will be noticed under the articles LENS, OPTICS, and MIRROR. The curvature of the rays of light, occaſioned by their paſſing by the ſurfaces of ſolids, will be found under the article INFLECTION *of light*, and ſo forth. Hence in the preſent article we ſhall only take notice of thoſe caſes of curvature, which are not ſo obviouſly ſought for under other denominations; and theſe are the curvature of the ſurfaces of liquids, and the apparent curvature of the ſky.

However the particles of liquids may appear to be moveable with reſpect to one another, it is certain that they are in a conſiderable degree poſſeſſed of the attraction of aggregation, *viz.* a mutual attraction of the particles; and this attraction differs in different liquids. It is owing to this attraction, that when a ſeparate quantity of a liquid is not under the influence of other forces, it always tends to aſſume a globular form; which ſhape is the natural conſequence of a mutual attraction amongſt the particles of the liquid. Thus a very ſmall drop of water dropped through the air, and eſpecially when the air is much rarefied, aſſumes a form ſo very nearly globular, that the eye cannot perceive its deviation from a perfect ſphere. Such is likewiſe the caſe with oils, ſpirits, mercury, and other fluids. But in their uſual ſtates of exiſtence, liquids are acted upon by other forces, which may either conſpire with, or oppoſe their attraction of aggregation, according to a variety of circumſtances; whence they are obliged to aſſume ſhapes different from thoſe which they would aſſume in conſequence of their aggregation only. The other forces are their gravitating power, or the force by which they are drawn towards the centre of the earth; the attraction of affinity, and the attraction of coheſion, *viz.* the peculiar degree of attraction which every liquid has for other bodies. Thus, if a ſmall drop of water be placed upon a dry and clean plate of glaſs, it will remain nearly of a globular form; its attraction of aggregation, which draws every particle of it towards its centre, being ſtronger than its gravity, and likewiſe more powerful than its coheſion or attraction towards the glaſs, which it touches in a very ſmall ſpot. This attraction, however, is ſufficient to retain the drop of water, when the glaſs is turned downwards. But if the drop be ſpread over the ſurface of the glaſs, then the film of water will adhere to the glaſs with much greater force, nor will it recover its globular ſhape, becauſe by ſpreading the drop, its particles have been brought nearer to the ſurface of the glaſs, and in contact with a far greater extent of it. They have alſo been removed farther from each other, which has weakened the attraction of aggregation in a very great degree. When a pretty large drop of water is placed upon the glaſs, the upper middle part of it will be nearly horizontal, its gravity being more powerful than its aggregation. If the water be in conſiderable quantity, and it be put in a cup, or glaſs, then the attractions of aggregation and coheſion being much weaker than the gravitation, the ſurface of the water will be horizontal, excepting that part of it which lies neareſt to the ſides of the cup, which will be attracted, and aſcending a little way will draw part of the contiguous fluid above the horizontal level, in conſequence of its attraction of aggregation, ſo as to form a concave ſurface to a certain extent. If, by a little care, more water be added, ſo that the fluid may project above the edge of the cup or glaſs, then the water cloſe to the edge will aſſume a ſurface viſibly convex; it being to a certain degree prevented from running over, both by the attraction of aggregation, and the attraction towards the ſides of the cup or glaſs. The like experiments repeated with other fluids, will be attended with reſults of the ſame ſpecies, but differing in degree, according to the nature of the fluid, and its attraction towards the other ſubſtances concerned in the experiments. Thus, if a ſmall drop of mercury be placed upon the flat ſurface of a piece of glaſs, it will aſſume a globular form, in conſequence of its attraction of aggregation; and it will adhere to the glaſs, when this is turned upſide down, on account of its attraction of coheſion. But it will be found impoſſible to ſpread it over the ſurface of the glaſs, like water, becauſe its attraction of aggregation is much more powerful than its coheſion to the glaſs. And it is for the ſame reaſon that if a glaſs or china cup be partly filled with mercury, this fluid will not riſe, like water, towards the ſides of the cup; but it will form a convex curve of conſiderable extent.

The different degrees of attraction between a given fluid and other ſubſtances, is eaſily ſhewn by the effects of contact. Thus a ſmall globule of mercury laid upon paper will adhere to glaſs when the latter is brought into actual contact, and is drawn by the glaſs from the paper; and in the ſame manner if a larger quantity of quickſilver be brought in contact with it, the ſmall globule will leave the glaſs, and will incorporate with the larger quantity of the ſame fluid metal.

The curvature of fluids round the bodies which float in them depends likewiſe upon the ſame cauſes, and hence that curvature is ſometimes convex, and at other times concave. Its extent alſo varies conſiderably; it being influenced, beſides the nature of the body and of the fluid, by heat and cold, and often by the interpoſition of a little unctuoſity, or ſuch minute bodies, as elude the ſtricteſt examination. It appears, therefore, from the above experiments and obſervations, that in a variety of caſes fluids aſſume a curvature of ſurface which depends on the circumſtances already enumerated; but thoſe circumſtances being very fluctuating, and often unperceived, it becomes extremely difficult, or rather impracticable, to determine in moſt caſes the nature of the actual curvature, any more than to pronounce it in general terms either *convex* or *concave*. See CAPILLARY *Attraction*.

With reſpect to the curvature of the ſky, an obvious phenomenon has been remarked from time immemorial, and ſeveral theories have been formed in explanation of it. The phenomenon is, that the ſtarry heavens, or the ideal vault, upon which the ſtars ſeem to be fixed, has the appearance, not of a ſpherical ſurface, but of a flattened vault, having its upper part nearer to us, than its lower edge, *viz.* the ſides which ſtand towards the horizon. And the ſame conſtellation appears to be much larger when it approaches the horizon, than when it ſtands nearly overhead. Yet when meaſured with a quadrant, its dimenſions are the ſame in either ſituation. This is likewiſe the caſe with the ſun and the moon. See HORIZONTAL *Moon*, and *Sun*.

In explanation of this phenomenon, ſeveral conjectures have been made, and moſt of them may be ſeen in Dr. Prieſtley's Hiſtory of Optics. But it would be needleſs to place before our readers any other hypotheſis, beſides that which ſeems to be by far the moſt rational and ſatisfactory. According to this hypotheſis, the phenomenon is conſidered as a deception of our ſight, or rather of the judgment formed on the perception of our eyes. And this ſuppoſition is grounded upon the following well known facts, and obvious deductions. In judging of the diſtances of objects, we are aſſiſted by four circumſtances; *viz.* the adjuſtment of the axes of our eyes; the compariſon of the ſituation of the object in queſtion with others which ſtand at known diſtances; the angle under which a known object is ſeen; and the degree of diſtinctneſs with which the object appears to us.

In looking at an object, we naturally move our eyes ſo that their axes produced may meet at that object, and according as that object is removed farther and farther from us, ſo the angle made by the axes of the two eyes becomes ſmaller and ſmaller; hence by this motion of our eyes we are enabled to judge with ſufficient accuracy of the diſtance of the object within certain limits. But when the object is removed a vaſt way from us, then the adjuſtment of the eyes becomes inſenſible, and of courſe the diſtance cannot be determined from it. Hence it is, that when we look at an object with only one eye, we form a very imperfect judgment of its diſtance. The effect ariſing from the ſituation amongſt other known objects does not require any farther explanation. When the object is familiar to us, ſuch as a man, a horſe, &c. the angle under which we ſee it, is ſufficient to inform us of its diſtance; for the farther the object is from us, the ſmaller muſt the angle be under which we ſee it. The laſt circumſtance is the diſtinctneſs of the appearance; and ſince ſmall objects become inviſible to us beyond a certain diſtance, it follows, that by loſing ſight of the minuteſt parts of a large object, we ſee the latter more and more confuſed and indiſtinct, in proportion as it is removed farther and farther from us. Hence, by a natural aſſociation of ideas, when we ſee an object indiſtinctly, we are led to ſuppoſe, that its ſituation is far from us. The effect of all theſe circumſtances may be obſerved in the practice of landſcape-painting; for when the artiſt means to repreſent a man at a great diſtance, he paints him very ſmall, and indiſtinct, placing him amongſt ſuch objects, or in ſuch a ſpot, as may, from other circumſtances, appear to be far diſtant from us. With reſpect to the celeſtial objects, it is evident, that the firſt three of the above-mentioned circumſtances cannot be concerned; hence the diſtinctneſs or indiſtinctneſs of the object is the only one which can influence our judgment.

It is to be remarked, that ſince the earth is ſurrounded by an atmoſphere which is loaded with vapours in various ſtates of exiſtence, the ſame object, at the very ſame diſtance, will appear to be farther from us when its ſituation is near the horizon, becauſe in that caſe the viſual rays paſs through a great portion of the atmoſphere, or partially-obſtructing medium, and the object appears indiſtinct; than when it ſtands near the zenith, where it looks brighter, and more diſtinct, becauſe the viſual rays paſs through a ſmaller portion of the atmoſphere. And our judgment is led to make the ſame concluſion with reſpect to that part of the apparent vaulted heavens upon which we ſee the ſtars. But independent of the ſtars, or ſun, and moon, the colour itſelf of the ſky, being a more determined azure towards the zenith, and more diluted towards the horizon, is ſufficient to impreſs us with the idea of the ſky being more extended towards the horizon, than overhead.

CURVATURE, in *Mathematics*. A ſtraight line drawn through any point of a curve-line in ſuch a manner that no other ſtraight line can be drawn through the ſame point, ſo as to paſs between the firſt line and the curve on either ſide, is called a tangent of the curve-line. In like manner, of all the circles that can have a common tangent with a curve line at any propoſed point, that one, which coaleſces ſo intimately with the curve, that none of the reſt can paſs between it and the curve on either ſide, is ſaid to have the ſame curvature as the curve at the propoſed point: or it is called the circle of equal curvature, or the oſculating circle.

Of all curves, the circle is that which is the moſt ſimple in its nature. It depends only on one arbitrary quantity: for when the radius of a circle is given, or found, the whole figure is determined. The periphery of a circle, too, being perfectly uniform, has an equable curvature throughout. For theſe reaſons, it ſeems natural to compare curve-lines with the circle, next after the ſtraight line. The tangents mark the directions of the ſeveral parts of a curve-line; the circles of equal curvature enable us to judge of the deviations from the rectilineal courſe.

It will readily be allowed, that the greater the radius of a circle is, the leſs is the curvature of its periphery. This is not an inference deduced from mathematical principles; it is a propoſition, of which we have a general conception, and which ſeems to flow naturally from the notion we have of a curve-line. There can be no meaſure of curvature fit to be the baſis of ſcientific reaſoning, independent of definition. No part of the mathematics has been treated more vaguely, or has been obſcured by more paradoxes, than the conſideration of curvature. The exploded myſteries about the angle of contact, once ſo much agitated, deſerve not to be drawn out of merited oblivion. The obſcurities and inconſiſtencies that occur in ſuch diſcuſſions, ariſe ſolely from the want of due care in laying down preciſe definitions. After having reflected on this ſubject, it appears moſt convenient to meaſure the degrees of the curvatures of different circles by the inverſe proportions of the radii. Thus a circle, that has a radius twice as great as another, will, according to this definition, have only half the curvature. Having thus fixed what is meant by the proportions of the curvatures of different circles, we can compare the degrees of curvature of all other curves by the help of the oſculating circles.

It is to be remarked, that the definition of the equicurve circle, which we have laid down, is independent of any aſſumed meaſure of curvature. It ſuppoſes that, when an indefinite number of circles have a common tangent with a curve-line, ſome of them coaleſce with the curve more intimately than others: and that there is one which coaleſces with the curve more intimately than all the reſt. This is the equicurve circle: and the degree of curvature is conſidered to be ſufficiently determined, when we have aſcertained the circle which has the cloſeſt poſſible contact with the propoſed curve. What is really uſeful in this inquiry depends upon the magnitude and the poſition of the equicurve circle, and not upon any nice and ſubtle diſquiſitions concerning the nature and the degrees of contact. There are caſes of continued curvature, where a leſs circle approaches nearer to a curve line than a greater, without any limit; and there are other caſes where a greater circle approaches nearer to a curve line than a leſs, without any limit: in the former inſtances, the curvature is ſaid to be infinitely great; and in the latter, the curvature is ſaid to be infinitely ſmall. In all other caſes of continued curvature, the degree of curvature is finite, and is meaſured by the equicurve circle.

The determination of the oſculating circles of curve-lines is a ſubject that has been much treated of by mathematicians; and it is important on account of its uſefulneſs in the doctrine of central forces. In order to lay before our readers a ſuccinct view of what is moſt valuable in this reſearch; we ſhall firſt treat of the oſculating circles of the conic ſections in a geometrical manner; and, in the ſecond place, we ſhall give ſome account of Mr. Huyghens's Theory of Evolute and Involute Curves, with its application to the preſent ſubject.

Of the Oſculating Circles of the Conic Sections.

Prop. I.

Let BD, (*Analyſis, Plate* III. *fig.* 1 and 2.) be ordinately applied to the axis of a parabola, or to the tranſverſe axis of an ellipſe, or hyperbola; and let B A and D A, drawn perpendicular to the lines touching the curve at B and D, meet in A: then are B A and D A (which are manifeſtly equal to one another) leſs than any other line drawn from A to the curve. And, in the ellipſe, if B E be an ordinate to the conjugate axis; and if B E and E K, perpendicular to the tangents at B and E, interſect in K; then are B K and E K (equal to one another) greater than any other line drawn from K to the periphery of the ellipſe.

Let the lines touching the conic ſection at B and D meet in F, and draw the diameter D C: let M be any point in the curve, and draw M N, terminated by the curve, parallel to D F, and let M N cut C D in O, and B F in L: alſo draw O R parallel to D A, and let it cut B A produced in R. It is manifeſt that B F = F D, and, becauſe,

$$BF^2 : FD^2 :: BL^2 : ML \times LN.$$

Therefore, $BL^2 = ML \times LN$. Conſequently, if a circle be deſcribed through the points B, M, and N, (5. 4. E.) B H will be a tangent of that circle, (37. 3. E.): therefore, the centre of that circle is in the line B R, perpendicular to B H, (19. 3. E.): but the ſame centre is in the line O R, (3. 3. E.): for M N is biſected in O, and O R (parallel to D A) is perpendicular to M N, (parallel to D F): therefore, R is the centre of the circle deſcribed through the points B, M, and N. But A B is the leaſt of all the lines that can be drawn from A to the periphery of the circle, whoſe centre is R, and the radius R B, (7. 3 E.): therefore, A B is leſs than A M. In like manner, it may be ſhewn, that A B is leſs than any other line drawn from A to the curve.

And the like reaſoning will equally apply in the caſe of the ellipſe, when B E is ordinately applied to the conjugate axis: but, in this caſe, the point R, which is the centre of the circle that paſſes through the points B, M, and N, will fall between the points K and B: therefore K B is the greateſt line that can be drawn from K to the circumference of that circle, (7 and 8. 3. E.): therefore, K B is greater than K M. Therefore, K B and K E are greater than any other line drawn from K to the periphery of the ellipſe.

Cor. 1. In all the conic ſections, the periphery of a circle deſcribed from the centre A, with the radius A B, will touch the curve at B and D, (that is, it will touch the tangents of theſe conic ſections at theſe points), and, every where elſe, will be wholly contained within the conic ſection. And, in the ellipſe, the periphery of a circle, deſcribed from the centre K, with the radius K B, will touch the ellipſe at B and E, and, every where elſe, will be wholly without the ellipſe.

Cor. 2. In the parabola and hyperbola, a circle, touching the curves internally at B (not the vertex of the axis), and having a greater radius than A B, will neceſſarily meet the curve again in another point different from B.

For ſuch a circle will wholly include the circle deſcribed with the radius A B; and, conſequently, it will include the point D: and, becauſe the parabola and hyperbola are continuous curve-lines, extending to an indefinite diſtance both ways, therefore, they will neceſſarily cut the circle in two points at leaſt, one on each ſide of the point D.

Cor. 3. And if a circle be deſcribed to touch an ellipſe at the point B (not the extremity of either axis), with a radius that is greater than A B, but leſs than K B, that circle will neceſſarily meet the periphery of the ellipſe again in another point, different from B.

For the circle deſcribed with the radius, A B, will be wholly within ſuch a circle, and the circle deſcribed with the radius, K B, will be wholly without it: conſequently, the point, D, will be with in ſuch a circle, and the point E will be without it. And, becauſe the periphery of the ellipſe is a continuous curve-line returning into itſelf, therefore it will neceſſarily meet the circumference in two points, at leaſt, one on each ſide of the point D.

Lemma. Let A, B, C, and D, be four right lines, ſuch that $A \times B = C \times D$; and let the ſum of A and B be likewiſe greater than the ſum of C and D: then the greater of the two lines, A and B, is the greateſt, and the other is the leaſt, of all the four lines.

Let A be greater than B, and E greater than D; and, if it be poſſible, let C be greater than A: then, becauſe $A \times B = C \times D$, therefore

$$C : A :: B : D.$$

Conſequently, the ſum of C and D is greater than the ſum of A and B, (25. 5. E.) contrary to the hypotheſis. Therefore A is greater than C and D, and B is leſs than C and D.

Prop. II.

Let B D, (*fig.* 3 and 4.) be ordinately applied to the axis of a parabola, or to the tranſverſe axis of an ellipſe, or hyperbola ; and let a circle, which touches the conic ſection at B, cut the curve again in M (*Cor.* 2 and 3 of Prop. I.): then, if M N be drawn parallel to the tangent D F, the circumference of the circle will paſs through N ; and, the part of the circumference of the circle that is on one ſide of M N will be within the conic ſection, and the other part of the circumference will be without the conic ſection.

Produce M N to meet the tangent of the curve, drawn from B, in L. Becauſe the tangents drawn from B and D are equal to one another, therefore, $ML \times LN = BL^2$: therefore the circle which touches the conic ſection at B, and paſſes through M, will likewiſe paſs through N; (37. 3. E.)

Draw the diameter D C, cutting M N in O, and make R O perpendiular to M N. Let a line, drawn parallel to M N, or D F, cut the circle in P and Q, the conic ſection in T and S, the diameter D C in G, the line R O in I, and the tangent B F in K. It is manifeſt, that M N is an ordinate of the diameter D C: and, becauſe R O biſects M N, one chord of a circle, at right angles, it will biſect all the chords parallel to M N. Thus $PI = IQ$, and alſo $TG = GS$; conſequently, $KP + KQ = 2\,KI$, and $KT + KS = 2\,KG$. Since the line, R O, croſſes the diameter of the conic ſection at the point of interſection, O, it is plain that K G is greater than K I, when the parallel is on one ſide of M N ; and, on the contrary, K I is greater than K G, when the parallel is on the other ſide of M N. Therefore, in the former caſe, $KT + KS$ are greater than $KP + KQ$; but, in the latter caſe, $KP + KQ$ are greater than $KT + KS$.

Becauſe the tangents, B D and D F, are equal to one another, therefore $KT \times TS = KB^2$: but $KP \times KQ$ is alſo $= KB^2$; therefore, $KT \times TS = KP \times KQ$.

From what has now been ſhewn, it follows that K S is greater, and K T leſs than K P or K Q, (*Lem.*), when the parallel is on one ſide of M N ; and, on the contrary, that K Q is greater, and K P leſs, than K S, or K T, when the parallel is on the other ſide of M N. Therefore, the part of the circumference of the circle, on one ſide of M N, is included within the conic ſection ; and the part of the circumference, on the other ſide of M N, is without the conic ſection.

Cor. 1. When the two points B and D are on oppoſite ſides of the line M N, the circumference of the circle falls within the conic ſection on both ſides of the point of contact B: but when the points B and D are on the ſame ſide of the line M N, the circumference of the circle falls without the conic ſection on both ſides of the point of contact B.

This is manifeſt, when it is conſidered that the point D is always included within the conic ſection.

Cor. 2. When one of the extremities of the line M N, falls on the point of contact B, the circumference of the circle meets the curve of the conic ſection only in two points.

Prop. III.

Let B D (*fig.* 5 and 6.) be ordinately applied to the axis of a parabola, or to the tranſverſe axis of an ellipſe or hyperbola ; and let B M be ordinately applied to the diameter of the curve drawn through D: then the circle which touches the conic ſection at B, and paſſes through the point M, is the oſculating circle at the point B ; and it will cut off, from the diameter drawn through the point of contact, a chord that is equal to the parameter of that diameter.

For the circle ſo deſcribed will meet the curve of the conic ſection only in the points B and M, (*Cor.* 2. 2.) ; and it will be wholly without the conic ſection on that ſide of B M on which the point D is, and wholly within the conic ſection on the other ſide of B M. And if another circle be deſcribed ſo as touch the conic ſection at B ; then this ſecond circle may be wholly included within the conic ſection (*Cor.* 1. 1.): or it may cut the curve of the conic ſection on the ſame ſide of B M as the point D ; in which caſe the circumference will likewiſe fall within the conic ſection on both ſides of the point B, (*Cor.* 1. 2.): or the ſecond circle may cut the curve of the conic ſection on the oppoſite of B M to the point D, in which caſe the circumference will fall without the conic ſection on both ſides of the point B, (*Cor.* 1. 2.): or laſtly, in the caſe of the ellipſe, the ſecond circle may be wholly without the ellipſe, ſo as to include it. (*Cor.* 1. 1.) Now, in none of all theſe caſes does the circumference of the ſecond circle paſs between the circumference of the firſt circle and the curve of the conic ſection on either ſide of the point B. Therefore the latter circle is the oſculating circle, or the circle of equal curvature, at the point B.

Again, let the diameter drawn through D meet B M in O, and the diameter drawn through B meet the oſculating circle in L: join M L and draw the tangents BH and DF.

Then, in the parabola, having joined L O, (*fig.* 6.); becauſe B O, an ordinate to D O, is parallel to D F, therefore the angle FDO = the angle DOB = the angle OBL; it is alſo manifeſt that the angle FDO = the angle HBL = (becauſe B H touches the oſculating circle) the angle BML, (32. 3. E.); therefore the angle OBL = the angle BML; and the triangle B L M is iſoſceles ; and L O, which biſects the baſe B M, is perpendicular to B M. Hence the two triangles B O L and B D L, right-angled at O and D, are equiangular : therefore

$$LB : BO :: BO : OD,$$

conſequently $BO^2 = LB \times OD$. Therefore L B is equal to the paramater of the diameter drawn through D, or to that of the diameter drawn through B.

And, in the ellipſe and hyperbola, from the centre C, (*fig.* 5.) draw C P parallel to M L, and C Q perpendicular to B M: becauſe B H touches the oſculating circle, therefore the angle CBH = the angle BML, (32. 3. E.) = the angle BPC: alſo, the angle CBH = the angle CDF = (becauſe B M is parallel to D F) the angle MOC: therefore the angle BPC = the angle MOC; and the triangle O C P is iſoſceles ; and C Q biſects O P. It is manifeſt that $BC^2 - CO^2 = BQ^2 - QO^2$, (47. 1. E.): but $BC^2 - CO^2 = DC^2 - CO^2 = DO \times OG$, (5. 2. E.): and $BQ^2 - QC^2 =$ (becauſe $OQ = QP$) $OB \times BP$, (5. 2. E.): therefore $DO \times OG = OB \times BP$. Therefore

$$DO \times OG : OB^2 :: OB \times BP : OB^2, \text{ or } BP : OB.$$

Becauſe C P is parallel to M L, therefore

$$BP : BM :: BC : BL,$$

and, $BP : \frac{1}{2}BM$, or $BO :: 2\,BC$, or $DG : BL$,

therefore $DO \times OG : OB^2 :: DG : BL$.

Therefore the chord B L is equal to the parameter of the diameter drawn through D, or to that of the diameter drawn through B.

The preceding propoſitions apply only to ſuch points of a conic ſection as are without an axis; for this reaſon it is neceſſary to add the following propoſition to complete the theory of the oſculating circles of the conic ſections.

Prop. IV.

If in A B. (*figs.* 7, 8, and 9.) the axis of a conic ſection, a line A P be taken adjacent to the vertex, and equal to the parameter of the axis; then a circle having that line for its diameter will be the oſculating circle at the vertex of the axis.

In the parabola, let H M, (*fig.* 7.) an ordinate of the axis, meet the circle upon the diameter A P in L: from the natures of the parabola and the circle. $HM^2 = PA \times AH$, and $HK^2 = PH \times HA$: hence, it is manifeſt that H K is leſs than H M: therefore the circle falls wholly within the parabola. Take A Q greater than A P and deſcribe a circle upon the diameter A Q: make Q R = A P; aſſume any point as H between A and R, and let an ordinate of the parabola drawn from H, meet the circle upon the diameter A Q in L: then, as before, $HM^2 = PA \times AH = QR \times AH$ and $HL^2 = QH \times HA$: hence it is obvious that H L is greater than H M: therefore the circumference of the circle upon the diameter, A Q, falls without the parabola on both ſides of the vertex. Hence it is plain that no circle upon a diameter, ſuch as A Q, that is greater than A P, can be the oſculating circle: for, if a circle be deſcribed upon a diameter leſs than A Q, but greater than A P; it will follow, from what has been proved, that the periphery of ſuch a circle will be without the parabola on both ſides of the vertex, while it will be within the circle upon the diameter A Q; that is, it will be between the two curves. And it is manifeſt that a circle upon a diameter leſs than A P, is not the oſculating circle; for the periphery of ſuch a circle will be equally within the parabola and the circle upon the diameter A P. Therefore the circle upon the diameter A P, equal to the parameter, is the oſculating circle at the vertex of the parabola.

Next, let A B, (*fig.* 8.) be the tranſverſe axis of an ellipſe or hyperbola, and let H M, an ordinate of A B, meet the circle upon the diameter A P in K. Then, from the nature of the conic ſection,

$$BH \times HA : HM^2 :: BA : AP,$$

but alſo

$$BH \times HA : PH \times HA :: BH : HP.$$

Now, it is plain, that the ratio of B H to H P is greater than the ratio of B A to A P (8. 5. E. *et componendo*): therefore (10. 5. E.) B H × H A, or HL^2, is leſs than HM^2; therefore the circle falls wholly within the conic ſection. Take A Q greater than A P, (and, in the ellipſe, leſs than the axis A B,) and deſcribe a circle on the diameter A Q: make as B P to P A, ſo B Q to Q R; and, it is plain that Q R will be leſs than Q A: draw an ordinate of the conic ſection from any point H between A and R, and let the ordinate meet the circle upon the diameter A Q in L. Then, as before,

$$BH \times HA : HM^2 :: BA : AP, \text{ or } BR : RQ,$$

$$BH \times HA : QH \times HA :: BH : HQ.$$

But the ratio of B R to R Q is greater than the ratio of B H to H Q: therefore HM^2 is leſs than Q H × H A, or HL^2: therefore the periphery of the circle upon the diameter A Q falls without the conic ſection on both ſides of the vertex of the tranſverſe axis. Hence, it is manifeſt, as in the caſe of the parabola, that the circle upon the diameter A P is the oſculating circle.

And, in the caſe of the conjugate axis of the ellipſe, it may be ſhewn, by ſimilar reaſoning, (*fig.* 9.) that the circle upon a diameter equal to the parameter, falls wholly without the ellipſe; and that a circle upon a leſs diameter falls within the ellipſe on both ſides of the vertex. Therefore, in this caſe alſo, the former circle is the oſculating circle of the ellipſe.

Thus have we inveſtigated two of the moſt remarkable properties of the oſculating circles of the conic ſections, by the help of which the circles in queſtion may be determined in every caſe. For, in the firſt place, we have proved that the oſculating circle at the point B paſſes through M (*figs.* 5 and 6.), where B M drawn parallel to the tangent of the circle at D, cuts the conic ſection; and, in the ſecond place, we have ſhewn that the ſame circle, in all caſes, cuts off, from the diameter drawn through the point of contact, a part equal to the parameter of that diameter.

Huyghens's Theory of Evolution.

We ſhall now proceed to explain the theory of evolute and involute curves, invented by Mr. Huygens, which will enable us to determine the oſculating circles of any propoſed curves. Let A B C, (*fig.* 10.) be any curve line whatſoever, having its curvature all turned one way; for the ſake of aſſiſting the imagination, the curve A B C may be conceived to be a mould of wood, or any ſolid materials; and let a thread, perfectly fine and flexible, be adapted to, or lapped round, the convexity of the curve, or mould; and, while one end of the thread remains immoveable on the curve, let the other end, after having been ſtretched to any propoſed point D, be moved ſo as to keep the thread always tight, and to unlap it gradually from the curve; then the moveable end of the thread will deſcribe a ſecond curve, the nature of which will depend on the given curve, and the poſition of the initial point D.

Mr Huyghens calls the curve A B C, from which the thread is unlapped, the evolute or *curva evoluta;* the curve, deſcribed by the moveable end of the thread, he calls *linea ex evolutione deſcripta,* and it is ſometimes termed the evolutrix, but more commonly the involute. This laſt name ſeems to have originated from a procedure directly oppoſite to evolution, for if the end of the thread be moved backward on the involute, the thread will be again lapped up on the mould.

The geometrical relation, that ſubſiſts between the evolute and involute curves, when abſtractly enunciated, is this; that every tangent of the evolute curve cuts the involute curve at right angles. Mr. Huyghens demonſtrates this property in the following manner. Let B E, touching the evolute at B, meet the involute at E, and draw E I perpendicular to E B: let G and H be two points of the evolute on oppoſite ſides of the point B, and H L and G K the tangents of the evolute drawn from G and H, meeting the involute at L and K; join K B and G B, and let E B and E I interſect H L in N and I. While the thread is unfolding from the evolute, the parts of it that are detached from the curve, coincide ſucceſſively with the tangents K G, E B, and H L. Hence E B = K G + curve G B; therefore E B is greater than K G + chord G B; and conſequently it is greater than B K, (20. 1. E.); therefore all the part of the involute, on the ſame ſide of B E as the point G, falls within the circle deſcribed with the radius B E: conſequently it falls within I E a tangent of that circle. Again, E B + curve B H = L H; therefore E N + N H are greater than L H; and N E greater than N L; but N I is greater than N E, (19. 1. E.); therefore it is greater than N L; therefore all the part of the involute, on the other ſide of B E, likewiſe falls within the line I E. Therefore I E touches the involute at E; that is, the tangents of the evolute cut the involute at right angles.

From this demonſtration it is eaſily inferred, that the circle deſcribed with the radius B E from the centre B, falls within the involute on the one ſide, and without it on the other ſide. It has already been ſhewn, in the preceding demonſtration, that the arc E K of the evolute is within the circle. Let the circle meet H L in R, and join R B and B H; then H R is leſs than R B + chord B H; therefore it is leſs than R B + curve B H, that is, than H L; therefore the arc E L of the evolute is without the circle.

It is next to be proved, that the ſame circle is the oſculating circle of the involute at the point E. It has been ſhewn that E N is greater than N L; therefore, if a circle be deſcribed with a radius E Q, greater than E N, the arc of the involute between E and L will fall within that circle, (7. 3. E.); but the part of the involute between E and K is alſo within the ſame circle; for it has been ſhewn above, to be within the circle deſcribed with the leſs radius B E; therefore the circle deſcribed with the radius B E, as well as the axes E L and E K of the involute, fall within a circle deſcribed with any radius, as E Q, greater than E N. Again, let K G meet E B in M; it is manifeſt that K M is greater than M E; therefore, if a circle be deſcribed with a radius E P leſs than E M, the arc E K of the curve will be without that circle, (7. 3. E.); but the part of the curve between E and L, is alſo without the ſame circle; for it has been ſhewn to be without the circle deſcribed with the greater radius B E, therefore the circle deſcribed with the radius B E, as well as the arcs E K and E L of the involute, fall without a circle deſcribed with any radius, as P E leſs than M E. Now, however little E Q exceeds E B, or however little E P falls ſhort of E B yet the tangents H L and G K may be drawn ſo near to B E, as that the point N ſhall be between the points Q and B, and the point M between the points P and B. Therefore no circle deſcribed to touch the involute at E, with a radius either greater or leſs than B E, will paſs between the involute and the circle deſcribed with the radius B E; therefore this laſt circle is the oſculating circle of the involute at the point E.

In the courſe of the laſt demonſtration it has been ſhewn that, a circle which touches the involute will fall within that curve on both ſides of the point of contact, if it be leſs than the oſculating circle: but, it will fall without the ſame curve on both ſides of the point of contact, if it be greater than the oſculating circle.

The view that we have taken of the ſubject of curvature makes it neceſſary to prove that the rectilineal deflections from the common tangent are equal in the involute and its oſculating circle. By the rectilineal deflections of an arc from the tangent, we mean the perpendicular drawn from one extremity of the line upon the line that touches it at the other extremity. The propoſition that we here propoſe to demonſtrate, does not neceſſarily follow from any thing before proved: and it is too important to be left undemonſtrated; for, on it, hinges the whole of the application of this ſubject to the doctrine of central forces. The propoſition may be thus enunciated: "If two arcs, E p and E q, (*fig.* 11.) equal in length, be taken on a curve and its oſculating circle, the limit of the ratio of the rectilineal deflections from the common tangent is the ratio of equality." Let B E be the radius of the oſculating circle, and E L the common tangent of the curve and the circle: take E P leſs, and E Q greater, than E B; and with theſe radii let two circles be deſcribed touching E L at E: then, as has been ſhewn, part of the circle whoſe radius is E P, will fall within both the curve and the oſculating circle on either ſide of E, and part of the circle whoſe radius is E Q will fall without both the ſame curves on either ſide of E: Take E L, upon the tangent, ſo ſmall that a perpendicular, drawn from L may cut the four curves in ſuch a manner that the points p and q, when it cuts the curve and the oſculating circle, may be between the points m and n when it cuts the two other circles. Then the leſs E P and E Q differ from E B, and the ſmaller E L is taken, the nearer will the points m and n come together; and the nearer will the ratio of the chords of the arcs E m and E n, or the ratio of the arcs E m and E n themſelves, approach to the ratio of equality; and likewiſe, in the ſame circumſtances, the nearer will the ratio of the deflections L m and L n approach to the ratio of equality: and, by taking E P and E Q nearer and nearer to E B, and E L ſmaller and ſmaller, it is plain that both the ratios juſt mentioned will approach to the ratio of equality without any limit. But what is true of theſe ratios is much more true of the ratio of the arc E p ro the arc E q, and of the ratio of L p to L q: becauſe theſe two laſt ratios are always nearer to the ratio of equality than the two firſt ratios. Thus, then, as the arcs E p and E q are diminiſhed, their ratio, as well as the ratio of the deflections L p and L q, approach continually to the ratio of equality without any limit.

The effect of every central force is to deflect the moving body from the tangent: hence it follows, from this laſt propoſition, that it is indifferent whether we ſuppoſe the momentary motion to be performed in any curve, or in the oſculating circle of that curve; becauſe the deflections from the tangent are the ſame in both.

If the arc E q of the oſculating circle be ſo ſmall, that it may be conſidered as equal to its chord; then, from the nature of the circle, $2\,EB \times Lq = Eq^2$, or $2\,EB \times Lp = Ep^2$: therefore $EB = \frac{Ep^2}{2\,Lp}$; that is, the radius of curvature is directly as the ſquare of the arc, and inverſely as the deflection from the tangent, where the arc is indefinitely diminiſhed. Hence it likewiſe follows, that the *curvature* at two points of different curves, or at two different points of the ſame curve, are proportional to the deflections from the tangents in very ſmall arcs of equal length: for ſuch deflections are inverſely proportional to the radii of curvature at the two points.

The method of generating one curve by unlapping a thread from another curve, is certainly very ingenious: and it is well calculated to aſſiſt the imagination in forming clear and preciſe notions in a matter of no little ſubtilty. It demonſtrates in the cleareſt manner this curious property of two curves, one of which cuts all the tangents of the other at right angles; *viz.* That the difference of two tangents bounded by the curves is preciſely equal to the arc intercepted between the two points of contact. We ſhall now add ſome inferences from what has been demonſtrated.

If any number of points, as R, E, L, (*fig.* 10.) be aſſumed in any curve, and if R G, E B, L H be drawn perpendicular to the ſeveral tangents, theſe perpendiculars will be all tangents of the evolute of the propoſed curve. The point N, in which two of the perpendiculars interſect, is always without the evolute, but is the nearer to it, the leſs is E L the portion of the curve intercepted between the two perpendiculars: and if we ſuppoſe the arc E L to be continually diminiſhed, while one of the perpendiculars, as E N, retains its poſition, the point, N, will continually approach to the point B, which will be the ultimate place of N. Thus, we ſee that, in any propoſed curve, the poſitions of the centres of the oſculating circles, and the lengths of their radii, may be deduced from the curve itſelf, without any conſideration of the evolute: and this ſhews that, for any given curve, it is always poſſible to find a correſponding evolute.

Only one tangent can be drawn to the evolute from a point aſſumed in the curve: and hence, from ſuch a point, only one perpendicular can be drawn to the involute. From a point on the convex ſide of the evolute, two tangents of that curve can be drawn (for the ſake of ſimplicity we confine our attention to one branch of the evolute, having a continued curvature all turned one way): therefore, from ſuch a point, two perpendiculars can be drawn to the involute. But, from a point on the concave ſide of the evolute, no tangent at all can be drawn: therefore, from ſuch a point, no perpendicular can be drawn to the involute. Thus the evolute divides the whole plane which contains the involute into two diſtinct ſpaces; if a point be aſſumed in the one, two perpendiculars can be drawn from that point to the involute; if a point be aſſumed in the other, no perpendicular at all can be drawn; and if a point be aſſumed in the line of ſeparation, then only one ſuch perpendicular can be drawn.

We will now inquire how the length of the radius of the oſculating circle, and the poſition of its centre, are to be determined for a curve whoſe equation is known. Let DA (*fig.* 12.) be the axis of the curve; EH, an ordinate, $= y$; DH, the correſponding abſciſs, $= x$; EB, the radius of the oſculating circle, $=$ R: draw BN parallel, and BK perpendicular, to DA: let ER be a ſmall arc of the curve, and draw RS perpendicular to EH. Suppoſe $\dot{x}$ and $\dot{y}$ to denote the correſponding fluxions of the abſciſs and ordinate; then $\dot{x} =$ RS and $\dot{y} =$ ES: put $\frac{\dot{x}}{\dot{y}} = \frac{\text{RS}}{\text{ES}} = \tau$; and τ will be the tangent of the angle RES (radius 1), or the tangent of the angle EBN, which is plainly equal to RES; then the fluxion of that angle, or the length of the little arc that meaſures the angle EBR, $= \frac{\dot{\tau}}{1+\tau^2}$: and the length of the like arc, when the radius is R, $= \text{R} \times \frac{\dot{\tau}}{1+\tau^2}$: but, from the nature of the equicurve circle, the laſt arc is plainly equal to the little portion of the curve $\text{ER} = \sqrt{\dot{x}^2+\dot{y}^2} = \dot{x}\sqrt{1+\frac{\dot{y}^2}{\dot{x}^2}} = \frac{\dot{x}}{\tau}\sqrt{1+\tau^2}$; therefore $\text{R} \times \frac{\dot{\tau}}{1+\tau^2} = \frac{\dot{x}}{\tau}\sqrt{1+\tau^2}$; whence,

$$\text{R} = \frac{\dot{x}}{\tau\dot{\tau}} \times (1+\tau^2)^{\frac{3}{2}}; \text{ where } \tau = \frac{\dot{x}}{\dot{y}}.$$

Again, the ſine of the angle EBN $= \frac{\tau}{\sqrt{1+\tau^2}}$;

And the coſine of the ſame angle $= \frac{1}{\sqrt{1+\tau^2}}$:

Hence BN = EB × coſine of EBN $= \frac{\dot{x}}{\tau\dot{\tau}} \times (1+\tau^2)$;

And EN = EB × ſine of EBN $= \frac{\dot{x}}{\dot{\tau}} \times (1+\tau^2)$:

Therefore,

$$\text{DK} = \text{BN} + \text{DH} = x + \frac{\dot{x}}{\tau\dot{\tau}} \times (1+\tau^2).$$

$$\text{BK} = \text{EN} - \text{EH} = -y + \frac{\dot{x}}{\dot{\tau}} \times (1+\tau^2).$$

The ſymbol τ (which is the tangent of the angle that the radius of curvature makes with the axis of the curve (radius 1) is purpoſely introduced, in the above expreſſions, to avoid ſecond fluxions: becauſe we are thus left at liberty to make any one of the variable quantities we pleaſe, to flow uniformly.

To illuſtrate theſe formulas, let the propoſed curve be the conic parabola, of which the equation is, $4px = y^2$. Then $y = 2p^{\frac{1}{2}}x^{\frac{1}{2}}$; and $\frac{\dot{y}}{\dot{x}} = \frac{p^{\frac{1}{2}}}{x^{\frac{1}{2}}} = \frac{1}{\tau}$; hence $\tau^2 = \frac{x}{p}$, and $\frac{\dot{x}}{\tau\dot{\tau}} = 2p$: therefore the radius of curvature $= \frac{\dot{x}}{\tau\dot{\tau}} \times (1+\tau^2)^{\frac{3}{2}} = 2p \times (1+\frac{x}{p})^{\frac{3}{2}}$. At the vertex of the curve, where $x = 0$, the radius of curvature is $= 2p = \frac{1}{2}$ of the principal parameter.

To inveſtigate the nature of the evolute, we have D K $= x + \frac{\dot{x}}{\tau\dot{\tau}}(1+\tau^2) = x + 2p \times \left(1+\frac{x}{p}\right) = 3x + 2p$: let the evolute meet the axis of the parabola at A; then D A = radius of curvature at the vertex $= 2p$; therefore A K = D K − D A $= 3x$.

Again, B K $= -y + \frac{\dot{x}}{\dot{\tau}}(1+\tau^2) = -y + 2p^{\frac{1}{2}}x^{\frac{1}{2}}\left(1+\frac{x}{p}\right) = -y + 2p^{\frac{1}{2}}x^{\frac{1}{2}} + \frac{2x^{\frac{3}{2}}}{p^{\frac{1}{2}}} =$ (becauſe $y = 2p^{\frac{1}{2}}x^{\frac{1}{2}}$) $\frac{2x^{\frac{3}{2}}}{p^{\frac{1}{2}}}$.

Draw A M perpendicular to A D, and put A M = B K $= z$; and B M = A K $= u$: then $u = 3x$, and $z = \frac{2x^{\frac{3}{2}}}{p^{\frac{1}{2}}}$: hence the equation of the evolute is $u^3 = \frac{27}{4} \times pz^2$; which ſhews that the curve ſought is a ſemicubical parabola.

The arc A B of the evolute, according to what has been taught, is equal to B E − A D, or in ſymbols, to $2p \times \left(1+\frac{x}{p}\right)^{\frac{3}{2}} - 2p$. Thus it appears, that any propoſed arc of the ſemicubical parabola may be exactly rectified. The inveſtigation we have here given is due to Mr. Huyghens; but this curious diſcovery was firſt made by Mr. Will. Neil, an Engliſhman and a pupil of Dr. Wallis, and from him the curve to which it relates is ſometimes called *Parabola Neiliana*. The ſame diſcovery ſeems alſo to have been made, very little later in point of time, and without any knowledge of what had been done in England, by Van Heuraet, a Dutch mathematician.

Let there be propoſed the equation $p^n x^{m-n} = y^m$, which comprehends all curves of the parabolic kind: then $y\,p^{\frac{n}{m}}x^{\frac{m-n}{m}}$; and $\frac{\dot{y}}{\dot{x}} = \frac{m-n}{m} \cdot p^{\frac{m}{m}}x^{-\frac{n}{m}} = \frac{1}{\tau}$;

hence $\tau^2 = \frac{m^2}{(m-n)^2} \times \frac{x^{\frac{2n}{m}}}{p^{\frac{2n}{m}}}$; and $\frac{\tau\dot{\tau}}{\dot{x}} = \frac{m\,n}{(m-n)^2} \times \frac{x^{\frac{2n-m}{m}}}{p^{\frac{2n}{m}}}$. Thus $R = \frac{\dot{x}}{\tau\dot{\tau}} \times (1 + \tau^2)^{\frac{3}{2}} = \frac{(m-n)}{m\,n} \times \frac{p^{\frac{2n}{m}}}{x^{\frac{2n-m}{m}}} \times \left\{ 1 + \frac{m^2}{(m-n)^2} \times \left(\frac{x}{p}\right)^{\frac{2n}{m}} \right\}^{\frac{3}{2}}$.

In the cubical parabola, whoſe equation is $p^2 x = y^3$, we have $m = 3$ and $n = 2$, and $R = \frac{p}{6} \times \left(\frac{p}{x}\right)^{\frac{1}{3}} \cdot \left\{ 1 + 9 \left(\frac{x}{p}\right)^{\frac{4}{3}} \right\}^{\frac{3}{2}}$. Now, in this caſe, the leſs x is taken, or the nearer we approach the vertex of the parabola (the point where the ordinates begin), the greater does R become: ſo that R is infinitely great at the vertex. This is an inſtance of curvature infinitely ſmall: and the ſame thing will plainly happen whenever the equation of the curve is ſuch that $2\,n$ exceeds m.

In the ſemi-cubical, or Neilian, parabola, whoſe equation is $p\,x^2 = y^3$, we have $m = 3$, and $n = 1$: and $R = \frac{3p}{4} \times \left(\frac{x}{p}\right)^{\frac{1}{3}} \left\{ 1 + \frac{9}{4} \left(\frac{x}{p}\right)^{\frac{2}{3}} \right\}^{\frac{3}{2}}$. In this caſe, the leſs x is taken, or the nearer we approach the vertex of the curve, the ſmaller does R become; and, at the vertex, it is infinitely ſmall. This is an inſtance of curvature infinitely great; and the caſe will be the ſame whenever the equation of the curve is ſuch that $2\,n$ is leſs than m.

Thus, then, in the whole ſeries of parabolas, comprehended in the equation $y^m = p^n\,x^{m-n}$, the conic parabola, which anſwers to the caſe $m = 2\,n$, is the only one that has a finite curvature at the vertex. In all the reſt the curvature at the vertex, when compared with the circle, is either infinitely ſmall, or infinitely great. And theſe ſeveral curvatures can as little be compared with one another as they can with the curvature of the circle. They form a ſcale of infinitely varied gradation, every ſtep of which furniſhes a new curvature, *ſui generis*: *neque novit natura limitem.* Princ. Math. Lib. 1. Lem. ii. Schol. But this is a ſubject on which we muſt not enter; our preſent purpoſe being excluſively confined to the compariſon of curve lines with the circle.

If we examine the varied curvature of one leg of the ſemi-cubical parabola, by means of the general expreſſion of the radius of curvature, it will be found to paſs through all poſſible degrees of finite curvature, conſtantly decreaſing the farther the curve is continued. But in the cubical parabola, the caſe is different; for the curvature is infinitely ſmall both at the beginning of the ordinates and when they are infinitely great. Therefore, in this parabola, the curvature muſt firſt increaſe and then decreaſe again; and there will be ſome point where the curvature is a maximum, or the radius of curvature leſs than at any other point of the curve. This point of greateſt curvature will be found by treating the expreſſion for the radius of curvature according to the rules for finding the maxima and minima of quantities.

Sir Iſaac Newton has given the name of "variation of curvature" to the proportion which the fluxion of the radius of curvature bears to the fluxion of the curve; and the logarithmic ſpiral, in which this ratio is every where the ſame, he calls a curve "equably variable." Newton's Fluxions.

We ſhall conclude this ſubject with inveſtigating a formula for finding the oſculating circles of the curves that are generated by the revolving of a "radius vector" about a fixed centre, or pole, ſuch as the ſpirals. Let A (*fig.* 13.) be the pole, M a point in the curve, and O the centre of the oſculating circle; let M N be a very ſmall part of the curve, and join M A, N A, M O, N O; draw M R, A P, and A Q, perpendicular to A N, M O and N O reſpectively. The nature of ſuch curves is moſt commonly defined by aſſigning the relation that ſubſiſts between the radius vector A M and the angle which it makes with a line A B given by poſition. Put $AM = \varrho$, and let the arc that meaſures the little angle M A N on the circle whoſe radius is $1, = \dot{\phi}$: then $NR = \varrho\dot{\phi}$, and $NR = \varrho$, and $MN = \sqrt{\dot{\varrho}^2 + \varrho^2\dot{\phi}^2}$: It is plain that the triangles M N R and M A P are equiangular; hence M P (for which we ſhall write p) $= \frac{AM \times MR}{MN} = \frac{\varrho^2\dot{\phi}}{\sqrt{\dot{\varrho}^2 + \varrho^2\dot{\phi}^2}}$: again, becauſe $AM^2 = MO^2 + OA^2 - 2\,MO.\,OP^2$ and $AN^2 = NO^2 + AO^2 - 2\,NO.\,OQ$: therefore, ſince $MO = ON$, $NA^2 - MA^2 = 2\,MO \times \overline{OP - OQ} = 2\,MO \times \overline{NQ - MP}$; that is, in ſymbols, writing R for M O, $2\,\varrho\dot{\varrho} = 2\,R\,\dot{p}$: Hence $R = \frac{\varrho\dot{\varrho}}{\dot{p}}$, a formula of eaſy application.

The nature of the evolute will be known from the values of the radius vector A O, and the perpendicular upon the tangent A P. Now $AP = \sqrt{\varrho^2 - p^2}$: and $AO = \sqrt{MO^2 - 2\,MO.MP + MA^2} = \sqrt{\frac{\varrho^2\dot{\varrho}^2}{\dot{p}^2} - 2\,\frac{\varrho\dot{\varrho}}{\dot{p}}p. + \varrho^2}$

$$= \varrho\sqrt{\frac{\dot{\varrho}^2}{\dot{p}^2} - 2\,\frac{\dot{\varrho}}{\dot{p}} + \frac{\dot{p}}{\varrho} + 1}.$$

In the logarithmic ſpiral, all the *radii vectores* cut the curve in the ſame angle: let this conſtant angle be denoted by m; then, in this curve, $\frac{p}{\varrho} = \text{ſin.}\,m$, and $\frac{\dot{\varrho}}{\dot{p}} = \frac{1}{\text{ſin.}\,m.}$: whence $AO = \varrho \times \sqrt{\frac{1}{\text{ſin.}^2\,m.} - 1} = \varrho \times \frac{\text{coſ.}\,m.}{\text{ſin.}\,m.}$; therefore MAO is a right-angled triangle; and the angle A O M, which the radius vector of the evolute makes with the curve of the evolute, is conſtantly equal to the given angle m, or to the angle which the radius vector of the involute makes with the curve of the involute. Thus it appears that, in the inſtance of the logarithmic ſpiral, the evolute is not only ſimilar to the involute, but it is preciſely the very ſame curve in a different poſition. James Bernouilli firſt diſcovered this curious property; and, admiring the conſtant reproduction of the ſame curve by repeated evolutions, he deſired that a logarithmic ſpiral ſhould be engraved on his tomb-ſtone, with the inſcription *eadem mutata reſurgo.*

CURVATURE, *Variation of.* See VARIATION.

CURVATURE, *Double*, is uſed for the curvature of a line, all the parts of which are not ſituated in the ſame plane.

CURUCHE, in *Geography*, a town of Portugal, in the province of Alentejo, diſtrict of Aviz, with a population of 2400 inhabitants.

CURUCUI, in *Ornithology*, a name given to ſeveral ſpecies of TROGON; which ſee.

CURVE, in *Geometry*. The original idea, from which all our notions of geometrical magnitudes are derived, is that of a ſolid. From the idea of a ſolid, we get the notion of a ſurface, which is the boundary of a ſolid; and in like manner, from the idea of a ſurface, we derive the notion of a line, which is the boundary of a ſurface, and poſſeſſes length only without breadth or thickneſs.

Straight Line.

The ſimpleſt ſorts of lines are thoſe which are called ſtraight, or right, lines. The idea of a ſtraight line is of ſo ſimple and uncompounded a nature, that it appears difficult, if it be poſſible, to make it clearer by any deſcription or definition. It will certainly not be maintained that Euclid has ſucceeded in his attempt to define a ſtraight line, when he ſays that it is ſuch a line as "lies evenly between its extreme points:" for the phraſe here uſed does not convey a more clear and preciſe meaning than the word *ſtraight*, which it is intended to define. We apprehend that the moſt philoſophical courſe to purſue in this caſe is to omit defining what cannot be made clearer by definition; and fairly to take it for granted that whoever underſtands the Engliſh language muſt have a diſtinct idea of the meaning which the word *ſtraight* is intended to convey. All the purpoſes of geometry will be anſwered by ſtating as an axiom, or ſelf-evident inference from the idea of a ſtraight line, that particular property which is ſelected to be the foundation of ſcientific reaſoning. And this is in effect what Euclid has done; for none of his concluſions are drawn from his definition, but they all hinge on the 10th axiom, which is an inference obviouſly flowing from the notion we have of ſtraight lines.

Curve Line.

It is no leſs difficult to give a direct definition of a curve line than of a ſtraight line. The ancient geometricians ſeem to have extended the appellation of a curve line (καμπυλη γραμμη) not only to lines, ſuch as the circle and the conic ſections, that have a regular and continued curvature, but alſo to lines made up of ſeveral contiguous ſtraight lines in different directions; and even to mixed lines compoſed partly of ſtraight, and partly of curve lines. We ſhall exclude ſuch ſingular combinations from the claſs of curves by defining a curve line to be "that which is neither a ſtraight line, nor compoſed of ſtraight lines."

The ſtraight line and the circle, the ſimpleſt of all the curves, are the ſubjects of the plane geometry. Next after the plane geometry, the ancient geometricians ranked the theory of the conic ſections, of which we have treated in its proper place. Theſe two branches comprehend nearly the whole of the ancient geometry; a very few curves, deviſed for the ſolution of particular problems, and forming no connected theory, do not deſerve to be diſtinguiſhed as a ſeparate branch. The moſt noted of the curves here alluded to are the following: the ſpiral of Archimedes; the conchoid of Nicomedes; the ciſſoid of Diocles; and the quadratrix of Dinoſtratus.

It may not be amiſs to notice in this place a claſſification of lines laid down by the ancient mathematicians in their treatiſes on geometrical loci. The moſt ſimple of the local propoſitions, comprehending ſuch as related to the circle, they called *loci plani*; the more complex propoſitions, depending on the conic ſections, they termed *loci ſolidi*; and all other local propoſitions, which they could not reduce to one or other of theſe two claſſes, they comprehended under the generic name of *loci lineares*, in the inveſtigation of which they had made no advances. Pappus, lib. vii.

The inſtance of the "*Locus ad rectas*" will ſerve to illuſtrate what is here ſaid. In this locus, a certain number of ſtraight lines, as four or ſix, are ſuppoſed to be given by poſition; it is ſuppoſed too that ſtraight lines are drawn from a point to cut each of the lines given by poſition in a given angle; further, in the caſe of four lines given by poſition, the ratio of the rectangle contained by two of the lines drawn from the point to cut the lines given by poſition, to the rectangle contained by the other two, is to be a given ratio; and, in the caſe of ſix lines given by poſition, the ratio of the ſolid contained by three of the lines drawn from the point to cut the lines given by poſition, to the ſolid contained by the other three, is to be a given ratio; then the queſtion is to inveſtigate from theſe data the nature of the line that the point will touch. The caſe of four right lines given by poſition (*locus ad quatuor rectas*) fell within the compaſs of the ancient geometry, and it was ſhewn in general to be a *locus ſolidus*; but, in particular ſtates of the data, it might become a *locus planus*; that is, in this caſe, the point touched a conic ſection, and in particular circumſtances, a circle, or a right line. But, in the caſe of ſix right lines given by poſition (*locus ad ſex rectas*), the inveſtigation ſurpaſſed the limits of the ancient geometry; and the propoſition fell into the unknown claſs of *loci lineares*.

It is not till the time of Des Cartes that the general properties of curve lines can be conſidered as forming a ſeparate branch of the mathematical ſciences. This celebrated philoſopher and mathematician firſt pointed out the application of algebra to geometry; and, by this happy thought, laid the foundation of the great modern improvements in analyſis. For it requires only a ſuperficial view of the hiſtory of the mathematics to ſhew that the chief modern diſcoveries have originated from reſearches into the properties of curve lines.

Let A B (*Analyſis, Plate* VI. *fig.* 1.) be a right line given by poſition, and A a given point in it; from A draw A C making a given angle with A B, and let PM, drawn from the point P, be parallel to A C. Then the poſition of the point P will be perfectly aſcertained when we ſhall have determined theſe four things: *viz.* the length of the line A M; the length of the line PM; whether A M lies on the right or the left of the point A; and whether P M is above or below the line A B.

A mathematical curve line may be conſidered as a ſeries of points, all of which are poſſeſſed of ſome common property. What is called the *equation of the curve* is merely the algebraical expreſſion of the relation that muſt neceſſarily ſubſiſt between the lengths of the lines A M and MP, in order that the point P may have the property which is characteriſtical of the curve line. This equation puts it in our power to find the length of one of the lines, as M P, when the length of the other, A M, is given; and, the ſeveral points of the curve, that correſpond to any propoſed portions of the fixed line A B, are by this means determined, as far as the two firſt of the conditions enumerated above are concerned.

The line A B is called the axis of the abſciſſas.

The portion of the axis, A M, is called an abſciſſa; and the fixed point, A, is called the origin of the abſciſſas.

The line P M, parallel to A C, is called an ordinate of the curve. The ordinates are underſtood to be at right angles to the axis, unleſs the contrary be expreſsly mentioned.

A point of a curve is ſometimes determined by two lines, as P M and P N, drawn from it parallel to two axes, A B and A C: in this caſe, P M and P N are called co-ordinates; and the point A, where the axes croſs, is called the origin of the co-ordinates.

We ſhall denote the abſciſſa, A M, by the algebraical ſymbol x, and the correſponding ordinate by the ſymbol y.

The next thing to be conſidered regards the poſition of the abſciſſas in reſpect of the point A; and the poſition of the ordinates in reſpect of the axis A B. On this head the rules of analyſis are clear and explicit; and there is no doubt that they are juſt and accurate. But although theſe rules ſuggeſt themſelves readily enough in the application of algebra to geometry, and there has been no difference of opinion about them, yet no author, that we know of, has ſucceeded in deducing them, in a perſpicuous manner, from firſt principles. The doctrine of negative quantities comes into play here; a doctrine concerning which much has been written that is vague, much that is ſubtile, nothing that is very clear and ſatisfactory. The author that appears to have approached neareſt to the unravelling of this part of the theory of curve lines is M. Carnot, in his "Geometrie de Poſition," (See particularly the Diſcours Preliminaire); to which treatiſe we refer ſuch of our readers as are pleaſed with diſquiſitions of this kind.

Adopting the received doctrine of poſitive and negative quantities, as laid down by the writers on algebra; all the poſitive abſciſſas are to be ſet off on one ſide of the point A, *Fig.* 1. as on the right-hand ſide; then it will follow of courſe, that the negative abſciſſas, which are of an oppoſite nature to the poſitive ones, muſt be ſet off on the left-hand ſide of the ſame point. In like manner, all the poſitive ordinates, whether they correſpond to poſitive abſciſſas or to negative ones, are to be drawn on one ſide of the line A B, as on the upper ſide of it; and, then, all the negative ordinates, whether they correſpond to poſitive abſciſſas or negative ones, muſt neceſſarily be drawn below the line A B. Thus a poſitive ordinate, that correſponds to a poſitive abſciſſa, will be placed above the line A B, on the right hand of the point A, as M P; and a negative ordinate, that correſponds to ſuch an abſciſſa, will be placed below the line A B, on the right hand of the point A, as M P^1: and, again, a poſitive ordinate, that correſponds to a negative abſciſſa, will be placed on the left-hand of the point A, above the line A P, as mp; and a negative ordinate, that correſponds to ſuch an abſciſſa, will be placed on the left-hand of the point A, below the line A B, as mp^1. Thus the equation of the curve, which expreſſes the relation of the lengths of the abſciſſas and the correſponding ordinates, is, at the ſame time, ſufficient, with the help of the directions juſt laid down, to fix the relative poſitions of the ſame lines; becauſe the rules for reſolving algebraic equations not only inveſtigate the numerical values of the unknown quantities, but likewiſe determine the ſigns that muſt be prefixed to theſe values.

It is to be remarked that what are called impoſſible, or imaginary, roots in algebra, have no place in the theory of curve lines. Theſe myſterious quantities have no correſpondent expreſſion in geometry. When a known value, poſitive or negative, is given to the abſciſſa, then every real value of the ordinate deduced from thence, whether poſitive or negative, will determine a point in the curve by being placed in its proper poſition; but the impoſſible values of the ordinate only mark that we are paſt the limits of the curve, and that we have been ſeeking for it, where it is not to be found.

Figure of Curve Lines.

The connection between the algebraic values of the abſciſſas and ordinates, and their different poſitions, being a capital point in the geometry of curve lines, we ſhall endeavour to illuſtrate it by a few examples.

1. *Fig.* 2. Let the equation of the curve be $px = y^2$. The general value of y, in this equation, is $= \pm \sqrt{px}$. And here we ſee that there are no ordinates correſponding to the negative abſciſſas; for, when x is made negative, the value of y becomes impoſſible; there will, then, be no part of the curve on the negative ſide of the origin of the abſciſſas. It appears alſo that, for every poſitive abſciſſa there will be two ordinates, both equal in length, the one poſitive, and the other negative. Hence, it is plain, that this curve will be one continuous line, having two legs uniting in the origin of the abſciſſas, extending indefinitely on both ſides of the poſitive part of the axis, and receding conſtantly from it.

This curve is no other than a conic parabola, of which p is the principal parameter. The ſame obſervations will equally apply to all curves included in the general equation $px^n = y^m$, when n is an odd, and m an even number, and m is greater than n; ſuch as, $px^3 = y^4$, $px^3 = y^6$, &c.

For the greater preciſion it may be proper to remark, that a curve, whoſe equation is $px^n = y^m$, will be concave, or convex to the axis, according as m is greater or leſs than n. When m and n are equal, the equation belongs to a ſtraight line.

2. *Fig.* 3. Let the equation of the curve be $p^2x = y^3$; the general value of y is $= \overline{p^2x}|^{\frac{1}{3}}$. It appears, from this expreſſion of the value of y, that there is only one poſitive ordinate for every poſitive abſciſſa; and only one negative ordinate for every negative abſciſſa. Therefore this curve will conſiſt of two branches, uniting in the origin of the abſciſſas, and extending indefinitely in oppoſite directions; the one above the axis of the abſciſſas, and the other below it.

The ſame will be the caſe with every curve included in the general equation $px^n = y^m$, when n and m are both odd numbers.

Point of contrary Flexure.

It is plain that curves of this kind have their curvatures turned in oppoſite directions; for if the concavity, or convexity, of one branch be toward the right, the concavity, or convexity of the other branch, will be toward the left. In this caſe, the curve is ſaid to undergo a contrary flexure; and the point, where the change takes place, is called a point of contrary flexure.

3. *Fig.* 4. Let the curve be expreſſed by the equation $px^2 = y^3$. The general value of y is $= \overline{px^2}|^{\frac{1}{3}}$. In this inſtance the ordinates are all poſitive whether x be poſitive or negative; and thus there is no part of the curve below the axis of the abſciſſas. This curve will conſiſt of two branches diverging from the origin of the abſciſſas, and both on the ſame ſide of the axis.

A like figure belongs to all curves included in the equation $p x^n = y^m$, when n is an even, and m an odd number, and m is greater than n.

Cuſpis.

When a curve is reflected back, as happens in the preſent inſtance at the origin of the abſciſſas, the point where the change in the direction of the curve takes place is called a cuſpis, or point of reflection. The marquis de L'Hopital diſtinguiſhes points of reflexion into two kinds; the firſt kind is when the convexities of the curve, before and after the cuſpis, are turned toward each other, as in the inſtances we have juſt been conſidering; the ſecond kind (*fig.* 5.) is when the convexity of the part of the curve on one ſide of the cuſpis is turned toward the concavity of the part on the other ſide of the cuſpis. The ſecond kind of cuſpis was diſputed by ſome mathematicians; but inſtances where it actually takes place were produced by D'Alembert, and it muſt now be admitted. The equation $(a y - x^2)^2 = \frac{x^5}{b}$ is an inſtance of a curve having a cuſpis of the ſecond kind at the origin of the abſciſſas.

The ſeveral caſes which we have gone through deſerve particular notice; and indeed they ought to be conſidered as elementary propoſitions in the theory of curve lines. For, by proper transformations, they will enable us to examine the nature of the curvature at any propoſed point in any curve. To do this, we muſt make the point of the curve the origin of the abſciſſas, and take, for the axis, the line drawn perpendicular to the tangent of the curve; then the relation that ſubſiſts between the abſciſſas and the ordinates, when both are very ſmall, or in a naſcent ſtate, will, for the moſt part, coincide with one or other of the caſes above enumerated; and thus we ſhall diſcover whether the curvature is continued without interruption, or a contrary flexure, or a cuſpis, takes place at the propoſed point.

Conchoid.

4. As an inſtance of a more complex figure, let there be propoſed the conchoid (*fig.* 6.) of the ancients, of which the equation is, $x^2 y^2 = (a^2 - x^2) \times (b - x)^2$. The general value of the ordinate is, $y = \pm \sqrt{a^2 - x^2} \times \frac{b - x}{x}$. Here, when $x = o$, the ordinate is infinitely great; therefore, if A K be drawn through the origin of the abſciſſas parallel to the ordinates, that line will no where meet the curve. But, for every poſitive value of x how ſmall ſoever, it is plain that there correſpond two equal ordinates, one poſitive and the other negative; therefore the curve will conſiſt of two equal branches, one above and the other below the axis of the abſciſſas, which approach nearer to the line A K than any aſſignable diſtance, but no where meet it. A right line, ſuch as A K, to which a curve continually approaches but never meets, is called an aſymptote.

The points, in which a curve will cut the axis of the abſciſſas, will be determined by putting $y = 0$, and ſeeking the values of x in the reſulting equation. In the preſent inſtance, when $y = 0$, then $(a^2 - x^2) \times (x - b) = 0$, whence $x = \pm a$, and $x = b$: therefore, ſuppoſing a to be greater than b, make A D and A E each $= a$, and A B $= b$; and B, D, E, will be the points in which the curve will meet the axis. It is plain that the two branches of the curve both paſs through the point B, and meet again at the point D, beyond which there is no part of the curve on the poſitive ſide of A: for the ordinates change their ſigns when x, from being leſs than b, becomes greater than b; and they are impoſſible when x is taken greater than a. To examine the figure of the curve on the negative ſide of the origin of the abſciſſas, write $-x$ for $+x$ in the expreſſion for y, then $y = \pm \sqrt{a^2 - x^2} \times \frac{b + x}{x}$: whence it is eaſy to infer that the curve will conſiſt of two infinite branches, uniting at E, and extending on oppoſite ſides of the axis along the ſame aſymptote as before.

The part of the curve between B and D is called a *nodus*.

A point, ſuch as B, where two branches of a curve interſect, is called a *punctum duplex*. In like manner, when three branches of a curve paſs through one and the ſame point, that is called a *punctum triplex*. When a *punctum multiplex* takes place, there is always a certain number of equal values of y correſponding to one value of x: but the converſe muſt not always be inferred. Thus, when two points of ſection coaleſce into one point of contact, there is no *punctum duplex*: but if the equality of the ordinates ſtill remains, however the equation of the curve be transformed, or to whatever axis the ordinates be referred, then we may conclude with certainty that there is a *punctum multiplex*, according to the number of equal ordinates.

When $a = b$, then the points B and D (*fig.* 7.) come together, the *nodus* diſappears, and there is a *cuſpis* at B.

When a is leſs than b, the curvature at D (*fig.* 8.) is continued without interruption, and there is neither a *nodus* nor a *cuſpis*.

5. Let there be now propoſed the curve whoſe equation is $a y^2 = (x + b)\ (x^2 - a^2)$. The general expreſſion of the ordinate is $y = \pm \frac{\sqrt{(x + b)\ (x^2 - a^2)}}{\sqrt{a}}$. The values of x, correſponding to $y = 0$, are $+a$, $-a$, and $-b$ (*fig.* 9.): therefore make A B and A C each equal to a, and A D $= b$, (which is ſuppoſed to be greater than a): then the curve will cut the axis at the points B, C, and D. There are no ordinates correſponding to ſuch abſciſſas as are leſs than a: therefore there is no part of the curve between A and C, nor between A and B. When x is poſitive and greater than a, the correſponding ordinates will increaſe as x increaſes; and the curve, on the poſitive ſide of A, will conſiſt of two infinite legs uniting at B. When x is negative, then $y = \pm \frac{\sqrt{(b - x)\ (x^2 - a^2)}}{\sqrt{a}}$: whence it appears that there will be an oval, or a curve encloſing ſpace, correſponding to the part of the axis between C and D.

An oval, ſuch as that juſt mentioned, which is placed apart from the other branches of the curve, is called an *ovalis conjugata*.

As b approaches nearer to a in value, the part of the axis C D, to which the oval correſponds, becomes leſs and leſs; and when b is exactly equal to a (*fig.* 10.), then the oval contracts into a ſingle point; which is, nevertheleſs, to be reckoned a part of the whole curve belonging to the equation $a y^2 = (x + a)\ (x^2 - a^2)$. A ſingle point of this ſort, which, though it is detached from the other parts of the curve, yet ſatisfies the equation of the curve, is called a *punctum conjugatum*.

Claſſification of Lines.

In the courſe of the examples that have been adduced, the moſt remarkable circumſtances reſpecting the figure of curve lines have been briefly noticed. To the reader, who is pleaſed with this ſpeculation, and wiſhes to purſue it further, we recommend the peruſal of ſir Iſaac Newton's "Enumeratio Linearum tertii Ordinis." When the ſcope of this doctrine is conſidered, it is plain that a curve line may be employed to exhibit the correlative magnitudes of any two indeterminate quantities, which depend upon one another in ſuch a manner, that, when any values of the one are aſſumed, the correſponding values of the other may be thence computed. For this purpoſe, the given values of one of the indeterminate quantities muſt be made the abſciſſas of the curve; and then the correſponding values of the other will become the ordinates. Thus the number of curve lines is infinitely great. Hence it is neceſſary to introduce order into the ſtudy of this ſubject, by proper claſſification.

The great diviſion of lines is into geometrical and mechanical.

Geometrical Lines.

The claſs of geometrical lines comprehends all thoſe in which the relation between the abſciſſas and the correſponding ordinates is expreſſed by a finite algebraic equation: ſuch are all the curves in the preceding examples. This claſs comprehends the ſtraight line.

Mechanical Curves.

The mechanical curve lines are all thoſe in which the relation of the abſciſſas and ordinates cannot be expreſſed by a finite algebraic equation. The moſt remarkable quantities, which cannot be algebraically expreſſed in finite terms, are the lengths of circular arcs and logarithms: and it is on theſe quantities that the moſt noted of the mechanical curves depend. The cycloid and the ſpiral of Archimedes are inſtances of mechanical curves derived from the circle: the logarithmic curve is an inſtance of one derived from logarithms; and the logarithmic ſpiral is an inſtance of one depending equally upon circular lines and logarithms. It has not been found requiſite to ſubdivide the mechanical curves into ſubordinate claſſes.

Algebraic and Tranſcendent.

Many authors uſe the words *algebraic* and *tranſcendent*, in place of *geometrical* and *mechanical*, introduced by Des Cartes: and, when it is conſidered that the diſtinction ſignified refers ſolely to the nature of the equations which characteriſe the curves, it muſt be allowed that the former terms ſeem to be more appropriate than the latter. Leibnitz gave the name of *curvæ interſcendentes* to a claſs which he conſidered as holding an intermediate rank between the algebraical and tranſcendent curves. This claſs comprehended ſuch as had ſurd exponents in their equations: as, for inſtance, $y = x^{\sqrt{2}}$.

Orders of Algebraic Lines.

The claſs of algebraic lines, which, on account of their mutual affinity, are alone capable of general diſcuſſion, are ſubdivided into orders according to the degrees of their equations. It hardly requires to be remarked, that the degree of any term of an equation depends only on the exponents of the indeterminate quantities, and not at all upon the invariable or given coefficients; but it muſt be carefully obſerved, that the degrees of ſuch terms, as involve the two indeterminate quantities, are to be reckoned by the ſums of the exponents of both. Thus all the terms, x^2, xy, y^2, are homogeneous, and equally of the ſecond degree; all theſe, x^3, x^2y, xy^2, y^3, are of the third degree; all theſe, x^4, x^3y, x^2y^2, xy^3, y^4, are of the fourth degree. When the equation of a line is freed from rational fractions, and from ſurds, then its order, or genus, is to be reckoned by the exponent of the homogeneous terms of the higheſt degree contained in it.

Complete Equation.

The equation of a line is complete when it contains all the homogeneous terms that characteriſe its order, and all thoſe of all the inferior degrees. Thus the complete equations of the firſt, ſecond, and third orders of lines are as follow:

1ſt order, $ax + by + c = 0$.

2d order, $ax^2 + bxy + cy^2 + dx + ey + f = 0$.

3d order, $ax^3 + bx^2y + cxy^2 + dy^3 + ex^2 + fxy + gy^2 + hx + ky + l = 0$.

Theſe equations plainly comprehend all the poſſible varieties of one order; and what can be proved to be true of a line expreſſed by a complete equation, muſt be admitted to be a general property of all lines of that order. This diſtribution of lines comprehends the ſtraight line, which forms the firſt order. Some authors, excluding the ſtraight line, give the name of curves of the firſt order to the ſame claſs which have been ranked as lines of the ſecond order; and, in like manner, they call curves of the ſecond order what have been ranked as lines of the third order.

Number of Terms of a complete Equation.

It is important to know the number of terms that an equation will contain when it is complete: becauſe this alone is ſufficient to determine the number of points through which it is poſſible to deſcribe a curve line of any propoſed order. Now the number of homogeneous terms of the nth degree is plainly $n + 1$; and becauſe a complete equation of the nth order contains all the homogeneous terms of all the degrees that can enter into it, therefore the number of the terms muſt be equal to the ſum of the arithmetical ſeries, $(n + 1) + n + (n - 1) + (n - 2) \ldots\ldots + 1$; which ſum is equal to $(n + 1) \times \frac{n + 2}{2}$. The number of the coefficients of a complete equation is apparently the ſame as the number of the terms: but it is to be obſerved, that one of the coefficients may be made to diſappear by diviſion; ſo that, in reality, the number of arbitrary coefficients is one leſs than the number of the terms, and it is therefore equal to $\frac{n^2 + 3n}{2}$. And if as many points be propoſed as there are arbitrary coefficients in a complete equation of any order, then the curve of the ſame order that will paſs through all theſe points will be determined. For, let any line at pleaſure be drawn for an axis, and let any point in it be aſſumed for the origin of the abſciſſas, and let ordinates be drawn to this axis in any given angle; then there will be as many known abſciſſas, with a known ordinate correſponding to each, as there are given points; and theſe, being reſpectively ſubſtituted in the equation of the curve, will furniſh an equal number of equations, in which every thing is known, excepting the coefficients of the ſeveral terms. Therefore, by proceeding according to the rules for reſolving ſimple equations in algebra, the ſeveral coefficients will be found in terms of the known abſciſſas and ordinates: and hence the equation of the curve ſought will be completely determined. In this manner it is proved that a line of the ſecond order may be deſcribed through five points; and one of the third order through nine points.

Change of the Axis.

When the equation of a curve is found for any one axis, it may be transformed into another equation, in which the indeterminate quantities ſhall denote the abſciſſas and ordinates of a new axis drawn at pleaſure. As this is an operation continually wanted in the theory of curve lines, it muſt not be paſſed over without explanation. Let P, (*fig.* 11.) be a point, the poſition of which is determined by the abſciſſa $AM = x$, and the ordinate $MP = y$: and let $AM' = z$, and $PM' = u$, be the abſciſſa and ordinate of the ſame point referred to a new axis A C, it is required to expreſs the firſt abſciſſa and ordinate, x and y, by means of the new abſciſſa and ordinate, z and u. Draw $A'N$ and $M'H$ parallel to A M; and $A'B$ and $M'K$ parallel to P M: put $AB = h$, and $A'B = k$: let the angle AMP, in which the firſt ordinate cuts its axis be $= m$, and the angle MPM', contained between the firſt and the new ordinates be $= n$, and the angle $M'AN$, between the two axes be $= v$: then, obſerving that the ſine of the angle $PM'H = \text{ſin.}\ (m + n)$, and the ſine of the angle $AM'K = \text{ſin.}\ (m + v)$, the following determinations are readily derived from the theorem in trigonometry that the ſides of a triangle are proportional to the angles oppoſite to them; *viz.*

$$PH = \frac{\text{Sin.}\ (m + n)}{\text{Sin.}\ m.} \times u$$

$$M'K = HN = \frac{\text{Sin.}\ v}{\text{Sin.}\ m} \times z$$

$$AK' = \frac{\text{Sin.}\ (m + v)}{\text{Sin.}\ m.} \times z$$

$$M'H = KN = \frac{\text{Sin.}\ n}{\text{Sin.}\ m} \times u.$$

Hence, becauſe $AM = AB + A'K + KN$, and $PM = PH + HN + A'B$, we have in ſymbols,

$$x = \frac{\text{Sin.}\ (m + v)}{\text{Sin.}\ m} \times z + \frac{\text{Sin.}\ n}{\text{Sin.}\ m} \times u + h$$

$$y = \frac{\text{Sin.}\ (m + n)}{\text{Sin.}\ m} \times u + \frac{\text{Sin.}\ v}{\text{Sin.}\ m} \times z + k.$$

If the ordinate PM' is to cut its axis at right angles, the values of x and y become,

$$x = \frac{\text{Sin.}\ (m + v,}{\text{Sin.}\ m} \times z + \frac{\text{Coſ.}\ (m + v)}{\text{Sin.}\ m} \times u + h$$

$$y = \frac{\text{Coſ.}\ v}{\text{Sin.}\ m} \times u + \frac{\text{Sin.}\ v.}{\text{Sin.}\ m} \times z + k.$$

And, if both the firſt and the new ordinates are perpendicular to their axes, then

$$x = \text{Coſ.}\ v \times z - \text{Sin.}\ v \times u + h$$
$$y = \text{Coſ.}\ v \times u + \text{Sin.}\ v \times z + k.$$

If theſe values of x and y be ſubſtituted for them in the equation of any curve, the reſult will be a new equation of the ſame curve referred to a new axis drawn at pleaſure. But however the axis of the curve may be changed in this way, yet it is plain that the order of the curve will remain unalterably the ſame. The two laſt expreſſions for x and y are the moſt uſeful; they contain three arbitrary quantities, *viz.* Sin. v, h, and k, which may be determined ſo as beſt to ſuit the purpoſe in hand.

Subordinate Species.

We are now to conſider the complete equations of the ſeveral orders, with the view of claſſing the ſubordinate ſpecies contained in each.

Firſt Order of Lines.

The complete equation of the firſt order of lines is $ax + by + c = o$; which, by changing the coefficients may be brought to this form, $y = \frac{a}{b} x + c$. Here there is plainly no variety; for whatever changes be made in the coefficients or the ſigns, the locus of the equation is equally in all caſes a right line. It is thus conſtructed. *Fig.* 12. From the origin of the abſciſſas A, draw A B parallel to the ordinates, and equal to c; draw B N parallel to the axis, take $Bn = a$, and make mn parallel to the ordinates, and $= b$: then the line drawn through B and m is the locus of the equation, as is manifeſt.

Second Order of Lines.

The ſecond order of lines will require more diſcuſſion. The complete equation, when the arbitrary coefficients only are retained, is

$$y^2 + 2axy + bx^2 + 2cy + 2dx + e = o.$$

This equation may be thus written,

$$(y + ax + c)^2 - (a^2 - b)\,x^2 - 2\,(ac - d)\,x = c^2 - e. \quad \text{(A.)}$$

And there are three caſes to be diſtinguiſhed; when $a^2 - b$ is a poſitive quantity; when it is negative; and when it is equal to nothing.

Hyperbola.

I. Let $a^2 - b$ be poſitive, and $= p^2$; and let $p^2 q = ac - d$: then the equation (A) becomes, by ſubſtitution, $(y + ax + c)^2 - p^2 (x + q)^2 = c^2 - e - p^2 q^2$: let the left-hand ſide of this equation be reſolved into its factors, and, for the ſake of brevity, put $m = p + a$, $n = p - a$, $r = pq + c$, $s = pq - c$; and the reſult will be, $(y + mx + r) \times (y - nx - s) = c^2 - e - p^2 q^2$, an equation which may be thus conſtructed: *Fig.* 13 and 14. Draw cde parallel to the ordinate P M, and make $cd = n \times Ad$, and $ce = m \times Ad$; and draw the lines AcQ, and AeR: make A H parallel to the ordinate P M, and $= s$, alſo $AK = r$; and draw H L and K N, interſecting in O, parallel to A Q, and A R. Then $PN = PM + MR + RN = y + mx + r$, and $PL = PM - MQ - QL = y - nx - s$: therefore $PL \times PN = c^2 - e - p^2 q^2$; whence it is manifeſt that the curve, which is the locus of the point P, is a conic hyperbola, of which O L and O N are the aſymptotes. When $c^2 - e - p^2 q^2$ is a poſitive quantity, the point P will be without the angle L O N: and, in this caſe, if O S be drawn parallel to P M and $= \sqrt{c^2 - e - p^2 q^2}$; then P will be a point in the hyperbola. But when $c^2 - e - p^2 q^2$ is a negative quantity, then P will be within the angle L O N: and if F G be interpoſed between O L and O N, ſo as to be parallel to P M, and $= 2\sqrt{p^2 q^2 + e - c^2}$; then S, the middle of F G, will be a point in the hyperbola. Thus, in every caſe, the general equation, when $a^2 - b$ is poſitive, belongs to a conic hyperbola, which paſſes through a given point, and has two given lines for its aſymptotes.

The complete locus, in the former caſe, conſiſts of the two oppoſite hyperbolas, lying in the angles, adjacent to the angle L O N; and, in the latter caſe, it conſiſts of the two oppoſite hyperbolas contained in the angle L O N, and the angle oppoſite to it.

If $c^2 - e - p^2 q^2 = o$, the equation reſolves itſelf into theſe two, $y + mx + r = o$, and $y - ux - s = o$; which are the equations that determine the poſition of the right lines O L and O N.

Under this head are comprehended all caſes of the general equation where either y^2, or x^2, or both of them, are wanting.

Ellipſe.

II. When $a^2 - b$ is a negative quantity; put $p^3 = b - a^2$, and $p^2 q = ac - d$, and the equation (A) will become $(y + ax + c)^2 + p^2 (x + q)^2 = c^2 - e - p^2 q^2$. Becauſe the left-hand ſide of this equation is eſſentially poſitive, conſiſtency requires that the other ſide of it ſhould likewiſe be poſitive; and if this condition be wanting, the inference is, that the equation is abſurd, and cannot be conſtructed at all. *Fig.* 15. Draw de parallel to the ordinate P M, and make $de = a \times \mathrm{A}d$; and draw A$e$H: make A R parallel to P M, and $= c$, and draw R O G parallel to A H: take $\mathrm{AK} = q$, and draw K L parallel to A R. Then $\mathrm{PO} = \mathrm{PM} + \mathrm{MH} + \mathrm{HO} = y + ax + c$: alſo $\mathrm{KM} = \mathrm{AM} + \mathrm{AK} = x + q = \frac{\mathrm{A}d}{\mathrm{A}e} \times \mathrm{LO}$: therefore $\mathrm{PO}^2 + \frac{\mathrm{A}d^2}{\mathrm{A}e^2}\, p^2 \times \mathrm{LO}^2 = c^2 - e - p^2 q^2$: make $\mathrm{LN} = \sqrt{c^2 - e - p^3 q^2}$; and $\mathrm{LG} = \frac{\mathrm{A}d}{\mathrm{A}e} \cdot p \times \mathrm{LN}$: then $\mathrm{PO}^2 + \frac{\mathrm{LN}^2}{\mathrm{LG}^2} \times \mathrm{LO}^2 = \mathrm{LN}^2$; whence it is manifeſt that the locus of the point p is a conic ellipſe, of which the lines L G and L N, given in magnitude and poſition, are two conjugate ſemi-diameters.

Parabola.

III. The remaining caſe to be conſidered is, when $a^2 - b = o$: the equation (A) becomes $(y + ax + c)^2 - 2(ac - d)x = c^2 - e$; and, by putting $2q = ac - d$, and $4qr = c^2 - e$, it is changed into $(y + ax + c)^2 = 4q(x + r)$, an equation belonging to a conic parabola. *Fig.* 16. Draw de and A R parallel to P M; and make $de = a \times \mathrm{A}d$, $\mathrm{AR} = c$, and $\mathrm{AK} = r$: draw R O parallel to AeN, and K L parallel to P M: then $\mathrm{PO} = y + ax + c$, and $\mathrm{KM} = x + r = \frac{\mathrm{A}d}{\mathrm{A}e} \times \mathrm{LO}$: therefore $\mathrm{PO}^2 = 4\frac{\mathrm{A}d}{\mathrm{A}e} q \times \mathrm{LO}$; whence the locus of the point p is a conic parabola, having L O for one of its diameters, and the parameter of that diameter $= 4 \cdot \frac{\mathrm{A}d}{\mathrm{A}e} \times q$.

As every poſſible caſe of the complete equation of lines of the ſecond order falls under one or other of the three heads we have ſeparately examined, it follows that the three curves, known by the name of the conic ſections, comprehend all the varieties of this order of lines. The ſame curves which the Greek geometricians, nearly two thouſand years before the time of Des Cartes, derived from the ſections of a ſolid cone, preſent themſelves here, under a new aſpect; and their mutual affinity, as well as their characteriſtical differences, are as ſtrongly marked by the varied ſignification of the ſame algebraic expreſſion, as they are by the changes of poſition in a geometrical conſtruction. It may be proper to obſerve that the nature of the higheſt member of the equation, and the ſpecies of the curve to which that equation belongs, both depend on the ſame quantity $a^2 - b$: for when $a^2 - b$ is poſitive, the higheſt member of the equation, or $y^2 + 2axy + bx^2$, has two real binomial factors; and the curve to which the equation, in this caſe belongs, is the hyperbola: when $a^2 - b$ is poſitive, the higheſt member has no real binomial factors; and the curve to which it belongs is the ellipſe: and when $a^2 - b = o$, the higheſt member is a complete ſquare, or has two equal binomial factors; and the curve is the parabola.

Third Order of Lines.

Lines of the third order are divided by ſir Iſaac Newton, firſt into four principal diviſions, or genera; and theſe are again ſubdivided into no leſs than ſeventy-two different ſpecies. The purpoſe of claſſification is, in ſome meaſure, defeated, when the number of ſubordinate ſpecies becomes ſo exceſſively great. It will not be expected that we can enter into any detail concerning a ſubject occupying ſo large a field, and which, after all, muſt be allowed to be more curious than uſeful. The enumeration of the illuſtrious author is founded on the varieties of figure that reſult from all the poſſible caſes of the general equation. This principle of claſſification is certainly not a little arbitrary. Perhaps there is leſs reaſon to be ſurpriſed that a few caſes have been omitted, than that ſo complete an enumeration was made with ſo unſure a guide. Mr. Stirling, who has commented on the treatiſe of ſir Iſaac, has added four ſpecies to thoſe of his author: and who will ſay that the enumeration is at laſt complete?

Some mathematicians have advanced a different principle for ſubdividing the orders of curves, which, they think, is leſs precarious than the conſideration of figure. It is founded on the number of branches which run out to an infinite diſtance. And, as the number of ſuch branches depends on the number of real binomial factors of that member of the equation, where the indeterminate quantities riſe to the higheſt dimenſions, it cannot be denied that there is here an analytical character fit to be the baſis of a ſyſtematic arrangement. This new principle has the more impoſing an aſpect, as it ſucceeds completely for lines of the ſecond order; where the number of different curves, as has already been noticed, correſponds exactly with the varieties of the higheſt member of the equation in regard to binomial factors. M.M. Euler and Cramer have both given a claſſification of lines of the third order founded on the number of infinite branches; and although they agree in the firſt or principal diviſions, yet they differ from one another in ſubdividing theſe; for the former claſſes the whole order in ſixteen genera, while the latter enumerates only fourteen. We may therefore conclude that there is ſomething arbitrary in all the claſſifications of curve lines hitherto propoſed; and that mathematicians have not clearly pointed out the route which is to be followed, at leaſt in what regards the minuter ſubdiviſions.

General Properties of Curves of all Orders.

Newton has remarked that all geometrical curve lines have properties analogous to thoſe which the ancient geometricians have demonſtrated of the conic ſections. In treating of ſo extenſive a ſubject, the nature of our work neceſſarily confines us to a general view only; but as it is in tracing the properties of curve lines common to all the orders, that the ſuperior power and excellence of the algebraic method is moſt to be admired, we muſt not paſs over ſo intereſting a part of the theroy of curve lines with a general remark.

Reſuming the general equation of lines of the ſecond order, viz.

$$y^2 + 2axy + bx^2 + 2cy + 2dx + e = 0:$$

Let the poſition of a point, ſituated any where in the ſame plane, and referred to the ſame axis as the curve, be determined by the abſciſſa p and the ordinate q; let a right line (making an angle denoted by m with the ordinate

q)

q) be drawn to cut the curve, and let ϱ denote the ſegment of this line between the point and the curve; let x and y be the abſciſſa and ordinate of the curve drawn from the extremity of ϱ; then, ſuppoſing the ordinates to be perpendicular to the axis, it is plain that ϱ Sin. $m = q + y$, and ϱ Coſ. $m = p + x$; whence $y = \varrho$ Sin. $m - q$ and $x = \varrho$ Coſ. $m - p$; let theſe values of x and y be ſubſtituted in the equation of the curve, and, for the ſake of brevity, put,

$$A = \text{Sin.}^2 m + 2a\,\text{Sin.}\,m\,\text{Coſ.}\,m. + b\,\text{Coſ.}^2 m$$

$$B = \text{Sin.}\,mp + a\,\text{Coſ.}\,mp + a\,\text{Sin.}\,mq + b\,\text{Coſ.}\,mq - c\,\text{Sin.}\,m - d\,\text{Coſ.}\,m$$

$$C = p^2 + 2apq + bq^2 - 2cp - 2dq + e$$

then the equation of the curve will be transformed into the following

$$A\varrho^2 - 2B\varrho + C = 0.$$

And if the ſame ſubſtitutions be made in an equation of any order, as the nth order, that equation will be transformed into another of this form

$$A\varrho^n - B\varrho^{n-1} + C\varrho^{n-2} \ldots\ldots \pm N = 0.$$

Now three of the terms of the transformed equation deſerve particular attention. The firſt is the term that contains the higheſt power of ϱ; the coefficient of which depends only on the angle m, in which the line cuts the ordinates of the curve, and not at all upon the quantities p and q that determine the poſition of the point through which the line is drawn: the ſecond is the laſt term, which, on the contrary, depends upon the quantities p and q, and not at all upon the angle m; and the third is the ſecond term, the co-efficient of which involves the quantities p and q ſimply, without any of their powers, or products. From theſe obſervations, ſome general properties of curve lines may be readily deduced.

1. A right line cannot meet a curve line in more points than there are units in the number which denotes the order of the curve. For, in the transformed equation, if the quantities p and q, and the angle m, which determine the poſition of the cutting line, be ſuppoſed to be given, then ϱ will be the unknown quantity; and every value of ϱ, which ſatisfies the equation, will give a point common to the right line and the curve; but the number of ſuch values cannot be greater than the exponent of the higheſt power of ϱ, which, it is plain, is the ſame as the number that denotes the order of the curve.

2. If there be any number of parallel ſtraight lines, every one of which cuts the curve in as many points as there are units in the number which denotes the order of the curve, then a ſtraight line may be drawn to cut all the parallels in ſuch a manner, that the ſum of the ſegments of each of the parallels on one ſide of the line ſhall be equal to the ſum of the ſegments of the ſame parallel on the other ſide of the line. Let the co-efficient of the firſt term of the transformed equation, containing the higheſt power of ϱ, be taken away by diviſion, then

$$\varrho^n - \frac{B}{A}\varrho^{n-1} + \frac{C}{A}\varrho^{n-2} \ldots\ldots \pm \frac{N}{A} = 0:$$

an equation which, in the preſent hypotheſis, has all its roots real; for they are manifeſtly the ſegments that lie between the point through which the line is drawn and the ſeveral points where it cuts the curve; it follows, from what has already been noticed, that the co-efficient of the ſecond term, $\frac{B}{A}$, will be of this form $a + b \times p + c \times q$, when a, b, and c, are quantities that depend on the angle m; and if we ſuppoſe the angle m to be given, then we may determine p and q ſo that $a + b \times p + c \times q = 0$; in which caſe, the ſecond term of the above equation will be wanting; but when the ſecond term of an algebraic equation is wanting, then the ſum of the poſitive roots is equal to the ſum of the negative ones; that is, in the preſent inſtance, the ſum of the ſegments, on one ſide of the point through which the line is drawn, is equal to the ſum of the ſegments on the other ſide of it; now the equation $a + b \times p + c \times q = 0$ belongs to a right line, the poſition of which depends on the quantities a, b, and c, that is, on the angle m; therefore, the property in queſtion will take place for every line drawn to make an angle equal to m with the ordinates of the curve, provided it cut the curve in the requiſite number of points.

The property which is here demonſtrated of all geometrical curves, is analogous to what is proved of lines ordinately applied to the diameters of the conic ſections; and thus the right line, determined by the equation $a + b \times p + c \times q = 0$, may, in general, be called a diameter; and the parallels which it cuts may be ſaid to be ordinately applied to that diameter.

3. If a point be aſſumed in the plane of a curve, and two right lines be drawn through it, ſo as to be parallel to two lines given by poſition, and both to cut the curve in as many points as there are units in the number which denotes the order of the curve; then the continued product of all the ſegments of one of the right lines, between the aſſumed point and the ſeveral points where the line cuts the curve, will have, to the like product under the ſegments of the other right line, the ſame conſtant ratio, wherever the point through which the two lines are drawn, is aſſumed. Let p and q denote the abſciſſa and ordinate that determine the poſition of the aſſumed point; and let m be the angle which one of the two right lines, drawn through the aſſumed point, makes with q; then the ſegments of this line, between the aſſumed point and the ſeveral points of ſection of the curve, will be the roots of the equation

$$\varrho^n - \frac{B}{A}\varrho^{n-1} + \frac{C}{A}\varrho^{n-2} \ldots\ldots \pm \frac{N}{A} = 0;$$

which roots, in the preſent hypotheſis, will be all real; therefore the continued product of the ſame ſegments will be equal to $\frac{N}{A}$, the laſt term of the equation; and, it is to be recollected, that N depends only on p and q, and A, only on the angle m. In like manner, if m' denote the angle which the other right line makes with q, then the continued product of the ſegments of this line will be equal to $\frac{N}{A'}$; where N is the ſame as before, and A' is derived from the angle m', in the ſame manner that A is derived from the angle m; therefore the firſt product is to the ſecond product as $\frac{N}{A}$ to $\frac{N}{A'}$, or as $\frac{1}{A}$ to $\frac{1}{A'}$; a ratio which plainly depends only on the angles m and m', and remains the ſame ſo long as the two lines are drawn parallel to two lines given by poſition.

Many other general properties of curve lines might be deduced from the transformation we have here uſed; but we have already enlarged on this ſubject as far as our limits will permit. The application of fluxions to the drawing of tangents, determining the points of contrary flexure, and other important parts of the theory of curve lines, will engage our attention in other parts of our work. Such of our readers as wiſh to acquire a profound and critical knowledge of this part of the higher geometry, may conſult Stirling's "Lineæ tertii ordinis Newtonianæ;" Maclaurin's "Geometria Organica;" and his other works; the ſecond volume of Euler's "Introductio in Analyſin infinitorum;" and Cramer's "Introduction a l'analyſe des lignes courbes Algebriques."

CURVE *of equable Approach*. See APPROACH.

CURVE *of a double curvature*, or CURVE *having a double curvature*, is uſed for a curve, all the parts of which do not lie in the ſame plane; that is, ſuch as cannot be deſcribed on the ſame plane.

The curves commonly treated of in geometry, are ſuppoſed to be deſcribed, or to have all their points placed in the ſame plane; but if a curve be ſuppoſed to be deſcribed on a curve ſurface, in ſuch a manner that all the points of that curve cannot lie or be ſituated in one and the ſame plane, then will the curve ſo deſcribed have a *double curvature*.

Monſieur Clairaut has publiſhed an ingenious treatiſe on curves of a double curvature. See his "Recherches ſur les Courbes, à double Courbure," Paris, 4to. 1731. Mr. Euler has alſo treated this ſubject in the "Appendix to his Analyſis Infinitorum," vol ii. p. 323.

CURVE, *Inflection of a*. See INFLECTION.

CURVE, *Quadrature of a*. See QUADRATURE.

CURVE, *cauſtic*, in the higher geometry, a curve formed by the concourſe, or coincidence of the rays of light reflected, or refracted from ſome other curve.

Every curve has its twofold cauſtic; accordingly, cauſtics are divided into *catacauſtics* and *diacauſtics*; the one formed by reflection, the angle of reflection being equal to that of incidence, the other by refraction.

The geneſis of theſe curves may be thus conceived; let A B, A B, &c. *Plate.* II. *Analyſis*, *fig.* 24. repreſent an infinite number of incident rays, that lie all in one plane of incidence; it is evident, that after reflection or refraction, they will not belong to a ſingle point or focus, but cut one another in an infinite number of points: then, if a curve be ſuppoſed of ſuch a ſhape as to touch every one of the reflected or refracted rays B F, B F, &c. produced, if need be, in the points F, F, &c. the curve F F F is called a cauſtic by reflection or refraction, as the name is applied to reflected or refracted rays. It is plain, that if two tangents B F, B F interſect one another in G, and be ſuppoſed to approach one another till they coincide, the points of contact and of interſection will alſo coincide; and therefore the reflected or refracted ray touches the cauſtic in that point of the ray, where its interſection with the next ray vaniſhed, when they were ſuppoſed to coincide. And if two incident rays infinitely near to each other be conceived to revolve about their focus A, in the plane of incidence, the focus F or point of interſection of the reflected or refracted rays will deſcribe the cauſtic above defined; which is real or imaginary, as F is the focus of converging or diverging rays.

Or, a cauſtic by refraction, called a diacauſtic, may be ſuppoſed to be thus generated. Imagine an infinite number of rays, as B A, B M, B D, &c. (*fig.* 25.) iſſuing from the ſame luminous point, B, to be refracted from, or to, the perpendicular M C, in the curve A M D; and ſo, as that C E, the ſines of the angles of incidence C M E be always to C G, the ſigns of the refracted angles C N G, in a given ratio; then the curve line, which touches all the refracted rays, is called the diacauſtic.

M. Bouguer obſerves, that there are two cauſtics formed at the ſame time, by convex and concave ſurfaces; and that hey occaſion two different images of objects ſeen by reflection from them. See his Traité d'Optique; or Prieſtley's Hiſt. of Viſion," p. 233. See alſo on this ſubject, Smith's Optics, p. 171—181.

Cauſtic curves have this remarkable property, that when the curves that produce them are geometrical, they are equal to known right lines.

Thus, the cauſtic formed by reflected rays from a quadrant of a circle, which came at firſt parallel to the diameter, is equal to three-fourths of the diameter; which is a ſort of rectification of curves that preceded the invention of the new doctrine of infinites, on which moſt of our rectifications are built.

Cauſtic curves are uſually ſuppoſed to be the invention of M. Tſchirnhauſen; but it is only the name he invented. The firſt mention he made of them was in the year 1682, when he produced no inſtance but that of the cauſtic in a circle, which he might have learned from Dr. Barrow's Lectiones Opticæ, publiſhed in 1669. It would have been eaſy for him to have done the ſame for any curve, by the help of the radius of curvature publiſhed by Huyghens in his Horologium Oſcillatorium, in 1673. It is certain this had been done by ſir Iſaac Newton as early as the year 1669, as appears from his Lectiones Opticæ, which were read that year at Cambridge, though not publiſhed till after his death, *viz.* in 1728. Act. Erud. Lipſ. ann. 1682, p. 364. Newt. Lect. Opt. ſect. 4. Pref. Stat. Rep. Lett. tom. i. p. 50, *ſeq.*

CURVE, *Harmonical*. See HARMONICAL *Curve*.

CURVE *Reflectoire*, in *Optics*, ſo called becauſe it is the appearance of the plane bottom of a baſon covered with water to an eye perpendicularly over it. In this poſition, the bottom of the baſon will appear to riſe upwards from the centre outwards; but the curvature will be leſs and leſs, and at laſt the ſurface of the water will be an aſymptote to it. M. Mairan, who firſt conceived this idea from the phenomena of light, found alſo ſeveral kinds of theſe curves; and he gives a geometrical deduction of their properties, ſhewing their analogy to cauſtics by refraction. Ac. Par. 1740. H. 121. M. 1. Dr. Prieſtley's Hiſt. of Viſion, p 752.

CURVES *by the Light*, or COURBES *a la Lumiere*, a name given to certain curves by M. Kurdwanowſki, a Poliſh gentleman. He obſerved, that any line, ſtraight or curved, expoſed to the action of a luminous point, received the light differently in its different parts, according to their diſtance from the light. Theſe different effects of the light upon each point of the line, may be repreſented by the ordinates of ſome curve which will vary preciſely with theſe effects. Dr. Prieſtley's Hiſt. of Viſion, p. 752.

CURVE, *Exponential*, is that defined by an exponential equation; that is, by an equation, wherein is an exponential quantity, *v. gr.* x^x, a^x, &c.

The properties, geneſes, &c. of particular curves, *v. gr.* the cycloid, conchoid, &c. See under their proper heads, CYCLOID, CONCHOID, &c. See alſo the preceding article CURVE.

CURVE, *Logarithmetic*. See LOGARITHMIC.

CURVES, *Radial*, is a denomination given by ſome authors to curves of the ſpiral kind, whoſe ordinates, if they may be ſo called, do all terminate in the centre of the including circle, and appear like ſo many radii of that circle; whence the name.

CURVE, *Rectification of a*, denotes the finding a right line equal to a curve. For the praxis hereof, ſee RECTIFICATION *of Curves*.

CURVES, *Regular*, are ſuch whoſe curvity proceeds continually in the ſame uniform geometrical manner. Such are the perimeters of the conic ſection, &c.

Such as have a point of inflection, or regreſſion, and which being continued to a certain point, turn themſelves a contrary way, are called irregular curves. Such are the conchoid, and the ſolid parabola, which has a ſquare for its parameter. See FLEXION and RETROGRESSION, and CURVE *ſupra*.

CURVE, *Tractory*. See TRACTRIX.

CURVE, *Characteriſtic triangle of a*, in the higher geometry, is a rectilinear right-angled triangle, whoſe hypothenuſe makes a part of the curve, not ſenſibly different from a right line. It is ſo called, becauſe curve lines are uſed to be diſtinguiſhed hereby.

Suppoſe, *e. gr.* the ſemiordinate pm (*Plate Analyſis, fig.* 11.) infinitely near another PM: then will Pp be the differential of the abſciſs: and letting fall a perpendicular, $mR = Pp$, RM will be the differential of the ſemi-ordinate. Draw, therefore, a tangent TM; and the infinitely ſmall arc Mm will not differ from a right line: conſequently, MmR is a rectilinear right-angled triangle, and conſtitutes the characteriſtic triangle of that curve.

CURVET, in the *Manege*. See CORVET.

CURVICAUDA, in *Natural Hiſtory*, the name of a ſpecies of bee-fly, very common in England, and very troubleſome to horſes, commonly known by the name of the *wringle-tail*.

CURVILINEAR, or CURVILINEAL *Figures*, in *Geometry*, are ſpaces bounded by crooked lines; as the circle, ellipſis, ſpherical triangle, &c.

CURVILINEAR *Angle* and *Superficies*. See ANGLE and SUPERFICIES.

CURVIROSTRA, in *Ornithology*, a ſpecies of *loxia*; which ſee.

CURVIROSTRA *Foſſilis*, in *Natural Hiſtory*, the name of a ſpecies of foſſile ſhell, found very frequently in the ſtone quarries of Northamptonſhire, and the neighbouring counties. It is a ſpecies of cockle, and is diſtinguiſhed by its beak not ſtanding in the middle, but always inclining to one or the other ſide. The ſhell is ſometimes found remaining entire, and in its native ſtate and condition, but more frequently there is ſtony matter depoſited in its place.

CURULE CHAIR, *Sella* CURULIS, in *Antiquity*, a high ivory chair, wherein certain of the Roman magiſtrates had a right to ſit.

The curule magiſtrates were, the ædiles, prætors, cenſors, and conſuls. The ſenators, who had borne theſe charges, were carried to ſenate on curule chairs, as alſo thoſe who triumphed: the chair being fitted into a kind of chariot, currus; whence the origin of the word curulis.

The curule chair is uſed, on medals, to expreſs a curule magiſtracy: when traverſed by a haſta, it is the ſymbol of Juno, and ſerves to expreſs the conſervation of princeſſes.

CURULE *Statues*. See STATUE.

CURUPA, in *Geography*, a town of South America, in the Brazils, ſeated on the ſouth ſide of the river of the Amazons; built by the Dutch, but now poſſeſſed by the Portugueſe.

CURURUS, in *Botany*. Plum. See PAULLINIA *curura*, and *pinnata*.

CURURU *pala*, Rheed. See TABERNÆMONTANA *alternifolia*.

CURURUCA, in *Ichthyology*, the name of an American freſh-water fiſh, of an oblong, and not flatted body. It grows to a foot and a half in length; its mouth is very large. It is eaten in the Brazils.

CURWILLET, in *Ornithology*, the ſanderling, or CHARADRIUS *Calidris*; which ſee.

CURZA, or CURSA, in *Geography*, a town of France, in the department of the Golo, in the iſland of Corſica. It is the chief place of a canton, in the diſtrict of Corte, and contains 3407 inhabitants.

CURZAY, a ſmall town of France, in the department of the Vienne, on the river Vone; 15 miles S.W. of Poitiers.

CURZOLA, CURSOLI, or CORCYRA *Nigra* (which ſee), a ſmall iſland of Dalmatia, in the gulf of Venice, ceded by Raguſa to the Venetians in the year 1386. It abounds in wood, which makes the ſituation convenient for the building of ſhips, and produces good wine. It is about 39 miles long, and 8 broad, and contains one city, and ſeveral villages. N. lat. 43° 17′. E. long. 17° 4′.

CURZOLA, a town of European Turkey, at the eaſt end of the iſland of the ſame name; the ſee of a biſhop, and reſidence of a governor. It is fortified with ſtrong walls and towers, and has a good harbour. The Turks attempted to make a deſcent here in the year 1507, but were repulſed by the women, after the men had fled.

CURZOLARI, an iſland, or rather five ſmall iſlands, which are little more than rocks, in the Mediterranean, near the coaſt of Greece; 12 miles E. of Cephalonia.

CUSA, NICHOLAS DE, in *Biography*, ſometimes ſtyled *Cuſanus*, was born of obſcure parents, at Treves, in the year 1401, but who, by his talents, attained to the high office of cardinal. On account of the ſevere treatment which he met with in his father's houſe, he entered, at an early age, into the ſervice of the count de Manderſcheidt, who, ſtruck with his natural capacity and good talents, was at the expence of his education. He ſtudied in the moſt celebrated univerſities of Germany and Italy, and took the degree of doctor in canon law at Padua, when about 23 years of age. He now attained to conſiderable preferments in the church, and was employed by pope Eugenius IV. on ſome very important miſſions, which he executed with ſo much ſatisfaction to his employer, that he was, in 1448, raiſed to the purple, and appointed biſhop of Brixen in the Tyrol. In the year 1450, he was ſent by the pope into Germany, with a view of compoſing the differences between the princes of that empire, and of engaging them to unite their efforts againſt the Turks under Mahomet II.: and, on the capture of Conſtantinople by that ſovereign, in 1453, cardinal Cuſa renewed his efforts with additional zeal to unite the Chriſtian princes againſt the Turks, and addreſſed to pope Pius II. a refutation of the Koran, which has been mentioned with great reſpect as a learned and judicious performance. By this pope he was ſent again into Germany, to maintain the rights of the holy ſee, againſt the claims of the ſecular princes; and on his return was conſtituted papal legate at Rome, and governor of the city. He was afterwards impriſoned by Sigiſmond, duke of Auſtria, in reſentment for ſome of his reforms; but the duke being threatened with excommunication, was glad to releaſe the cardinal on any terms. Cuſa died in his 63d year, at Todi, a town in Umbria, in 1464, leaving behind him a high character for prudence and moderation which were ever exhibited in the undertakings devolved upon him. As an author, he was diligent and very learned on various topics; his works were publiſhed in different places where he happened to reſide, but they were collected in 3 vols. fol. in 1565. The firſt volume is on theological ſubjects; the ſecond contained his controverſial pieces; and the third is devoted to mathematics, aſtronomy, and geography. Moreri.

CUSA, in *Ancient Geography*, a river of Africa, in Mauritania Tingitana; ſuppoſed to be the preſent *Ommirabi*.

CUSANO, in *Geography*, a town of Naples, in the province of Lavora; 22 miles N.E. of Capua.

CUS-BEHAR. See Cooch-Bahar.

CUSCASOW. See Cooscoosoo.

CUSCO, or Cuzco, in *Geography*, the moſt ancient city of Peru, in South America, and ſtill the ſecond of that viceroyalty, Lima being the firſt. It was founded by the firſt Inca, Manco *Capac* (*i. e.* rich in virtue) who is ſuppoſed to have reigned in the 12th or 13th century, as the ſeat and capital of his empire. Having peopled it with the firſt Indians, who voluntarily ſubmitted to him, he divided it into two parts, which he called high and low Cuſco; the former having been peopled by Indians aſſembled by the emperor himſelf, and the latter by thoſe whom his conſort (his ſiſter) Mama-Oello had prevailed upon to leave their wandering mode of life. Previouſly to his marriage, he declared himſelf and his ſiſter to be children of the ſun. The firſt part forms the north, and the latter the ſouth diviſion of the city. Here he founded the temple of the ſun, and appointed virgins of the royal blood to ſerve that divinity. The houſes were originally low and ſmall, like cottages; but as the empire increaſed, they aſſumed a new appearance; ſo that when the Spaniards landed in theſe parts they were aſtoniſhed at the extent and ſplendour of the city, eſpecially at the magnificence of the temple, the grandeur of the palaces of the Inca, and the pomp and richneſs becoming the ſeat of ſo vaſt an empire. In October, 1534, Don Franciſco Pizarro entered and took poſſeſſion of it in the name of Charles V. emperor, and king of Spain. This was followed by a ſiege of the Inca Manco, who laid great part of it in aſhes, but without diſlodging the Spaniards. Here Manco Capac was crowned with the permiſſion of Pizarro; but being afterwards defeated by the Spaniards, he retired to the mountains, and is ſuppoſed to have died about the year 1553. This city ſtands in a very uneven ſituation on the ſkirts of mountains, which are watered by the little river Guatanay. On a mountain contiguous to the north part of the city are the ruins of that famous fortreſs built by the Incas for their defence; from which it appears, that they intended to incloſe the whole mountain with a prodigious wall, ſo conſtructed as to render the aſcent of it impracticable to an enemy, and capable of being eaſily defended within. It was ſtrongly built of free-ſtone, and remarkable for its dimenſions and the magnitude of the ſtones, as well as the art with which they are combined. The internal works of the fortreſs, conſiſting of apartments, and two other walls, are chiefly in ruins, but the outward-wall is ſtanding. A ſubterranean paſſage, of ſingular conſtruction, led from the palace of the Incas to the fortreſs: and theſe ruins, together with the fragments of a pavement of ſtone, which led to Lima, are no mean monuments of ancient art. The city of Cuſco is nearly equal to that of Lima; and the latter may be called the maritime capital of Peru, whilſt the former may be conſidered as its inland metropolis. Proudly ſituated amongſt the ſurrounding Andes, and boaſting its origin from the firſt of the Incas, Cuſco ſtill retains the majeſty of a capital. Its north and weſt ſides are ſurrounded by the mountain of the fortreſs, and others called "Sanca;" on the ſouth it borders on a plain, which has ſeveral beautiful walks. Moſt of the houſes are of ſtone, covered with red tiles; the apartments are ſpacious, and finely decorated; the mouldings of the doors are gilt, and the other ornaments and furniture correſpond to the elegance of the buildings and taſte of the inhabitants. The population of Cuſco is eſtimated by Alcedo at 26,000; but it ſuffered greatly by a peſtilence in 1720, and has of late years very much declined. Three-fourths of its inhabitants are ſaid to be Indians, who are very induſtrious in the manufacture of baize, cotton, and leather; and they have alſo a taſte for painting, in which they are ſaid to excel. Cuſco is epiſcopal, and its biſhop is ſuffragan to the archbiſhop of Lima. The cathedral is a large, rich, and handſome edifice, and, though ſmaller, preferred by ſome to that of Lima: it is ſerved by three prieſts, one for the Indians of the pariſh, and the other two for the Spaniards. Cuſco has alſo eight other pariſhes; a convent of Dominicans, the principal walls of which were formerly thoſe of the temple of the ſun; and eight others of Franciſcans, Auguſtines, Jeſuits, &c. The government of the city conſiſts of a corregidor, and two alcaldes, choſen out of the chief nobility, according to the cuſtom of all the cities in South America. Here are three colleges, one of which has a ſeminary for the cathedral, in which are taught Latin, the ſciences, and divinity. The members of the cathedral chapter, beſides the biſhop, are the dean, archdeacon, chanter, rector and treaſurer, canons, and prebendaries. There are four hoſpitals, one of which is ſupported by the tolls of the neighbouring bridge, on the Apurimac. The courts of juſtice are thoſe of the revenue, conſiſting of two judges, a court of inquiſition, and of the croiſade. The dioceſe of Cuſco comprehends 14 different juriſdictions; the firſt of which is that of Cuſco, extending two leagues. In this diſtrict the temperature of the air is various, but in ſome parts the cold is intenſe, though both heat and cold are generally tolerable: the coldeſt parts produce good paſture for all ſorts of cattle, and the vallies afford plenty of grain and fruits. In the "Intendancy" of Cuſco, as this diſtrict is now called, with its dependency of Carahuaſi, the only mines mentioned in the "Mercurio Peruano," are thoſe of ſilver; 19 in number, which were ſucceſsfully wrought. S. lat. 13° 25′. W. long. 71° 15′.

CUSCOWILLA, the capital of the Alachua tribe of Indians, pleaſantly ſituated in Eaſt Florida, upon a high ſwelling ridge of ſand hills, within 300 or 400 yards of a large and beautiful lake, abounding with fiſh and wild fowl. The lake is terminated on one ſide by extenſive foreſts, conſiſting of orange groves, overtopped with grand magnolias, palms, poplar, tilia, live oaks, &c.; and on the other ſide by green plains and meadows. The town is compoſed of 30 habitations, each conſiſting of two houſes, large and convenient, and cloſely covered with the bark of the cypreſs-tree. Each has a little ſpot for a garden, containing corn, beans, tobacco, and other vegetables. In the great Alachua Savanna, at the diſtance of about two miles, is an encloſed plantation, cultivated by the whole community, of which each family has its appropriate part. Each family collects and depoſits in its granary its proper ſhare, ſetting apart a ſmall contribution for the public granary, which is ſituated in the midſt of the plantation.

CUSCUTA, in *Botany*, Dodder, (*κασσυτα*, or *κασσυθα*, Mod. Greek, a name applied to ſome paraſitical plant, but it is not determined what particular one was intended, and it is equally uncertain whence the name was derived: ſome ſuppoſe from *κασσυω*, *conſus*; others from the Arabic *cheſſuth*, or *chaſuth*,) Tourn. 652. Linn. Gen. 170. Schreb. 227. Willd. 262. Gært. 376. Juſſ. 135. Vent. 4. 2. Claſs and order, *tetrandria digynia*. Linn. Willd. Lam.. *Pentandria*. Smith. Flor. Brit. Nat. Ord. *Convolvoli?* Juſſ. Undetermined. Vent.

Gen. Ch. *Cal.* Perianth one-leafed, four or five-cleft, fleſhy at the baſe. *Cor.* monopetalous, egg-ſhaped, or ſomewhat campanulate, longer than the calyx, four or five-cleft. *Stam.* Filaments four or five, awl-ſhaped, the length of the calyx; anthers roundiſh. *Piſt.* Germ ſuperior, globular; ſtyles two, erect, ſhort; ſtigmas ſimple. *Peric.* Capſules globular, its lower part covered by the fleſhy calyx, two-celled, dividing horizontally. *Seeds* in pairs, ſomewhat globular.

Eſſ. Ch. Calyx four or five-cleft, inferior. Corolla monopetalous, four or five-cleft. Capſule two-celled, dividing horizontally. Seeds in pairs.

Obſ. The number of parts varies in different, and ſometimes in the ſame ſpecies, but is moſt frequently five.

Sp. 1. C. *europæa*. Linn. Sp. Pl. 1. Mart. 1. Lam. 1. Willd. 1. Gært. tab 62. Flor. Dan. tab. 199. Eng. Bot. 378. (C. major; Bauh. Pin. 219. Caſſutha; Fuchſ. Hiſt. tab. 348.) "Flowers nearly ſeſſile; corolla without ſcales; ſtigmas acute." *Root* annual, ſmall, ſoon periſhing. *Stems* red, filiform, twining, paraſitical, leafleſs, ſmooth, throwing out ſmall tubercles by which it roots itſelf into the bark of other plants, and derives nouriſhment from them after its proper root has withered away. *Flowers* in faſcicles, lateral, ſomewhat tranſparent, reddiſh, generally five-cleft; corolla bell-ſhaped; ſtamens inſerted into the throat of the corolla, alternate with its ſegments; ſtyles divaricated. A native of Great Britain, on thiſtles, nettles, and other plants, but rare. Found near Aberdeen and in Cambridgeſhire. 2. C. *epithymum*. Leſſer dodder. Mart. Lam. Ill. Smith Fl. Brit. Eng. Bot. 55. (C. europæa β; Linn. Sp. Pl. Lam. Enc. Willd. Epithymum, ſive cuſcuta minor; Bauh. Pin. 219.) "Flowers ſeſſile, with a fringed ſcale inſerted into the corolla at the baſe of each ſtamen; ſtigmas acute." Leſs than the preceding. *Stems* twiſted. *Flowers* cluſtered; corolla white, funnel-ſhaped, with a ſhort tube, generally four-cleft; calyx red; ſtamens inſerted into the throat of the corolla, alternate with its ſegments, having at the baſe of each a creſcent-ſhaped ſcale incumbent on the germ; ſtyles elongated, acute. Common in Great Britain, eſpecially in the ſouthern counties of England, on beans, graſs, and various other plants, to which it is ſo pernicious that it is called by the common people Devil's-guts, or hell-weed. Dr. Smith, we believe, is the firſt botaniſt who has pointed out the true ſpecific difference between theſe two plants. Profeſſor Martyn and La Marck had previouſly ſeparated them, but without being aware of their diſtinguiſhing characters. La Marck, in particular, queſtioned whether they are ſufficiently diſtinct, and has even figured epithymum under the name of europæa. 3. C. *americana*. Linn. Sp. Pl. 2. Mart. 3. Lam. Ill. 4. Willd. 2. (C. floribus pedunculatis; Jacq. Amer. 24. C. inter majorem & minorem; Sloan. Jam. Hiſt. 1. 201. tab. 120. fig. 4. C. ramoſa repens; Brown. Jam. 149.) "Flowers peduncled, five-cleft; corolla tubular; border ſmall, ſpreading." *Stems* much branched, leafleſs, twining, paraſitical, tender, ſhining, yellowiſh. *Flowers* greeniſh, inclining to yellow, ſmall, cluſtered, ſcentleſs; common peduncles very ſhort; calyx withering; the colour of the corolla, egg-ſhaped, five-cleft; ſegments roundiſh, blunt, concave, ſhort, converging; corolla cylindrical; tube the length of the calyx; ſcales five, fringed, converging, attached to the petal below the ſtamens; filaments always five, upright, from the upper part of the tube, the length of the corolla; anthers oblong, erect; ſtyles little longer than the corolla; ſtigmas capitate. *Seeds* convex on one ſide, flattiſh on the other, one, two, or three often abortive. A native of North America and the Weſt Indies, on ſhrubs and trees. According to Sloane, the ſtems are very ſtrong, ſtretching themſelves over very large trees, and whole fields and paſtures. 4. C. *africana*. Willd. 3. (C. americana; Thunb. Prod. 32.) "Peduncles one-flowered; corollas five-cleft." *Stem* filiform, more ſlender than in the preceding ſpecies. *Flowers* ſmaller; peduncles with a lanceolate bracte at the baſe. A native of the Cape of Good Hope, on trees. Linnæus found this ſpecies growing on a dried ſpecimen of myrica æthiopica, and deſcribed them both together as one plant in the firſt edition of his Species Plantarum, under the name of ſchinus myricoides; and in the appendix to the ſecond, under the name of ſchrebera ſchinoides. 5. C. *monogyna*. Willd. 4. Vahl. Symb. 2. 32. (C. lupuliformis; Mart. 5. Krock. Siles. tab. 36. C. orientalis viticulis craſſiſſimis; Tourn. Cor. 45. C. major caulibus lupuli; Buxb. Cent. 1. 15. tab. 23.) "Flowers peduncled, monogynous." The habit of cuſcuta americana, but twice the ſize. Segments of the calyx egg-ſhaped, ſhining. *Corolla* twice the length of the calyx, narrowed above, permanent, edged with lanceolate teeth. Style ſingle, thicker and ſhorter than in the other ſpecies. Stigma thick, ſomewhat globular. *Pericarp* the ſize of a pepper-corn, mucronate with the permanent ſtyle and ſtigma. *Seeds* compreſſed, ſomewhat kidney-ſhaped. Vahl. Willdenow obſerves that Vahl and Krocker's plants are certainly the ſame; for, in the figure of the latter, the flowers are peduncled, and the permanent ſingle ſtyle is conſpicuous on the fruit. According to Krocker, the ſtem is round, branching, very thick like hop-binds, with reddiſh-green or brown-purple bark, rough, and ſtudded with purpliſh ſtiff riſing grains reſembling millet. *Flowers* in racemes coming out laterally, an inch or two in length, ſometimes branched, ſcattered, ſolitary, or only two or three together, not glomerate; corolla four-cleft, reddiſh-white; calyx covered with a fleſhy ſkin, green, or tinged with purple. *Capſule* large, covered with the ſame ſkin. *Seeds* wrinkled, rounded. A native of Sileſia and the Levant. 6. C. *chinenſis*. Lam. Enc. 2. Ill. 1718. Willd. 5. "Flowers panicled, five-cleft; calyx angular, nearly the length of the corolla." *Root* annual. *Stem* pale or yellowiſh green, a little thicker than in C. europea. *Flowers* white, in lax faſcicles, on ſhort branched peduncles, forming a kind of irregular panicle; calyx of the ſame colour as the corolla; corolla oval, almoſt globular, narrowed at the mouth, with five acuminate horn-like ſegments; ſtamens five, ſmall; germ large, globular; ſtyles very ſhort, revolute, and reclining on the germ; ſtigmas ſomewhat capitate. This plant was ſeen in flower by La Marck in the royal garden at Paris, in 1784, twined about an ocymum, the ſeeds of which had been ſent from China, and with which its ſeeds muſt have been intermixed.

Ventenat obſerves that it is not eaſy to determine to what natural family this ſingular genus belongs, on account of the difference which prevails among botaniſts with reſpect to the ſtructure of the embryo of its ſeeds. Linnæus pronounces it acotyledonous; Adanſon and Gærtner conſider it as monocotyledonous; and Juſſieu preſumes it to be dicotyledonous.

CUSCUTA *altera & major*; Camel. Petiv. See CASSYTA *filiformis*.

CUSCUTA *baccifera barbadenſium*; Plum. See CASSYTA *filiformis*.

CUSCUTA, Rumph. 5. tab. 184. fig. 4. See CASSYTA *filiformis*.

CUSCUTA *foliis ſubcordatis*; Hort. Cliff. See BASELLA *rubra*.

CUSCUTA *ramis arborum innaſcens*, *caroliniana*; Pluk. See TILLANDSIA *uſneoides*.

CUSCUTA *rumbut-putri*; Rumph. See CASSYTA *zeylanica*.

CUSE, in *Geography*, a ſmall town of France, in the department of the Doubs; 15 miles S.E. of Veſoul.

CUSH, or as ſome write it CHUS, in *Biblical* and *Ancient Hiſtory*, was the eldeſt ſon of Ham and grandſon of Noah;

and, according to Joſephus, the father of the Ethiopians, who were, in his time, called Cuſhæans, not only by themſelves, but by all the inhabitants of Aſia. Others conceive it to be more probable, that he ſeated himſelf in the ſouth-eaſtern part of Babylonia, and in the adjoining part of Suſiana, ſtill called Khuzeſtân or Chuſiſtan, the land of Chus; from whence his poſterity, in the ſucceeding generations, might have paſſed into other countries. It appears from Scripture, that a part of Arabia, near the Red Sea, was named Cuſh. Cuſhan and Midian are joined together, as the ſame or neighbouring people, dwelling in tents; and, in other places, the Arabs are made to border on the Cuſhites, who, therefore, cannot be the Ethiopians: in a word, by Cuſh in Scripture is always to be underſtood Arabia. As for thoſe texts which are alleged to prove that Cuſh is ſometimes taken for Ethiopia, they may alſo be expounded of Arabia. Cuſh, according to the Arabian and Perſian traditions, which name him Cutha, was king of the territory of Babel, and reſided in Irak, where two cities exiſted of his name; and hence Dr. Hyde concludes, that Cuſh reigned in Babylonia, and that his deſcendants removed into Arabia, though it is difficult to aſſign the peculiar habitations of any of them: and this uncertainty has given occaſion for ſuppoſing Cuſh to be Ethiopia, and for ſpreading theſe people all along the coaſt of Africa to the extremity of Mauritania.

Among the Abyſſinians, as Bruce informs us in his Travels (vol. i. p. 376.) it is a tradition, derived, as they ſay, from time immemorial, and equally received among Jews and Chriſtians, that almoſt immediately after the flood, Cuſh, grandſon of Noah, with his family, paſſing through Atbara from the low country of Egypt, then without inhabitants, came to the ridge of mountains which ſtill ſeparates the flat country of Atbara from the more mountainous high-land of Abyſſinia. This tradition ſays, that terrified with the apprehenſion of another deluge, that awful event being recent in their minds, they choſe for their habitation caves in the ſides of theſe high mountains, where they might be ſecure, and where the adjacent country was fertile and pleaſant. Whatever might be their motives, here, it is ſaid, the Cuſhites, with unparalleled induſtry, and with inſtruments now unknown, formed for themſelves commodious habitations in mountains of granite and marble, ſeveral of which remain entire to this day, and promiſe to be of much longer duration.

As the Cuſhites became populous, they occupied habitations in the neighbouring mountains, and gradually extended the induſtry and arts which they cultivated, as well to the eaſtern as to the weſtern ocean; but they never deſcended from their caves, nor choſe to reſide at a diſtance on the plain. Many of their deſcendants ſtill occupy the ſame mountains and houſes of ſtone, ſimilar to thoſe which their anceſtors made for themſelves in the beginning of their ſettlement. The Abyſſinian tradition further ſays, that they built the city of Axum at an early period, in the days of Abraham. Soon afterwards they extended their colony to Atbara, where, as Herodotus informs us (lib. ii. c. 29.), they ſucceſsfully purſued their ſtudies, from which Joſephus ſays (Antiq. Jud.) they were called "Meroëtes," or inhabitants of the iſland of Meroë. From Meroë they probably, in proceſs of time, ſtretched on to Thebes. While theſe improvements were advancing in the central and northern territory of the deſcendants of Cuſh, their brethren to the ſouth extended themſelves along the mountains that run parallel to the Arabian gulf, in the country called "Saba," or "Azabo;" which was the principal mart and ſource of ſupply for the Abyſſinian myrrh and frankincenſe. The northern colonies of Cuſhites, proceeding from Meroë to Thebes, were intent upon the improvements of architecture, and building of houſes; and ſubſtituting theſe for their caves, became traders, farmers, and artificers of various deſcriptions, and even practical aſtronomers, from having a meridian night and day free from clouds, ſuch as that of the Thebaid. Letters too, at leaſt one ſort of them, and arithmetical characters, we are told, were invented by the Cuſhites of the middle regions; while trade and aſtronomy, the natural hiſtory of the winds and ſeaſons, neceſſarily employed that part of the colony that was eſtabliſhed at Sofala, moſt to the ſouthward. The nature of the commerce of the Cuſhites, the collecting of gold, the gathering and the preparing of their ſpices, neceſſarily fixed them perpetually at home; but their profit lay in the diſperſion of theſe ſpices through the continent; otherwiſe their mines, and the trade produced by the poſſeſſion of them, would be of little avail. The Cuſhites of courſe needed carriers; and ſuch were preſented to them among their neighbours, who lived in plains, having moveable tents or habitations, attended their numerous herds, and wandered from the neceſſities and particular circumſtances of their country. Theſe people were in the Hebrew language called "Phut," and in all other languages "Shepherds," a name they ſtill bear, ſubſiſting by the ſame occupation. (See Shepherds.) The whole employment of the ſhepherds had been the diſperſion of the Arabian and African commodities all over the continent; by which employment they became a great people: as that trade increaſed, their cattle increaſed alſo, and conſequently their number, and the extent of their territory.

The learned Bryant traces the appellation *Chus*, by the aid of etymology, through a variety of ramifications and changes; and diſcovers traces of it in the names of places, and the manners and rites of their inhabitants, through various and very remote regions of the globe. Chus, he ſays, in the Babyloniſh dialect, ſeems to have been called "Cuth;" and many places where his poſterity ſettled were ſtyled Cutha, Cuthaia, Cutaea, Ceuta, Cotha, and Cothon. Thus Chuſiſtan, eaſt of the Tigris, which was the land of Chus, was likewiſe called Cuthe and Ciſſia by different writers. Chus was the father of thoſe nations, denominated Ethiopians, who were more truly called Cuthites and Cuſæans; and who were more numerous and more widely extended than perſons have imagined. The author to whom we now refer traces the origin of the Cuſhites or Cuthites to the firſt ſettlement of the deſcendants of Noah ſoon after the deluge. Their ſeveral abodes were aſſigned them, as he conceives, by the immediate appointment of God. The children of Shem were particularly regarded in the general diſtribution; and they were fixed near the place of their ſeparation. They had in general Aſia for their lot, as Japhet had Europe, and Ham the large continent of Africa. The children of Chus, however, would not ſubmit to the divine diſpenſation; and his ſon, Nimrod, who firſt aſſumed regal ſtate, drove Aſhur, one of the ſons of Shem, who had been ſettled on the weſtern ſide of the river Tigris, from his demeſnes, and forced him to take ſhelter in the higher parts of Meſopotamia. The ſons, diſobeying the divine order, which arranged the habitations of the poſterity of Noah, went off under the conduct of the arch-rebel Nimrod; and, after having remained for a long time in a roving ſtate, arrived at laſt in the plains of Shinar. Theſe they found occupied by Aſhur and his ſons, who had been placed there by divine appointment. Him they ejected, and ſeized upon his dominions; which they immediately fortified with cities, and laid the foundation of a great monarchy. This ejectment of Aſhur, as Mr. Bryant thinks, happened after the general migration; and when the Cuthites had ejected Aſhur, they afterwards treſpaſſed upon Elam, in the region beyond the Tigris. The diſperſion from Babel, according to this writer, did not include the whole of mankind, but related chiefly to the ſons of Chus; whoſe intention it was to have founded a great, if not an univerſal, empire: which was fruſtrated by this event. The Cuthites had many aſſociates, probably out of every family, who were apoſtates from the truth, and had left the ſtock of their fathers and the worſhip of the true God, in order to follow the rites and worſhip of the Cuthites. Theſe were the perſons who, fearing that they might be ſeparated and ſcattered abroad, built the tower of Babel, as a land-mark to which they might repair; and Mr. Bryant ſuggeſts, that it was probably an idolatrous temple, or high altar, dedicated to the hoſt of heaven, from which they were never long to be abſent. That the ſons of Chus, who wiſhed to remain where they firſt ſettled, inſtead of occupying the countries to which they were appointed, were the chief agents in erecting the tower of Babel, and in proſecuting theſe rebellious principles, is plain from the paſſage, in which it is ſaid of Nimrod, the ſon of Chus, that "the beginning of his kingdom was Babel." The defection, as our author imagines, was not general, nor the judgment univerſal; for it is not likely that all mankind ſhould co-operate with this tyrant. The confuſion of ſpeech and conſequent diſperſion related merely to the Cuthites of Shinar and Babylon, and to their adherents, who ſeem to have been a very numerous body. The diſperſion of the Cuthites is an event referred to, directly or indirectly, by many ethnic writers: and our author ſays, that it is manifeſtly to be diſcovered under the fable of the flight of Bacchus; and the diſunion of that moveable body, which made ſo bold a ſtand, and the ſcattering of them over the face of the earth, are repreſented under the fable of diſmembering the ſame perſon. Our author diſcovers traces of the rebellion of the Cuthites in the wars of the giants and Titans, deſcribed by ancient writers, and of their appellation in the people called Scythians. As theſe people were the firſt apoſtates from the truth, they introduced the worſhip of the ſun, and paid ſimilar reverence to the ſtars, and the whole hoſt of heaven. They regarded them as fountains, from whence were derived to men the moſt ſalutary emanations. This worſhip was ſtyled the fountain worſhip. One of the titles of the Cuſean ſhepherds, who came into Egypt, was deduced from this worſhip, and derived from "El-Ain," the fountain of light, which they worſhipped. The golden age of the poets was, according to our author, the age of Chus, denominated by the Greeks Chuſos, and Chruſos.

Theſe Cuthites, the ſons of Chus, who ſeized upon the region of Babylonia and Chaldæa, and conſtituted the firſt kingdom upon earth, and who were called by other nations Cuſhan, Cuſeans, Arabians, Oreitæ, Erythreans, and Ethiopians, were an ingenious and knowing people, and at the ſame time very prolific. They combined with others of the line of Ham; and were enabled, at a very early period, to carry on an extenſive commerce, and to found many colonies; ſo that they are to be traced in the moſt remote parts of the earth. A large body of this people invaded Egypt, in its infant ſtate, when it was compoſed of ſmall independent diſtricts, artleſs and unformed, without any rule or polity. They ſeized the whole country, and held it for ſome ages in ſubjection, and from their arrival the hiſtory of Egypt commences. The region between the Tigris and Euphrates, where they originally reſided, was ſtyled the country of the Chuſdim or Chaſdim; but by the weſtern nations Chaldæa. It lay towards the lower part of the Tigris, to the weſt, and below the plain of Shinar. On the oppoſite ſide to the eaſt was the province of Elam, which country they ſeem ſoon to have invaded, and to have occupied the upper part. This country conſiſted of that fine region called afterwards Suſiana, and Chuſiſtan, which was watered by the Ulai, Chobar, and Choaſpes, and by other branches of the Tigris. When the Perſians gained the ſovereignty of Aſia, it was from them denominated Perſis, which was only another name for Cutha; for the Perſians were the Cuthites of that country, under a different appellation. This Cutha was by the Grecians called Scutha. It extended far towards the eaſt, and was in great meaſure bounded by Media to the north. This is one of the countries called Cuſhan in ſcripture; and by other people it was rendered Ethiopia. The Ethiopians were, therefore, Cuthites or Cuſſans. Accordingly Euſebius ſays (Chron. p. 11.) that Chus was the perſon from whom came the Ethiopians; an appellation formed from αιθω and οψ, and derived from their complexion. This was a ſacred term, a title of the chief deity, whence it was aſſumed by the people, who were his votaries and deſcendants. The ſons of Chus came into Egypt under the name of Auritæ and ſhepherds, and alſo of Ethiopians, whence Egypt inherited the name. The Cuthites alſo ſettled at Colchus, the Colchis of the Greeks, whence it was called Cutaia and Ethiopia. They likewiſe came under the titles of Caſus and Belus into Syria and Phœnicia, where they founded many cities; and we are informed by Strabo (l. 10.) that this country was called Ethiopia. Eubæa and Samothrace were diſtinguiſhed by a ſimilar appellation. The extreme ſettlement of this people was in Spain, upon the Bœtis, near Tarteſſus and Gades; ſome of whom traverſed a great part of Africa, and others gained poſſeſſion of different parts of the ſea-coaſt. Some of the ſame family were found on the coaſt of Mauritania. The original Ethiopia was the region of Babylonia and Chaldæa, where the firſt kingdom upon earth was formed, and the moſt early police inſtituted. Here alſo the firſt idolatry began. And as the Scythæ, or Cuthites, were the ſame people, it is no wonder that they are repreſented as the moſt ancient people in the world; even prior to the Egyptians. Another title by which the Cuthites were diſtinguiſhed was that of Erythreans; and the places where they reſided received it from them. The Cuthite Erythreans, who ſettled near Midian, upon the Sinus Elanitis, conferred this name upon that gulf, and the Perſic ſea was diſtinguiſhed by the ſame denomination. Upon the whole, our author concludes by reciprocal evidences from the moſt genuine hiſtory, that the Cuthites, Ethiopians, and Erythreans were the ſame people; and that they had a more general name of Σκυθαι, Scuthai. Mr. Bryant farther undertakes to ſhew, that not only the Scythæ of Colchis, Mœſia, and Thrace, with thoſe upon the Palus Mœotis, were in great meaſure of the race of Chus; but that all nations ſtyled Scythian were in reality Cuthian or Ethiopian. Having ſeized upon the province of Suſiana, and Chuſiſtan, they poſſeſſed the navigation of the Tigris downwards; and probably commenced a very early trade. They obtained footing in India, where they extended themſelves beyond Gedroſia, and Carmania, upon the chief river of the country. They alſo occupied various parts of India; and the ſame people who imported their religious rites and ſcience into Egypt, carried the ſame to the Indus and Ganges, and ſtill farther into China and Japan. Some colonies undoubtedly came from Egypt; but the arts and ſciences imported into India came from another family, even the Cuthites of Chaldæa; by whom the Mizraim themſelves were inſtructed, and from Egypt they paſſed weſtward. Hence we need not be ſurpriſed, if we find the ſame cuſtoms in India, or the ſame names of places as are to be met with in Egypt, or

Colchis, or the remoteſt parts of Iberia. Many inſtances of this kind are produced by the learned etymologiſt.

The ſons of Chus, however diſtinguiſhed, whether they be called Oritæ, Arabians, Ethiopians, or Erythreans, were in all places celebrated for ſcience. They were ſometimes called Phoinices, and thoſe of that name in Syria were of Cuthite extraction. The Mizraim, who ſettled in Egypt, before the diſperſion of the Cuthites and their adherents, had no ſhare in their rebellion, nor in the Titanic war, which enſued. Their country was that which in aftertimes was known by the name of Upper Egypt. When the Cuthites, or Titanic brood, were driven from Babylonia, they fled to different parts; and a large body of them betook themſelves to Egypt. Confederate and well-diſciplined, they eaſily overcame a nation ſo rude and unexperienced as the Mizraim. They ſoon took Memphis, the frontier town of Egypt, and afterwards over-ran the whole region above, and kept it in ſubjection. The Cuthites or Ethiopians were alſo called Arabians, and the province of Cuſhan in Egypt, the ſame as the land of Goſhen, was denominated the Arabian nome, which was the beſt of the land of Egypt. They were alſo ſtyled Hellenes, Phœnices, and Auritæ. The people ſo called were the firſt who reigned in Egypt; and with them, as we have before obſerved, the hiſtory of the people muſt commence. Manetho informs us, that the whole body of this people had the appellation of royal ſhepherds; a title which Bryant conceived was more particularly given to their kings. They borrowed this mark of diſtinction from their anceſtors in Babylonia; among whom it ſeems to have been common. It is ſomewhat remarkable that Nimrod, the firſt tyrant upon earth, ſhould have maſked his villainy under the meek title of a ſhepherd. From him it was derived, and transferred to other kings, in Chaldæa, and afterwards in Egypt. At the time when the Cuthite Ethiopians arrived, Lower Egypt was very much a kind of moraſs; but under their direction it was drained by numerous canals, and rendered the moſt beautiful country in the world. They carried a ſluice from the Peluſian branch of the Nile to the weſtern gulf of the Red Sea. The chief of the pyramids at Cochome are ſaid to have been erected by them. They raiſed the moſt ancient obeliſks in Egypt, which were marked with hieroglyphics, curiouſly wrought, and theſe were the ſacred characters of Egypt, known only to the prieſts, and which had been introduced by the Cuthite Ethiopians. After the Cuthites had drained Lower Egypt, and had built cities there, every city had probably ſome ſacred emblem, as the goat, hawk, ibis, crocodile, or dog, repreſented in ſculpture, either upon the gates, or upon the entablature of their temples. This characteriſtic denoted its name as well as the title of the deity, to whom the place was ſacred: and the deity in thoſe cities was often worſhipped under ſuch particular ſymbol. Some of the poets allude to this. They have repreſented the diſperſion of the ſons of Chus from Babel as the flight of the gods into Egypt; where they are ſuppoſed to have ſheltered themſelves under the form of theſe ſacred ſymbols. After the Cuthite ſhepherds (ſee SHEPHERDS) had been in poſſeſſion of Egypt about 260 or 280 years, they were obliged to retire to the amount of 240,000 perſons. The Egyptians ſucceeded to the Cuthites in their cities and temples; and having been initiated in their rites never forſook them. When the Cuthites were ejected from Egypt, they withdrew to many parts; and particularly to the coaſt of Syria; which they occupied under the titles of Belidæ, Cadmians, and Phœnices. Hence they went to Hellas, to Etruria, and Iberia, and the coaſt of the great Atlantic. A colony alſo ſettled at Colchis, and upon different parts of the Pontic region. Wherever they came they were in every reſpect ſuperior to the natives; they were ſkilful in phyſic, and the knowledge of the properties of herbs; they cultivated the vine; and taught the compoſition of fermented liquors. They opened roads, formed cauſeways, and drained ſtagnant waters in the countries, whither they migrated; but their atchievements in theſe ways have been attributed to ſome one hero, either Oſiris, Hercules, or Bacchus. Their religion conſiſted in the worſhip of the ſun, under various titles; to this were added divine honours, paid to their anceſtors, the Baalim of the firſt ages, which was attended with particular myſterious rites. In theſe were commemorated the circumſtances of the deluge, and the hiſtory of the great patriarch, through whom mankind was preſerved. The Cuthites who ſettled in Sicily ſeem to have been a very powerful and intelligent people; but thoſe of Etruria were far ſuperior. The two moſt diſtant colonies of the Cuthite family weſtward were ſettled upon the Atlantic ocean; the one in Europe to the north; the other oppoſite at the extreme part of Africa in the country called Mauritania, inhabited by the Atlantic Ethiopians. They conſidered themſelves as of the ſame family with the gods: and they were undoubtedly deſcended from ſome of the firſt deified mortals. Thoſe who occupied the provinces of Iberia and Bœtica, on the other ſide, were diſtinguiſhed by the ſame title, and preſerved the ſame hiſtories. They were of Erythrean and Ethiopic race; and gave name to the iſland Erythra, or Erythia, which they occupied for the ſake of trade, and where ſtood the city Gadara, ſaid to be of high antiquity.

Mr. Bryant has ſhewn, that a great reſemblance once exiſted between the numerous colonies of the ſame family. They carried the art of weaving, firſt practiſed at Arach in Babylonia, and thence extended to other neighbouring cities, and in proceſs of time to the moſt remote parts of the world, to a high degree of excellence. The people of Egypt were famous for this manufactory. They were famous for their flax and linen at Colchis, Campania, Bœtica, and other parts of Spain. The Indi were alſo noted for this manufacture. The art of dyeing was alſo diſcovered by people of this family. The wonderful art of managing ſilk, and of working up cotton, was found out by the Indo-Cuthites, and from them it was transferred to the Seres. To them are alſo attributed the game of cheſs; and the uſe of thoſe cyphers, or figures, commonly called Arabian. They are ſaid to have written letters εν σινδοσι; but whether by this was meant really linen, or whether we are to underſtand a kind of paper manufactured from it, is uncertain. (See PAPER). Thoſe who cultivated the grape brought it to the higheſt degree of perfection. The Mareotic wine, produced in Scythia Ægyptiaca, is well known, and has been highly celebrated. Calybon in Syria, Cyprus, Crete, Cos, Chios, and Leſbos, were famous on the ſame account. The fine wine of Sicily, of Thrace, and of Campania, in which country were the Falernian and Formian grapes, was in high repute among the ancients. In Iberia and Mauritania they had ſome of very noble growth. (Strabo, l. xvii. p. 1182.) There was alſo wine among the Indic Ethiopians, particularly in the country of the Oxydracæ, who were ſuppoſed to be the deſcendants of Bacchus. (Strabo, l. xv. p. 1108.) They had alſo a ſtrong drink made of rice, which was uſed in their ſacrifices. The people of Luſitania and Bœtica made a fermented liquor called "Zuth," the knowledge of which was derived from Egypt, in which they were ſuppoſed to have been inſtructed by Oſiris. Heſychius calls it wine, and ſays it was made of barley. It is alſo mentioned by Strabo, (lib. iii. p. 233.) In ſhort, all of the Cuthite family were renowned for their wiſdom.

The natives of Colchis, who were of the Cuthite race, were devoted to magic, and had their nightly orgies in honour of the moon: and among the different branches of this family we diſcover an extenſive acquaintance with the properties and uſes of different herbs. But they were pre-eminently diſtinguiſhed by the mighty works and edifices, which they carried on and erected in the different parts where they ſettled. All thoſe mounds and cauſeways, the high roads and ſtately ſtructures, which have been attributed to Semiramis of Babylonia, were the works of theſe people. They formed vaſt lakes, and carried on canals at a great expence; and they opened roads over hills, and through foreſts, which were before impaſſable. (Strabo, lib. xvi. p. 1071.) The ſtately ſtructures of various kinds erected in Egypt were the works of the Cuthites; thoſe Arab ſhepherds, who built Heliopolis or Balbec, and who were the *γηγενεις*, the giants and Titans of the firſt ages. The pyramids of Egypt are alſo aſcribed by Mr. Bryant to theſe people. (See Pyramid.) The buildings, which the Cuthites erected, were in many places ſtyled Cyclopian, from a title given to the architects. Many ancient edifices in Sicily were of their conſtruction; for they ſeem to have been the firſt inhabitants of this iſland. They were called Læſtrygons and Lamii; and reſided chiefly in the Leontine plains, and in the regions near Ætna. They erected many temples; and likewiſe high towers upon the ſea-coaſt, and founded many cities; ſome of the ruins of which are ſtill extant.

The noble character of the Cuthites, who by their extraordinary inventions and improvements were regarded as general benefactors to mankind, was, however, greatly tarniſhed by their cruelty; for which they ſeem to have been infamous in all parts, and which ſeems to have been derived from their rites and religion, that had always a tendency to blood. The Cuthæ upon the Mæotis, and in the Tauric Cherſoneſus, are deſcribed as very inhoſpitable; and all thoſe in their vicinity were of a ſavage caſt, and guilty of great barbarity. In various parts they alſo contracted a habit of robbery and plunder; ſo that they lived in a ſtate of piracy, making continual depredations.

We have already hinted, that one of the moſt conſiderable colonies which went from Babylonia, was that of the Indi, or Sindi, called Eaſtern Ethiopians. They ſettled between the Indus and Ganges, and one of their principal regions was Cuthaia, rendered by the Grecians Cathaia. They traded in linen and other commodities, and carried on an extenſive commerce with the provinces to the ſouth. A large body of them paſſed to the north, under the name of Sacæ and Sacaians, who ranged very high, and got poſſeſſion of Sogdiana, and the regions upon the Iaxartes. From thence they extended themſelves quite to the ocean. Theſe ſent out large bodies into different parts; and many of the Tartarian nations are deſcended from them. They gained poſſeſſion of the upper part of China, which they denominated Cathaia; and Japan was probably in ſome degree peopled by them. Their religion alſo extended far; and many noble edifices in various parts of the Eaſt afford evidences of their original. Near Syriam in Pegu are two temples, built after the ſame model; and other temples and pagodas in India, together with the deities to whoſe ſervice they were conſecrated, and the rites of worſhip practiſed in them, teſtify their original. For other particulars relating to the ſons of Cuſh or Chus, or the ancient Cuthites, ſee the "Analyſis of Ancient Mythology." in 3 vols. 4to. *paſſim.*

CUSHAI, in *Geography*, a ſmall river of America, which diſcharges itſelf into Albemarle ſound, between Chowan and the Roanoke, in N. Carolina.

CUSHENDEN Bay, a ſmall bay on the eaſt coaſt of the county of Antrim, Ireland, where there is pretty good anchorage when the wind does not blow on ſhore. Long. 5° 23′ W. Lat. 55° 7′ N.

CUSHETUNK Mountains, mountains of America, in Hynterton county, New Jerſey.

CUSHING, a townſhip of America, in Lincoln county, Maine, ſeparated from Warren and Thomaſtown by St. George's river, incorporated in 1789, containing 1415 inhabitants, and lying 216 miles E. by N. of Boſton. The E. part of this townſhip is now "St. George's," 55 miles S. E. of Wiſcaſſet.

CUSHION, Ladies, in *Botany*. See Saxifraga *hypnoides*.

CUSHION, Sea. See Statice.

Cushion, *a rubber*, in *Electricity*. See Electrical *machine*.

Cushion, in *Engraving*, is a bag of leather filled with ſand, commonly about nine inches ſquare, and three or four thick, uſed for ſupporting the plate to be engraved.

Cushion, in *Gilding*, is made of leather, faſtened to a ſquare board, from fourteen inches ſquare to ten, with a handle. The vacuity between the leather and board is ſtuffed with fine tow or wool, ſo that the outer ſurface may be flat and even. It is uſed for receiving the leaves of gold from the paper, in order to its being cut into proper ſize and figures.

CUSI, in *Ancient Geography*, a town of Lower Pannonia, 16 miles from Bononia, according to the Itinerary of Antonine, ſuppoſed to be the preſent Cudelaf.

Cusi, in *Ornithology*, a name given by the people of the Philippine iſlands to a very ſmall and very beautiful ſpecies of parrot.

CUSIGHE, Simone da, in *Biography*, ſo called from the place of his nativity, a ſmall town near Cadore, in the Venetian ſtate, a painter who flouriſhed in the 14th century. Some of his madonnas of conſiderable merit are ſtill to be ſeen at Cuſighe, and bear date from 1382 to 1409. Lanzi. Stor. Pitt.

CUSP, Cuspis, properly denotes the point of a ſpear, or ſword; but is uſed in aſtronomy to expreſs the points, or horns, of the moon, or any other luminary.

Cusp, in *Aſtrology*, is uſed for the firſt point of each of the twelve houſes, in a figure, or ſcheme, of the heavens. See House.

Cusp *of a Curve*, in *Geometry*. See Curve.

CUSPIDATED, in *Botany*, is when the leaves of a flower end in a cuſp, or point, reſembling that of a ſpear.

Cuspidated *hyperbola*, &c. See Curve.

CUSPIDATUS Dens, in *Anatomy*, the canine tooth of the human ſubject. Mr. Hunter aſſigns the former name to it.

CUSPIDIA, in *Botany*, Gært. See Gorteria *cernua*.

CUSSAC, in *Geography*, a ſmall town of France, in the department of the Upper Vienne, ſix miles S. of Roche Chouart.

CUSSÆIM, in *Ancient Geography*. See Cossæi.

CUSSAMBIUM, in *Botany*; Lam. Encyc. Rumph. amb. 1. 154. tab. 57. A tree hitherto but little known, which ſeems to have ſome affinity with the ponga of Rheede, and the tataiba of Piſo, but differs in having a one-ſeeded drupe for its fruit; it is rather lofty, but not very ſpreading; its wood hard and heavy; the bark brown, rugged, and very brittle. *Leaves* generally oppoſite, oval-lanceolate, entire, on ſhort petioles. *Flowers* ſmall, in ſlender lateral racemes. *Fruit* roundiſh or egg-ſhaped, commonly rough, with pointed caducous tubercles; fleſh rather thin, of a pleaſant acid taſte; kernel of the nut white, tender, oily.

A native of the Molucca iſlands. The ripe fruit is eaten raw. A yellowiſh oil is expreſſed from the kernels, which having a pleaſant ſmell, and not growing rancid, is uſed for lamps, and as an ingredient in various odoriferous preparations.

CUSSENS, in *Geography*, a ſmall river of America, in Cumberland county, Maine, which runs a S.E. courſe to Caſco bay, between the towns of Frankfort and North Yarmouth.

CUSSET, in Latin *Cuſſetum*, a town of France, in the department of the Allier, 21 miles N. of Roanne, and 255 S.E. of Paris. It is the chief place of a canton, in the diſtrict of La Paliſſe, with a population of 3945 individuals. The canton has 12 communes, and 14,443 inhabitants, upon a territorial extent of 180 kiliometres.

CUSSIE, a town of Egypt, 15 miles S. of Aſhmunein.

CUSSITAH, an Indian town, in the weſtern part of Georgia, 12 miles above the broken Arrow, on Cattahooſee river.

CUSSONIA, in *Botany*, (named by the younger Linnæus in honour of M. Cuſſon of Montpelier, a botaniſt who paid particular attention to the family of umbelliferous plants.) Linn. jun. Supp. 1378. Schreb. 455. Willd. 517. Juſſ. 218. Claſs and order, *pentandria digynia*. Nat. Ord. *Araliæ*; Juſſ.

Gen. Ch. *Cal.* Perianth five-toothed, permanent, ſuperior, formed by the dilatation of the edge of the receptacle. *Cor.* Petals five, trigonous, acute, ſeſſile. *Stam.* Filaments five. *Piſt.* Germ inferior, top-ſhaped; ſtyles two; ſtigmas ſimple. *Peric.* two-celled or two-coccous, two-valved, roundiſh, angular, crowned with the ſtyles. *Seeds* one in each cell.

Eſſ. Ch. Petals five, trigonous. Calyx formed by the dilatation of the edge of the receptacle, five-toothed.

Sp. 1. C. *thyrſiflora*. Linn. jun. 1. Mart. 1. Lam. 1. Willd. 1. Thunb. Act. Nov. Upſal. 3. tab. 12. "Leaves digitate; leaflets ſeſſile, ridge-ſhaped, truncated, three-toothed; flowers in racemes." A ſhrub. *Stem* ſcabrous towards the bottom, unequal, ſimple, the thickneſs of a finger. *Leaves* on the upper part of the ſtem, near together, alternate, petioled; leaflets ſcarcely emarginate, ſometimes, but rarely five-toothed; teeth remote, ſmall; petioles long; ſtipules intrafoliaceous. *Flowers* in terminal cylindrical racemes, forming an umbel; rays four, quite ſimple, naked towards the bottom, bearing racemed flowers towards the top. There is a variety with jointed leaflets, the loweſt joint dilated at the end into ſmaller lobes, ſo as to appear proliferous. 2. C. *ſpicata*. Linn. jun. 2. Mart. 2. Lam. 2. Illus. Pl. 187. Willd. 2. Thunb. Act. Nov. Upſ. 3. tab. 13. "Leaves digitate in ſevens; leaflets ſomewhat pedicelled, ſimple, and lanceolate, or ternate; flowers ſpiked." Whole plant ſmooth. *Flowers* in a ſingle terminal ſpike about two inches long. Both ſpecies are natives of the Cape of Good Hope. Juſſieu obſerves that this genus is ſcarcely diſtinct from panax; but that, if kept ſeparate, the ſhrubby ſpecies of panax ſhould be removed to it with P. undulata of Aublet, unjala of Rheede and perhaps aralia umbellifera of La Marck.

CUSTARD APPLE. See ANNONA.

CUSTINES, ADAM PHILIP DE, in *Biography*, one of the French generals in the revolutionary wars, was born at Metz, on the 4th of February 1740 of a noble family, and ſerved in the ſeven years' war againſt Pruſſia. Having obtained the command of a regiment of dragoons, he exchanged this regiment againſt another which was ordered to America, and fought for American independence. On his return to France, he was promoted to the rank of maréchal de camp (major general). In 1789, the nobles of Metz named him one of their deputies at the firſt national aſſembly, where he embraced the popular party, and moved the iſſuing of the aſſignats, (paper money) the diſmiſſion of the miniſters, and the abolition of the military eſtabliſhments of the French princes.

In 1792 Cuſtines was appointed commander in chief of the troops collected in the camp of Soiſſons, and afterwards of the army of the Rhine. He took poſſeſſion of Spire, Mentz, and Frankfort on the Mayne; but a furious and impolitic proclamation againſt the princes of Germany made them unite their forces to oppoſe him. He was driven from Frankfort by the Pruſſians, from Worms by the Auſtrians, and obliged to retreat into Alſace.

Denounced by the jacobins as a traitor, he appeared at the bar of the convention to defend himſelf, but was condemned and executed on the 27th of Auguſt 1793. He went weeping to the ſcaffold, and died with cowardice. His ſon, who had been appointed French miniſter at Berlin, and whom the king of Pruſſia would not receive, ſhowed much more firmneſs when, at the age of 25, he ſuffered death in January 1794, for having been a bad jacobin.

The military talents of general Cuſtines were never held in great eſtimation; the ſoldiers under his command deteſted him for his pride and ſtern ſeverity. Nouv. Dict. Hiſtorique.

CUSTODE, Fr. A holſter-cap. See CHAPERON.

CUSTODE *admittendo*, and CUSTODE *amovendo*, in *Law*, are writs for the admitting, or removing, of guardians.

CUSTODES *libertatis Angliæ authoritate parliamenti*, was the ſtyle, or title, in which writs, and other judicial proceedings, did run in the time from the death of Charles I. till Oliver was declared protector, &c. Stat. 12 Car. II. c. 3.

CUSTODIA. See RECTO *de cuſtodia terræ et hæredis*. *Hærede deliberando alii qui habet* CUSTODIAM *terræ*. See HÆREDE.

CUSTODIA *militaris*, Lat.; a military guard. Military priſoners at Rome, and in the provinces, were guarded in the following manner, particularly if guilty of ſerious offences or crimes. The guilty perſon had a chain faſtened to his right hand, and to this chain was equally faſtened the left hand of him who guarded him. Sometimes, for greater ſecurity, the criminal was confined under the guard of two perſons tied with him. The chain was long enough for both the guards and the criminal to walk freely. This ſort of confinement, however, which muſt have been attended with much inconvenience and have withdrawn from uſeful and more important duty a great number of ſoldiers, did not exiſt at all periods of the Roman government.

CUSTODIO, HIERONYMUS, in *Biography*, a painter born in Antwerp, who reſided in England in the reign of queen Elizabeth. There is at Wooburn (the ſeat of the duke of Bedford) a portrait of Elizabeth Bruges, daughter of lord Chandos, with the following inſcription, *Hieronymus Cuſtodio Antwerpienſis*, fecit 1589. Walpole.

CUSTODY *of* IDIOTS *and* LUNATICS, uſed formerly to be committed by the king himſelf to proper committees, in every particular caſe; but now, to avoid ſolicitations and the very ſhadow of undue partiality, a warrant is iſſued by the king under his royal ſign manual to the chancellor or keeper of his ſeal, to perform this office for him; and if he acts improperly in granting ſuch cuſtodies, the complaint muſt be made to the king himſelf in council. (3 P. Wms. 108. Reg. Br. 267.) But the previous proceedings on the commiſſion are on the law ſide of the court of chancery, and can only be redreſſed (if erroneous) by writ of error in the regular courſe of law. See IDIOT, LUNATIC, and MAD-HOUSE.

CUSTODY *of the temporalties of biſhops*, or of all the lay revenues, lands, and tenements (in which is included his barony), which belong to an archbiſhop's or biſhop's ſee, forms the firſt branch of the king's ordinary revenues. Upon the vacancy of the biſhopric, theſe are immediately the right of the king, as a conſequence of his prerogative in church matters; by which he is conſidered as the founder of all archbiſhoprics and biſhoprics, to whom during the vacancy they revert. The policy of the law hath veſted this cuſtody in the king, partly becauſe before the diſſolution of abbeys, he had the cuſtody of the temporalties of all ſuch abbeys and priories as were of royal foundation, on the death of the abbot or prior, and partly becauſe, as the ſucceſſor is not known, the lands and poſſeſſions of the ſee would be liable to ſpoil and devaſtation, if no one had a property in them. The law, therefore, has given to the king, not the temporalties themſelves, but the cuſtody of them till ſuch time as a ſucceſſor is appointed; with power of taking to himſelf all the intermediate profits, without any account to the ſucceſſor; and with the right of preſenting (frequently exerciſed by the crown) to ſuch benefices and other preferments as fall within the time of vacation (ſtat. 17 Edw. II. c. 14. F. N. B. 32.) This revenue could not formerly be granted out to a ſubject; but now by ſtat. 15 Edw. III. ſt. 4. c. 4 and 5, the king may, after the vacancy, leave the temporalties to the dean and chapter; ſaving to himſelf all advowſons, eſcheats, and the like. For the prevention and remedy of irregularities which anciently occurred with regard to theſe temporalties, it was one article of the great charter (9 Hen. III. c. 5.) that no waſte ſhould be committed in them, nor the cuſtody of them be ſold. The ſame is ordained by the ſtatute of Weſtminſter, 3 Edw. I. c. 21.; and alſo 14 Edw. III. ſt. 4. c. 4. The ſtatute 1 Edw. III. ſt. 2. c. 2. guards againſt the king's ſeizing the temporalties of biſhops, during their own lives. This revenue, formerly conſiderable, is now reduced almoſt to nothing; for, at preſent, as ſoon as the new biſhop is conſecrated and confirmed, he uſually receives the reſtitution of his temporalties quite entire, and untouched, from the king; and at the ſame time does homage to his ſovereign; and then, and not ſooner, he has a fee-ſimple in his biſhopric, and may maintain an action for the profits. Co. Litt. 67. 341.

CUSTOM is uſed to denote the manners, ceremonies, or ways of living of a people, which in time have turned into habit, and by uſage obtained the force of laws.

In this ſenſe, cuſtom implies things that were at firſt voluntary, but are become neceſſary by uſe.

CUSTOM, *Conſuetudo*, in *Law*, is a law not written, eſtabliſhed by long uſage, and the conſent of our anceſtors. No law can oblige a people without their conſent; ſo wherever they conſent, and uſe a certain rule or method as a law, ſuch rule, &c. gives it the power of a law; and if it is univerſal, then it is common law; if particular to this or that place, then it is *cuſtom*. 3 Salk. 112. And as to the riſe of cuſtoms, when a reaſonable act once done, was found to be good, and beneficial to the people, then they uſed it often; and by frequent repetitions of the act, it became a cuſtom; which being continued without interruption time out of mind, it obtained the force of a law, to bind the particular places, perſons, and things concerned therein. Thus a cuſtom had beginning, and grew to perfection; and a good cuſtom muſt be grounded on antiquity, continuance, peaceable acquieſcence, reaſon, certainty, and mutual conſiſtency.

As to the *antiquity* of any cuſtom, it muſt have been uſed ſo long, that the memory of man runneth not to the contrary; ſo that if any one can ſhew the beginning of it, it is no good cuſtom. On this account no cuſtom can prevail againſt an expreſs act of parliament; ſince the ſtatute itſelf is a proof of a time when ſuch a cuſtom did not ſubſiſt. Co. Litt. 113. As to *continuance*, any interruption would cauſe a temporary ceaſing; and the revival gives it a new beginning, which will be within time of memory, and thus the cuſtom will be void. But we muſt diſtinguiſh between an interruption of the *right*, and an interruption merely of *poſſeſſion*, which, though it takes place for 10 or 20 years, will not deſtroy the cuſtom. (Co. Litt. ibid.) *Peaceable acquieſcence* is ſuch as has not been ſubject to contention and diſpute: for as cuſtoms owe their original to common conſent, their being immediately diſputed, either at law or otherwiſe, is a proof that ſuch conſent was wanting. Moreover, cuſtoms muſt be *reaſonable*; or rather, taken negatively, they muſt not be unreaſonable. This ſir Edward Coke explains (1 Inſt. 62.), as referring to artificial or legal reaſon, warranted by authority of law; on which account a cuſtom may be good, though the particular reaſon of it cannot be aſſigned; for it is ſufficient, if no good legal reaſon can be aſſigned againſt it. With reference to the *certainty* of cuſtom, it is obſerved, that a cuſtom, limiting the deſcent of lands to the moſt worthy of the owner's blood, is void; for how ſhall it be determined? but a cuſtom to deſcend to the next male of the blood excluſive of females, is certain, and therefore good. (1 Rol. Abr. 565.). A cuſtom to pay a year's improved value for a fine on a copy-hold eſtate is good, though the value is uncertain; for the value may at any time be aſcertained: and the maxim of law is, "id certum eſt, quod certum reddi poteſt." Again, cuſtoms, eſtabliſhed by conſent, muſt be, when eſtabliſhed, *compulſory*, and not left optional. Cuſtoms muſt be *conſiſtent* with each other; one cuſtom cannot be ſet up in oppoſition to another. For if both are really cuſtoms, then both are of equal antiquity, and both eſtabliſhed by mutual conſent; which it would be abſurd to ſay of contradictory cuſtoms.

If it be aſked, how are thoſe cuſtoms and maxims which lie at the foundation of common law to be known, and how is their validity to be determined? The anſwer is, by the judges in the ſeveral courts of juſtice. They are the depoſitories of the laws, the living oracles, who muſt decide in all caſes of doubt, and who are bound by an oath to decide according to the laws of the land. Such judicial deciſions are the principal, and moſt authoritative evidence, that can be given, of the exiſtence of ſuch a cuſtom as ſhall form a part of the common law. Theſe are regiſtered and preſerved under the name of *records*, explained in our *reports*, and digeſted for uſe in the authoritative writings of the venerable ſages of the law. See RECORDS and REPORTS, and AUTHORITIES.

The effect of a cuſtom thus circumſtantiated, is, that in popular ſtates, and limited monarchies, it ſerves to interpret the written laws: for, in abſolute monarchies, it is the king alone who has the power of interpreting laws. Hence, the word cuſtom is ſtill retained, and ſerves to expreſs the particular rights, and municipal laws, eſtabliſhed by uſage in particular provinces, &c. after they are reduced into written laws.

In this ſenſe, moſt of the common law of England is *lex non ſcripta*; being originally no more than the cuſtoms of our forefathers.

The Romans were governed by cuſtoms, or unwritten laws, after the expulſion of their kings.

Lex non ſcripta, in this ſenſe, is uſed in oppoſition to ſtatutes, or acts of parliament; which commence laws at once. See Common *Law*.

Another branch of the *lex non ſcripta*, or the unwritten laws of England, conſiſts of particular cuſtoms, or laws which affect only the inhabitants of particular diſtricts. Theſe, or ſome of them at leaſt, are undoubtedly the remains of that multitude of local cuſtoms, out of which the common law, as it now ſtands, was collected at firſt by king Alfred, and afterwards by king Edgar, and Edward the Confeſſor; each diſtrict mutually ſacrificing ſome of its own ſpecial uſages, in order that the whole kingdom might enjoy the benefit of one uniform and univerſal ſyſtem of laws. But, for reaſons that have been now long forgotten, particular counties, cities, towns, manors, and lordſhips, were, at a very early period, indulged with the privilege of abiding by their own cuſtoms, in contradiſtinction to the reſt of the nation at large; which privilege is confirmed to them by ſeveral acts of parliament. Magn. Chart. 9 Hen. III. c. 9. 1 Edw. III. ſt. 2. c. 9. 14 Edw. III. ſt. 1. c. 2. 2 Hen. IV. c. 1. See Borough-English, Gavel-Kind, Dower, &c.

As to the *allowance* of ſpecial cuſtoms, it is obſerved, that cuſtoms, in derogation of the common law, muſt be conſtrued ſtrictly. Thus, by the cuſtom of gavel-kind, an infant of 15 years may, by one ſpecies of conveyance, (called a deed of feoffment) convey away his lands in fee-ſimple, or for ever. Yet, this cuſtom does not impower him to uſe any other conveyance, or even to leaſe them for ſeven years; for the cuſtom muſt be ſtrictly purſued. (Co. Cop. § 33.) And, moreover, all ſpecial cuſtoms muſt ſubmit to the king's prerogative. Therefore, if the king purchaſes lands of the nature of gavel-kind, where all the ſons inherit equally; yet upon the king's demiſe, his eldeſt ſon ſhall ſucceed to theſe lands alone. (Co. Litt. 15.) As *general* cuſtoms are determined by the judges, *particular* cuſtoms, ſuch as are uſed in ſome certain town, borough, city, &c. ſhall be determined by a jury. (1 Inſt. 110.)

For the difference between cuſtom and preſcription, ſee Prescription.

Custom *of London*. The principal local cuſtoms of this city are the following: if a citizen and freeman dies, leaving a widow and children, his goods and chattels, (deducting for the widow her apparel, and the furniture of her bedchamber, called the "widow's chamber,") ſhall be divided into three parts; the widow ſhall have one part, the executor or adminiſtrator another, to diſcharge legacies, &c. and the children the other third part. If he leaves only a widow, or only children, they ſhall reſpectively, in either caſe, take one moiety, and the adminiſtrator the other. (1 P. Wms. 341. Salk. 246.) If he leaves neither widow nor child, the adminiſtrator ſhall have the whole. (1 Show. 175.) This portion, or "dead man's" part, the adminiſtrator was wont to apply to his own uſe, (2 Freem. 85. 1 Vern. 133.) till the ſtatute 1 Jac. II. c. 17, declared that the ſame ſhould be ſubject to the ſtatute of diſtribution. So that if a man dies worth 1800*l.* perſonal eſtate, leaving a widow and two children, this eſtate ſhall be divided into 18 parts; of which the widow ſhall have eight, ſix by the cuſtom and two by the ſtatute, and each of the children five, three by the cuſtom and two by the ſtatute:—if he leaves a widow and one child, ſhe ſhall ſtill have eight parts, as before; and the child ſhall have ten, ſix by the cuſtom and four by the ſtatute:—if he leaves a widow and no child, the widow ſhall have three-fourths of the whole, two by the cuſtom and one by the ſtatute; and the remaining fourth ſhall go, by the ſtatute, to the next of kin. It is alſo to be obſerved, that if the wife be provided for by a jointure before marriage, in bar of her cuſtomary part, it puts her in a ſtate of non-entity, with regard to the cuſtom only (2 Vern. 665. 3 P. Wms. 16.); but ſhe ſhall be entitled to her ſhare of the "dead man's" part under the ſtatute of diſtributions, unleſs barred by ſpecial agreement. (1 Vern. 15. 2 Chan. Rep. 252.) And if any of the children are advanced by the father in his life-time with any ſum of money, (not amounting to their full proportionable part,) they ſhall bring that portion into hotchpot with the reſt of the brothers and ſiſters, but not with the widow, before they are entitled to any benefit under the cuſtom. (2 Freem. 279. 1 Equ. Caſ. Abr. 155. 2 P. Wms. 526.); but, if they are fully advanced, the cuſtom entitles them to no further dividend. The cuſtom of London extends alſo to the province of York, and alſo to the kingdom of Scotland, and probably alſo to Wales; inſomuch, that the effects of the inteſtate, after payment of his debts, are, in general, divided according to the ancient univerſal doctrine of the *pars rationabilis*, in the manner above ſtated. However, in order to favour the power of bequeathing, and to reduce the whole kingdom to the ſame ſtandard, three ſtatutes have been provided; the one 4 and 5 W. & M. c. 2, explained by 2 and 3 Ann. c. 5, for the province of York; another, 7 and 8 W. III. c. 38, for Wales; and a third, 11 Geo. I. c. 18, for London;—by which it is enacted, that perſons within thoſe diſtricts, and liable to thoſe cuſtoms, may (if they think proper) diſpoſe of *all* their perſonal eſtates by will; and the claims of the widow, children, and other relations, to the contrary, are totally barred. There are two principal points, beſides other leſs material variations, in which the cuſtoms of London and of York conſiderably differ. One is, that in London the ſhare of the children (or orphanage part) is not fully veſted in them till the age of twenty-one, before which they cannot diſpoſe of it by teſtament (2 Vern. 558.); and if they die under that age, whether ſole or married, their ſhare ſhall ſurvive to the other children; but after the age of twenty-one, it is free from any orphanage cuſtom, and in caſe of inteſtacy, ſhall fall under the ſtatute of diſtributions. (Prec. Chanc. 537.) The other is, that in the province of York, the heir at common law, who inherits any land either in fee or in tail, is excluded from any filial portion or reaſonable part. (2 Burn. 754.) But, notwithſtanding theſe provincial variations, the cuſtoms appear to be ſubſtantially one and the ſame.

A woman in London that uſes a trade, without her huſband, is chargeable without him, as a *feme ſole* merchant; and if condemned may be put in priſon till ſhe pay the debt; and her bail are liable, if ſhe abſents herſelf, and the huſband ſhall not be charged. It is the cuſtom of the city of London, that a perſon educated in one trade may ſet up in another. See Apprentice. A perſon may acquire the freedom of London either by the ſervitude of an apprenticeſhip, by birth-right, as the ſon of a freeman, or by purchaſe, under an order of the court of aldermen. (4 Mod. 145.) In London every day, except Sunday, is a market overt, for the buying and ſelling of goods and merchandize. (5 Rep. 85.) But no perſon, not being a freeman of London, ſhall keep any ſhop, or other place to put to ſale by retail any goods or wares, or uſe any handicraft trade for hire, gain, or ſale, within the city, upon pain of forfeiting 5*l.* (8 Rep. 124. Chart. Car. I.)

If a debtor be a fugitive, he may be arreſted before the day to find better ſecurity. See *Foreign* Attachment. Every tenant at will of a houſe above 40*s.* *per ann.* in the city, ought to give and receive half a year's warning on leaving it. An arreſt may be made in London, on the plaintiff's entering his plaint in either of the compters, and a ſerjeant of London need not ſhew his mace when he arreſts a perſon;

and the liberties extend to the ſuburbs and Temple-Bar. Jenk. Cent. 291.

If the exiſtence of any cuſtom in London be queſtioned, it ſhall not be tried by a jury, but by a certificate from the lord mayor and aldermen by the mouth of their recorder (Cro. Car. 516.); unleſs it be ſuch a cuſtom as the corporation itſelf is intereſted in, as a right of taking toll, &c.; for then the law permits them not to certify on their own behalf; but it muſt be determined by a jury (Hob. 85.) It is ſaid (1 Ro. Rep. 106.) that the courts at Weſtminſter take notice of the cuſtoms of London, and not of any other place. But this is only where they have been certified. The cuſtoms of London are confirmed by act of parliament. 8 Rep. 126. Cro. Car. 347.

Custom *of Merchants*, *lex mercatoria*, a particular ſyſtem of cuſtoms uſed only among one ſet of the king's ſubjects; which, however different from the general rules of the common law, is yet ingrafted into it, and made a part of it (Winch. 24.); being allowed, for the benefit of trade, to be of the utmoſt validity in all commercial tranſactions; for it is a maxim of law, that "*Cuilibet in ſua arte credendum eſt.*" This cuſtom of merchants is ſo far conſidered as law, that it affords the rule of conſtruction, in caſes of contracts, agreements, &c. and other commercial tranſactions. The *lex mercatoriâ*, like the *lex et conſuetudo parliamenti*, deſcribes only a great diviſion of the laws of England. The laws relating to bills of exchange, inſurance, and all mercantile contracts, are as much the general law of the land, as the laws relating to marriage or murder. And it is the opinion of Mr. Juſtice Foſter, that the cuſtom of merchants is the general law of the kingdom, and, therefore, ought not to be left to a jury after it has been ſettled by judicial determinations. 2 Barr. 1226.

Custom, *Aſſurances by*. See *Common* Assurances.

Custom, *Dower by*. See Dower.

Custom-*Heriot*. See Heriot.

Custom. *Suit*. See Suit.

CUSTOMS, in *Commerce*, the duties, tolls, or taxes, paid upon merchandize when brought into or carried out of a country. They appear to have been called cuſtoms, as denoting cuſtomary payments, which had been in uſe from time immemorial; and began to be impoſed as ſoon as commerce became an object of public attention. Such princes as wiſhed to encourage foreign trade, found that it brought ſome additional expences upon them, as it became neceſſary to maintain ambaſſadors or other public agents in moſt of the countries to which their ſubjects reſorted; to negociate treaties for the regulation of commercial intercourſe; to eſtabliſh courts for deciding maritime cauſes; and to maintain a navy for protecting merchant veſſels at ſea from enemies and pirates. In order to indemnify themſelves for theſe charges, they demanded of the merchants tolls, tributes, or cuſtoms, by authority of the royal prerogative, which continuing to be paid as cuſtomary dues, came to be conſidered as part of the inheritance of the crown. The conſiderations (ſays judge Blackſtone) upon which this branch of the revenue (or the more ancient part of it, which aroſe only from exports) was inveſted in the king, were ſaid to be two (Dyer. 165): 1. Becauſe he gave the ſubject leave to depart the kingdom, and to carry his goods along with him. 2. Becauſe the king was bound of common right to maintain and keep up the ports and havens, and to protect the merchant from the pirates.

The ancient cuſtoms in England, conſiſted of ſmall ſums paid by the merchants for the uſe of the king's warehouſes, weights, and meaſures. About the year 979, king Ethelred eſtabliſhed duties on ſhips and merchandize, to be paid at Billingſgate in the port of London. In Magna Charta it was ſtipulated that merchants were to come into the kingdom to buy and ſell *per antiquas conſuetudines*, which proves that ſome cuſtoms had been uſually paid long before that time. And ſome have imagined, that they are called with us cuſtoms, becauſe they were the inheritance of the king by immemorial uſage, and the common law, and not granted him by any ſtatute (Dyer, 43. pl. 44); but ſir Edward Coke hath clearly ſhewn (2 Inſt. 58, 59.), ſays judge Blackſtone, that the king's firſt claim to them was by grant of parliament (3 Edw. I. A.D. 1274), though the record thereof is not now extant. And indeed this is in expreſs words confeſſed by ſtatute 25 Edw. I. c. 7. A.D. 1297, wherein the king promiſes to take no cuſtoms from merchants, without the common aſſent of the realm, "ſaving to us and our heirs, the cuſtoms on wool, ſkin, and leather, formerly granted to us by the commonalty aforeſaid." Theſe were formerly called the hereditary cuſtoms of the crown; and were due on the exportation of the ſaid three commodities, and of none other; which were ſtyled the "ſtaple" commodities of the kingdom, becauſe they were obliged to be brought to thoſe ports where the king's ſtaple was eſtabliſhed, in order to be there firſt rated, and then exported. Theſe cuſtoms, granted by the act of 3 Edw. I. conſiſted of a duty of ſix ſhillings and eight-pence for every ſack of wool, containing twenty-ſix ſtone; ſix ſhillings and eight-pence for every three hundred woolfells; and thirteen ſhillings and four-pence for every laſt of hides; a laſt containing twelve dozen. Theſe duties, with ſome others of inferior importance which were then levied, were afterwards denominated *cuſtuma antiqua ſive magna*. They were payable by every merchant, as well native as ſtranger: with this difference, that merchant-ſtrangers paid an additional toll, *viz.* half as much again as was paid by natives. The appellation *cuſtuma* ſeems to be derived from the French word *couſtum*, or *coûtum*, which ſignifies toll or tribute, and owes its own etymology to the word *couſt*, denoting price, charge, &c. as we have adopted it in Engliſh, *coſt*. By an ordinance of 31 Edw. I. certain new duties of cuſtoms were eſtabliſhed, to be paid by alien merchants only; theſe were called *cuſtuma nova* or *cuſtuma parva*, and aliens' duty, and conſiſted of an additional duty of two ſhillings for every hogſhead of wine imported; additional duties of forty pence for every ſack of wool; ſix ſhillings and eight-pence for every laſt of hides, and forty pence for every three hundred woolfells, exported; two ſhillings for every piece of cloth dyed in grain; eighteen pence for every piece of cloth, in which part of a grain colour was intermixed; and twelve pence for every other cloth without grain; twelve pence for every quintal of wax; and three-pence in the pound on all other kinds of merchandize. The duty on wine, which was at firſt called *butlerage*, becauſe paid to the king's butler, exchanged for *priſage*, or a right of taking two tons of wine from every ſhip importing into England twenty tons or more, being afterwards impoſed at ſo much a ton, was called a *tonnage*; and the duty on goods not ſpecified being impoſed at ſo much in the pound of their eſtimated value, was called a *poundage*. In the 47th year of Edward III. a duty of ſixpence in the pound was impoſed upon all goods exported and imported, except wool, woolfells, leather, and wines, which were ſubject to particular duties. In the 14th of Richard II. this duty was raiſed to one ſhilling in the pound; but three years afterwards, it was again reduced to ſixpence. It was raiſed to eight-pence in the 2d year of Henry IV.; and in the fourth year of the ſame prince to one ſhilling. From this time, to the 9th year of William III., this duty of poundage continued at one ſhilling in the pound. The duties of tonnage and poundage were generally granted by one and the ſame act of parliament, and were called the ſubſidy of tonnage and poundage. Theſe duties were at firſt granted, as the old ſtatutes (and particularly 1 Eliz. c. 19.) expreſs it, for the defence of the realm, and the keeping and ſafeguard of the ſeas, and for the intercourſe of merchandize ſafely to come into and paſs out of the ſame. They were at firſt granted only for a fixed term of years, as for two years in 5 Rich. II.; but in the time of Henry VI. they were granted him for life by a ſtatute in the 31ſt year of his reign; and again to Edward IV. for the term of his life only;—ſince which time they were regularly granted to all his ſucceſſors for life, ſometimes at the firſt, ſometimes at other ſubſequent parliaments, till the reign of Charles I.; when, as lord Clarendon expreſſes it (Hiſt. Rebell. b. iii.) his miniſters were not ſufficiently ſolicitous for a renewal of this legal grant. And yet theſe impoſts were imprudently and unconſtitutionally levied and taken, without conſent of parliament, for fifteen years together; which was one cauſe of the ſubſequent troubles. However, the king, previous to the commencement of hoſtilities, paſſed an act, with a view of correcting paſt errors and appeaſing prevalent diſcontents, by which he renounced all power in the crown of levying the duty of tonnage and poundage, without the expreſs conſent of parliament; and alſo all power of impoſition upon any merchandizes whatever. Upon the reſtoration this duty was granted to king Charles II. for life, and alſo to his two immediate ſucceſſors; and by three ſeveral ſtatutes, 9 Ann. c. 6, 1 Geo. I. c. 12, 3 Geo. I. c. 7, it was made perpetual, and mortgaged for the debt of the public.

The ſubſidy of poundage having continued for ſo long a time at one ſhilling in the pound, or at five per cent., a ſubſidy came, in the language of finance, to denote a general duty of this kind of five per cent. This ſubſidy was afterwards called the old ſubſidy, and was levied according to a book of rates eſtabliſhed in the 12th year of Charles II. The new ſubſidy impoſed by the 9th and 10th William III., was an additional five per cent. upon the greater part of goods. The one-third and the two-thirds ſubſidy, made up together another five per cent. of which they were proportionable parts. The ſubſidy of 1747, made a fourth five per cent. upon the greater part of goods; and that of 1759, a fifth upon ſome particular ſorts of goods. The old ſubſidy was impoſed indifferently, upon exportation as well as importation; but the four ſubſequent ſubſidies, as well as moſt of the duties which have ſince been occaſionally impoſed on a great variety of goods, have been laid almoſt wholly upon importation: other ancient duties which had been impoſed on the exportation of the produce or manufactures of the country, have either been reduced or taken off altogether. The cuſtoms thus impoſed by parliament were, till the ſtat. 27 Geo. III. c. 13, contained in two books of rates, ſet forth by parliamentary authority, ſtat. 12 Car. II. c. 4, 11 Geo. I. c. 7. One of theſe was ſigned by ſir Harbottle Grimſton, ſpeaker of the houſe of commons in the time of Charles II.; and the other, an additional one ſigned by ſir Spencer Compton, ſpeaker in the reign of George I., to which alſo ſubſequent additions have been made.

The book of rates, eſtabliſhed in 1660, has been conſidered as the foundation of the preſent mode of levying the duties of cuſtoms, as it contained the rate of duty payable both by denizens and aliens, and the value to be ſet upon different deſcriptions of merchandize, and ſpecified the articles which were cuſtom free. Some new duties on importation were afterwards impoſed, and at the revolution the duties of cuſtoms conſiſted of the following branches. 1. Tonnage and poundage granted to Charles II. for life, and to James II. for his life; which, by an account laid before parliament in the firſt ſeſſion after the revolution, produced on a medium of four years, 577,507*l.* 12*s.* 10½*d.*; but, according to Dr. Davenant, it produced 600,000*l.* clear of all charges and deductions. 2. Duties on wines and vinegar imported, granted in 1685, which by the ſame account produced 172,900*l.* 11*s.* 8½*d.* 3. Duties on tobacco and ſugar imported, likewiſe granted in 1685, and which by the ſame account produced 148,861*l.* 8*s.* per annum. 4. Duties on the importation of French linens, wrought ſilks, brandies, and Eaſt India manufactures, which were alſo eſtabliſhed in the ſame year, and produced 93,710*l.* 8*s.* 1*d.* per annum. The total produce of the cuſtoms in 1688 was therefore about 992,980*l.*, being more than double their amount twenty years prior to that period.

A conſiderable increaſe in the public expenditure, with the introduction of the funding ſyſtem, occaſioned very frequent impoſitions of new duties, which were generally adjuſted on the principles of the old ſubſidy; that is, the value of the goods was aſcertained by a book of rates, and the amount computed by the quantities of the goods, either with reſpect to gauge, to weight, or to tale; the duty was, therefore, not a certain proportion of their real value, but of an arbitrary value, agreeing, perhaps, with the current value at the time of impoſing the duty; but which muſt, from the natural fluctuations of trade and manufactures, be neceſſarily liable to many changes and alterations. The conſequence of this mode of fixing duties was, that when they were laid on by bulk on goods of one general deſcription, the duty was always the ſame, whether upon the finer or the coarſer manufacture; by which means it either operated as a prohibition to the latter, or was not at all felt by the former. There was alſo another mode by which duties were impoſed; this was by a proportion to the value on goods not rated, being the real and actual value of the ſame as ſworn to by the importer. Theſe principles of taxation, being once adopted, were purſued in all the new and additional duties of cuſtoms which were impoſed for payment of the intereſt on the various loans which were raiſed from time to time for the public ſervice. In ſome inſtances the additional duties were calculated by a per centage on the duties previouſly paid; in others a further duty was laid on a different denomination of the commodity, either with reſpect to its value, its bulk, its weight, or its number; and by proceeding gradually in this manner, from period to period, the numerous additions made had at length become ſuch a maſs of confuſion as produced an infinity of inconvenience and delay in buſineſs, and became the ſubject of univerſal complaint among mercantile perſons. The perplexity aroſe in a great degree from almoſt all the additional duties having been appropriated to ſome ſpecific fund, for the payment of certain ſpecific annuities, in conſequence of which it was neceſſary that a ſeparate calculation ſhould be made at the cuſtom-houſe for each of the different duties. From the great complexity of the whole of this branch of the revenue, ſcarcely any one merchant could be acquainted by any calculations of his own, with the exact amount of what he was to pay; nor could much aſſiſtance in this reſpect be derived from the various books which had been publiſhed for the purpoſe of furniſhing a general view of the cuſtoms, as in every ſeſſion of parliament ſome alteration or another was made in ſeveral of the duties, and each of theſe alterations, following the old principle, totally unhinged and overturned the uſe of every preceding printed calculation; the officers of the cuſtoms, therefore, who from conſtant practice had acquired ſome facility in making the neceſſary calculations, were the only perſons to whom the merchants could apply for aſſiſtance and direction: thus the merchant was not only in a great degree left at the mercy of the officers, but the officers themſelves, who were intended to be a check upon the merchants, were forced to become their agents.

In order to remedy theſe inconveniences, Mr. Pitt propoſed, in the beginning of the year 1787, to aboliſh all the duties then ſubſiſting, and to ſubſtitute in their ſtead one ſingle duty on each article, amounting as nearly as poſſible to the aggregate of all the various duties then payable; only in general where a fraction was found in any of the ſums, to charge the neareſt integral number, uſually taking the higher rather than the lower, which made a ſmall addition to the revenue. The ſeries of reſolutions ſubmitted to the houſe of commons, for the purpoſe of carrying this meaſure into effect, but of which the houſe choſe to wave the formality of reading, amounted to upwards of three thouſand in number. A ſyſtematic ſimplicity and uniformity was at the ſame time introduced into the cuſtom-houſe accounts, by which a more diſtinct view has been ſince obtained both of the total amount of this important branch of the revenue, and of the various ſources from which it ariſes. Theſe beneficial regulations were the reſult of the laborious inveſtigation and judicious remarks of the commiſſioners of public accounts, who in their 13th, 14th, and 15th reports, had fully explained the conſtitution of this department, the duties of its ſeveral officers, and the mode of collecting the cuſtoms both in London and the out-ports. They alſo pointed out many other important regulations for the reduction of expence, or the accommodation of merchants, moſt of which have been ſince carried into effect. The ſtatute 27 Geo. III. c. 13. called "the conſolidation act," repeals all former ſtatutes impoſing duties of cuſtoms and exciſe, with regard to the *quantum* of the duty; and the two books of rates above-mentioned were declared to be of no avail for the future; but all the former duties were conſolidated, and were ordered to be paid according to a new book of rates annexed to that ſtatute.

Statement of the groſs and nett Revenue of the Cuſtoms, with the Rate per Centum of the Expence of Collection.

Years.	Groſs Receipt.	Rate per Cent. thereon.			Nett Produce.	Rate per Cent. thereon.		
	£	£	s.	d.	£	£	s.	d.
1789	5,417,333	6	7	0	4,050,003	8	9	10
1790	5,349,478	6	17	6	3,976,808	9	5	0
1791	5,587,853	7	3	8	4,193,817	9	11	6
1792	6,045,818	6	9	7	4,407,837	8	17	6
1793	5,574,708	6	19	7	4,221,832	9	4	8
1794	5,841,840	7	1	8	3,821,216	10	16	8
1795	5,776,058	6	19	5	3,959,462	10	3	5
1796	6,381,902	6	2	6	4,533,489	8	12	6

The total groſs receipt accounted for, falls ſhort of the whole ſum raiſed upon the public in conſequence of the duties conſtituting this branch of the revenue, as there are fees paid to the various officers, in part ſanctioned by law, but chiefly claimed on the ground of ancient uſage, which are a very conſiderable charge to the merchant. In the year 1788, the opinions of the merchants reſident in London, and in moſt of the out-ports, were collected, upon the expediency of aboliſhing or regulating theſe fees, and of providing compenſations to the officers by a tonnage duty. The merchants of London declared their wiſhes for a total abolition; and the various communications received from the merchants and traders at the out-ports, rendered it evident that it would be impracticable to form a general table of fees to ſuit all places. With a view, therefore, to aſcertain the amount of the fees for which it would be proper, that a compenſation ſhould be provided, if the fees themſelves were aboliſhed, an act was paſſed, authorizing the treaſury to appoint two commiſſioners of the cuſtoms in England, and one in Scotland, to enquire on oath into the emoluments of all perſons employed in the ſervice of the cuſtoms. In January 1790, theſe commiſſioners, having viſited thirty-four out-ports, made their firſt report, recommending certain meaſures for relief of the coaſting-trade; and in the ſame year an act of parliament was paſſed for the relief of that trade, at a conſiderable loſs to the revenue. In March 1791, the commiſſioners made a ſecond report, by which it appeared that the total of the fees received, excluſive of allowances from the crown and ſhares of ſeizures, amounted, in the year 1788, to 133,805*l.* 6*s.* 3*d.* In May 1791, they made their third report; in which, after ſtating and diſcuſſing the various opinions communicated to them by the merchants, they declared themſelves to be decidedly of opinion, that an entire abolition of cuſtom-houſe fees, and the payment of every perſon in that department wholly by the crown, would be a meaſure highly beneficial both to the commerce and to the revenue of the country: and they further gave their opinion, that if an entire abolition was deemed inexpedient, great advantages might ſtill accrue to commerce, and much ſecurity to the revenue, by aboliſhing the fees paid to the perſons uſually called out-door officers; the annual amount of which was about 45,000*l.*; and that this meaſure, though of a more limited extent, would place the out-door buſineſs at the ſeveral ports of the kingdom, on an equal footing. In conſequence of theſe repreſentations, a bill was prepared in 1792; but the apparent difficulty of the ſubject, and the expence of providing a compenſation upon the principle and to the extent ſuggeſted, prevented any further proceedings upon the ſubject; thus a very laborious inveſtigation was rendered of no benefit, and the mercantile intereſt is ſtill burthened with this highly improper mode of remunerating the ſervants of government. It cannot be doubted that if fixed and nett ſalaries could be given to every officer of the cuſtoms, proportionate to his ſervices, inſtead of leaving their compenſation to depend upon having additional places or employments in other ſituations, it would contribute greatly to the independence of the officers, to the relief of the trader, and to the ſecurity of the revenue.

Any article of commerce liable to a cuſtom duty upon importation, muſt, to ſecure the payment of the duty, be watched from the time the ſhip enters the port, until the duty is paid; and as it becomes forfeited by evading the duty, it may be purſued and ſeized. Any article liable to a duty upon exportation, muſt, to prevent its being changed or altered, be guarded from the time the duty is paid, until the ſhip has quitted the port: and an article entitled to a drawback or bounty upon exportation, muſt likewiſe, to prevent the re-landing of it, be guarded from the time the merchant delivers it to the officer, until the ſhip has quitted the port. Hence ariſes the neceſſity for different claſſes of officers, to attend upon and examine theſe articles, at different ſtages, in their paſſage between the ſhip and the merchant; and to purſue them if they eſcape the duty. The total number of officers, clerks, and aſſiſtants, employed in the management of this branch of the public revenue, was, in the year 1784, 1606, with an indefinite number of inferior attendants; ſince that period ſeveral uſeleſs offices have been ſuppreſſed, but the great increaſe in the duties has rendered it neceſſary to augment the number of perſons employed in collecting them very conſiderably.

The laws relating to the cuſtoms are voluminous in bulk, and intricate in their details, comprehending not leſs than twelve hundred articles upon which duties are levied; about nine hundred of theſe are ſubject to rated duties, and the reſt are charged *ad valorem*. The ſtatutes relative to the cuſtoms alone fill ſix very large volumes in folio; they are unprovided with any printed index; and the compilation, even in this ſtate, is not publiſhed, nor can it be commonly obtained by purchaſe. This circumſtance induced the Committee on Finance, in 1797, to recommend ſtrongly the conſolidation and ſimplification of the laws of the cuſtoms, by which means the revenue officer would be enabled to execute his duty with more promptitude and ſafety; the merchant would better know how to tranſact his commercial concerns with the revenue; and the foreign trader would have the means of avoiding thoſe errors which, at preſent, ſo frequently expoſe his property to ſeizure, for the omiſſion of forms which it is almoſt impoſſible that he ſhould know to be neceſſary. At ſome future period of peace this very uſeful meaſure will probably be accompliſhed.

In the year 1803, another conſolidation of the duties was effected by 43 Geo. III. c. 68; but the new duties, which have been ſince impoſed, have again deſtroyed, in ſome degree, the ſimplicity then eſtabliſhed, and will render it neceſſary, at no great diſtance of time, to recur again to the ſame principle.

The extraordinary ſyſtem of warfare adopted in the ſucceeding conteſt between France and Great Britain, in which unprecedented decrees were attempted to be enforced, for excluding the latter country from every ſpecies of commercial intercourſe with other nations, rendered neceſſary ſome meaſures of retaliation; with this view, new duties on exportation, commencing from 5th February 1808, were impoſed on all the principal articles of foreign merchandize, with the exception of the produce of the Britiſh colonies, and of articles which had been imported by the Eaſt India Company.

The total nett produce of the cuſtoms, after deducting re-payments, drawbacks, bounties, and the charges of management, has been as follows:

In 1802	£7,415,726	19*s.*	3¾*d.*
1803	7,776,775	2	7¾
1804	9,060,297	8	2½
1805	9,825,037	15	9¾
1806	10,553,293	19	9¾

Total Groſs Receipt of the Cuſtoms of Great Britain, for the Year ending 5th January 1807.

Balance in the hands of the different collectors, on 5th January 1806	£50,843	16*s.*	3*d.*
Balance in the hands of the receiver-general of Scotland, on 5th January 1806 - - - - -	54,657	3	8½
Carry over	£105,500	19	11½

Brought over	£105,500	19	11½
Bills ariſing and remitted out of the revenue of 1805, but not brought to account till 1806 - -	283,759	1	3¾
Groſs receipt within the year, including permanent and annual duties, and war taxes - - -	12,379,983	19	1¼
Total	£12,769,244	0	4½

The various payments to which this receipt was ſubject, including the nett payment into the exchequer, were as follow:

Drawbacks of duty on exportation	£162,119	11*s.*	0¾*d.*
Repayments on over-entries and damaged goods - - - -	79,781	0	5½
Bounties on exportation - -	1,318,446	0	2
Bounties for promoting national objects	307,864	3	1¼
Impreſt money granted to out-port collectors, &c. - - - -	34,989	13	3
Paid towards the expences of the civil government of Scotland - -	76,445	18	6½
Charges of management - -	655,603	8	10½
Payments into the exchequer, on permanent and annual duties, and war taxes - - - - -	9,733,813	12	1½
Balance in the hands of the different collectors, on the 5th January 1807	58,594	11	6½
Balance in the hands of the receiver-general of Scotland, on the 5th January 1807 - - - -	61,542	8	7½
Bills ariſing and remitted out of the revenue of 1806, but not brought to account till 1807 - -	280,043	12	7½
Total	£12,769,244	0	4½

Deducting from the groſs receipt within the year, of 12,379,983*l.* 19*s.* 1¼*d.*, the ſums paid for drawbacks on exportation, and in bounties for promoting national objects, the total nett amount of the year's duties will be 11,910,000*l.* 4*s.* 11¼*d.*, ariſing as follows:

From duties inwards - -	£10,166,561	13*s*	4¾*d.*
Duties outwards - -	621,566	16	5¼
Duties coaſtways - -	1,035,988	17	8
Remittances from the plantations	26,061	16	7¾
Quarantine tonnage duty -	13,370	14	7
Condemned tobacco, rent of tobacco warehouſes, &c. -	17,570	5	11½
Impreſt money repaid -	28,880	0	3
	£11,910,000	4	11¼

Total Groſs Produce of the Cuſtoms of Ireland for the Year ending 5th January 1807.

From duties inwards - -	£1,889,462	15*s.*	5½*d.*
Duties outwards - -	20,129	11	9½
Storage - - - - -	1,951	10	11¾
Light money - - -	6,114	8	1½
Iriſh ſpirits - - -	959	4	3
Fines and ſeizures, ſurcharges, &c.	16,923	7	2½
	£1,935,540	17	9¾
Deduct appropriated duties	15,181	1	5
Total	£1,920,359	16	4¾

The total expence of collecting the revenue of the cuſtoms, in the year above-ſtated, was, in England, at the rate of 5*l.* 1*s.* 3*d.* *per cent.* on the groſs receipt, or 6*l.* 1*s.* 3*d.* *per cent.* on the nett produce; in Scotland it amounted to 5*l.* 17*s.* 7*d.* *per cent.* on the groſs receipt, or 7*l.* 18*s.* 4*d.* *per cent.* on the nett produce. In Ireland the expences of this branch of the revenue being in a great meaſure blended with the exciſe, cannot be ſeparately ſtated, but they conſiderably exceed the rate of collection in Great Britain.

The ſtatutes for preventing frauds in this branch of the revenue, and for directing and regulating the conduct of merchants and of the ſeveral officers of the cuſtoms are much too numerous to be here recited. Some of the principal are as follow:

In caſe goods and merchandize are brought to a port, and part of the goods are ſold there, but never landed, they muſt pay the cuſtoms. Ships outward bound, and coming from beyond ſea, having goods and merchandize on board, are to be entered at the cuſtom-houſe, and the cuſtoms paid or agreed for under the penalty of 100*l.* and forfeiture of the goods; one moiety to the king, and another to the ſeiſor, &c. and if any concealed goods are found after clearing, for which the duties have not been paid, the maſter of the veſſel ſhall be ſubject to the like penalty. 13 and 14 Car. II. c. 11. Officers of the cuſtoms may ſearch ſhips; and having writ of aſſiſtance ſearch houſes. By other ſtatutes, foreign goods, taken in at ſea by any coaſting veſſel, ſhall be forfeited and treble value: and for prevention of clandeſtine running of goods, if any foreign brandy, &c. is imported in veſſels under forty tons, the importer ſhall forfeit the veſſel and brandy. Run goods concealed or offered for ſale, are liable to forfeiture and treble value. 8 and 11 Geo. I. When three perſons are aſſembled and armed with fire-arms, &c. to be aſſiſting in running goods, they ſhall be adjudged guilty of felony: and 50*l.* be paid for apprehending ſuch offenders, &c. And two or more found in company within five miles of the ſea-coaſt, with any horſes, carts, &c. on which are put above ſix pounds of tea, or five gallons of brandy, or other foreign goods of 30*l.* value, landed without entry, and not having permits, who ſhall carry any offenſive weapons, &c. or aſſault any officer of the cuſtoms, ſhall be deemed runners of goods, treated as felons, and the goods ſhall be ſeized and forfeited. If any perſon offers any tea, brandy, &c. to ſale, without a permit, the perſons to whom it is offered may ſeize and carry it to the next warehouſe belonging to the cuſtoms or exciſe, and be entitled to a third part of the produce on condemnation. And perſons offering any bribe to officers of the cuſtoms to connive at the running of goods are liable to a forfeiture of 50*l.*; obſtructing ſuch officers in entering and ſearching ſhips, incurs a forfeiture of 100*l.*; and if the officers are wounded or beaten on board any ſhip, the offenders incur the penalty of tranſportation, &c. 9 Geo. II. If any perſons, three or more, armed with weapons, ſhall be aſſembled in order to aid in the illegal exportation of goods to be exported, or the running of uncuſtomed goods, or the illegal relanding of any goods, or reſcuing the ſame after ſeizure, or the perſon apprehended for a felonious act relating to the cuſtoms or exciſe, or preventing a guilty perſon from being apprehended; or if ſuch perſons ſhall ſo aſſiſt, or have their faces blacked, or wear a maſk, or other diſguiſe, when paſſing with ſuch goods, forcibly obſtruct or reſiſt, any revenue officer in ſeizing ſuch goods, or ſhall maim or dangerouſly wound, &c. ſuch officer, in his attempt to go on board any veſſel, or ſhoot at or dangerouſly wound any ſuch perſon when on board, and in the execution of his office; every ſuch perſon ſhall be guilty of felony, and ſuffer death. On information on oath of any perſons being guilty of any of the above offences, the juſtice may certify the information to one of the ſecretaries of ſtate, who is to lay it before his majeſty; and his majeſty may order the offender to ſurrender himſelf in 40 days after publication of the order in the Gazette; and in default thereof the order being publiſhed twice in the Gazette, and proclaimed in two markets near the place where the offence was committed, and a copy of it being affixed in ſome public place there, the offender ſhall be attainted of felony, and ſuffer death. Any perſon harbouring or aiding any ſuch offender after the expiration of the time of his ſurrender, knowing that he has been required to ſurrender, being proſecuted within a year, ſhall be tranſported for ſeven years. If any officer, &c. in the ſeizing, &c. of ſuch goods, or the attempt for apprehending ſuch offender, ſhall be beat, wounded, maimed, or killed, or the goods be reſcued, the inhabitants of the hundred, &c., unleſs the offender be convicted within ſix months, ſhall forfeit 100*l.* to the executors of any officer killed, and pay damages to any officer beat, &c. not exceeding 40*l.*, and for any goods reſcued, not exceeding 200*l.* A reward of 500*l.* for apprehending any offender; a perſon wounded in apprehending any offender to have 50*l.* extraordinary, and the executors of a perſon killed to have 100*l.* 19 Geo. II. c. 34.

By ſtat. 14 Ric. II. c. 10.; no cuſtomer or comptroller of the cuſtoms ſhall have any ſhips of his own, or meddle with the freight of ſhips. By ſtat. 20 Hen. VI. c. 5. no ſearcher, ſurveyor, &c. or their clerks &c. may have any ſuch ſhips of their own; nor ſhall uſe merchandize, keep a wharf, inn, or tavern, or be factor, attorney, &c. to a merchant, under the penalty of 40*l.* By ſtat. 3 Hen. VI. c. 3.; cuſtomers, collectors, or comptrollers, ſhall not conceal cuſtoms duly entered and paid, on forfeiture of treble value, and payment of fine and ranſom to the king. By ſtat. 13 and 14 Car II. c. 11.; if any perſons employed about the cuſtoms and ſubſidies take a bribe, or connive at any falſe entry, they ſhall forfeit 100*l.* and be incapable of any employment under the king: and the perſon who gives the bribe ſhall forfeit 50*l.* By ſtat. 5 Geo. I. c. 11.; if an officer of the revenue ſhall make any colluſive ſeizure of foreign goods, to the intent that the ſame may eſcape payment of the duties he is to forfeit 500*l.* and be incapable of ſerving his majeſty; and the importer and owner ſhall forfeit treble value of the goods ſo colluſively ſeized. By ſtat 12 Geo. I. c. 28; officers of the cuſtoms, &c. ſhall not trade in brandy, coffee, &c. on pain of 50*l.* and forfeiture of offices. For other particulars, ſee DRAWBACK, EXCISE, and SMUGGLING.

CUSTOMARY FREEHOLDERS, are a ſpecies of copyholders, of free or privileged tenure, who are derived from the ancient tenants in villein-ſocage, and are not ſaid to hold "at the will of the lord," but only "according to the cuſtom of the manor." Theſe may be allowed, without abſurdity, to be capable of enjoying a freehold intereſt; and therefore the law doth not ſuppoſe the freehold of ſuch lands to reſt in the lord of whom they are holden, but in the tenants themſelves; who are ſometimes called cuſtomary freeholders, being allowed to have a freehold *intereſt*, though not a freehold *tenure*. See COPYHOLD.

CUSTOMARY *Land*, in *Agriculture*, is that deſcription of land which is granted by the lord of a manor to a tenant under certain reſtrictions, in reſpect to fines, quit rents, &c. according to the particular rules and regulations of the manor. The author of Modern Agriculture has remarked, that a conſiderable portion of the lands of this country are held under lords of manors by copyhold or cuſtomary tenures, ſubject to the payment of fines on the alienation of the property, the death of the lord or of the tenant, and alſo to the payment of certain yearly rents, and the performance of various ſervices. That this ſort of tenure, ſays he, ſhould be conſidered not only as a grievance, but alſo as an obſtacle to agricultural improvement, cannot appear ſurpriſing, when it is remarked that the lord of the manor is entitled to two years' improved value of the copyholds on the death of the copyhold tenant, or on the alienation of the property. Under ſuch circumſtances it is not probable that the poſſeſſors will be diſpoſed to a liberal expenditure of money on the improvement of lands held by a tenure of this reſtricted kind. Beſides, ſays he, the ſervices performable by the proprietors of copyhold or cuſtomary lands, in the north-weſt of England in particular, are diſgraceful in the extreme, and ſuch as in a free country ought to be for ever aboliſhed. They conſiſt of cutting, drying, and loading the lords' peats, ploughing and harrowing his land, reaping his corn, making his hay, carrying his letters, &c. whenever and how often ſoever ſuch ſervices are demanded. It could not, he ſuppoſes, be a matter of much difficulty to arrange general terms, on which copyholders might have it in their power to enfranchiſe the eſtates, by payment of a certain ſum to the lords of manors for the total abolition of this remain of the feudal ſyſtem. So far as he is informed, lords of manors may, as the law now ſtands, make any arbitrary demand they pleaſe on their vaſſals for the enfranchiſement of their lands; and if not complied with, they muſt remain in the ſtate above deſcribed. Whereas, were an equitable mode eſtabliſhed, whereby the copyholder could purchaſe his independence on reaſonable terms, few would continue, he thinks, in a ſtate of bondage, nor would the improvement of the country be obſtructed by the arbitrary exactions of the ſuperiors and great landholders. As manorial rights have been handed down from father to ſon for many generations; and as by the law of the country, the preſent poſſeſſors have as good a title to exerciſe theſe rights as any of their predeceſſors, it would, he ſays, be unjuſt to deprive them of the privilege, without giving them an equitable compenſation; but when the exerciſe of theſe rights ſtands in the way of improving the national territory, and of ſupplying the public markets with proviſions, it muſt be deemed impolitic in the legiſlature to permit them to exiſt. It is very generally known, he adds, that one great obſtacle to improvement, ariſes from a laudable anxiety in the cuſtomary tenants, to have their little patrimony deſcend to their children. Theſe ſmall properties (loaded with fines, heriots, &c. joined to the neceſſary expence of bringing up and educating a numerous family) can only be handed down from father to ſon by the utmoſt thrift, hard labour, and penurious living: and every little ſaving being hoarded up for the payment of the eventful fine, leaves nothing for the expence of travelling to ſee improved modes of culture; to gain a knowledge of the management and profits of different breeds of live ſtock, and to be convinced, by ocular proofs, that their own ſituations are capable of producing ſimilar advantages: and even ſhould they be half inclined to adopt a new practice, prudence whiſpers, that ſhould the experiment fail, it would require the ſavings of many years to make good the deficiency. Cuſtomary tenures are therefore allowed on all hands, he thinks, to be a great grievance, and a check to improvement. This, he thinks, might be done away on the diviſion of common rights. The yearly value of the various cuſtoms, fines, &c. might be ſettled by commiſſioners, and twenty five, or any reaſonable number of years' purchaſe, on this yearly value, be the price of the enfranchiſement, which might be paid in money or in land, at the option of the copyhold or cuſtomary tenant. It is impoſſible, ſays this writer, that any ſolid argument can be urged againſt the propriety of aboliſhing, without delay, every remain of the feudal ſyſtem, where it tends, in the ſmalleſt degree, to obſtruct the general improvement of the country. This may, it is ſuppoſed, be accompliſhed with very little trouble. All that appears neceſſary, in regard to cuſtomary or copyhold lands, for inſtance, is, either to adopt the plan delineated above, or to paſs one general act of parliament, empowering thoſe who hold their eſtates only mediately of the crown, but immediately of a ſubject or ſuperior, to demand of that ſuperior, that, by means of a legal proof, he ſhall aſcertain the actual yearly value in money or grain of the fines payable on the alienation of the property, the death of the ſuperior or lord, or of the copyholder. Where perſonal ſervices are payable, as oaſting peats, carrying letters, &c. the value of theſe ſhould alſo be aſcertained, and the proprietors, ſo ſituated, have it in their power to become independent, by paying a reaſonable number of years' purchaſe, or by making payment annually of the ſum thus aſcertained to be the value of theſe fines and ſervices. Were ſuch an arrangement to be made, cuſtomary tenants or copyholders would, ſays he, have an inducement to cultivate their lands in the beſt poſſible manner; becauſe they, not the ſuperiors, would reap the profits ariſing from improved cultivation.

Whether the methods here propoſed by Mr. Donaldſon be the moſt proper and convenient or not, there cannot be any doubts, but that all thoſe obſtacles and reſtraints which have the operation of retarding and preventing the improvement of the ſoil, ſhould be removed as ſpeedily as the different nature of their circumſtances will permit. See COPYHOLD and LAND.

CUSTOMARY *Tenants*, are thoſe who hold their eſtates, in conſequence of the kindneſs and indulgence of ſucceſſive lords of manors, according to particular cuſtoms eſtabliſhed in their reſpective diſtricts; and therefore, though ſuch eſtates are ſtill held at the will of the lord, and are in general ſo expreſſed to be held in the court-rolls, yet that will is qualified, reſtrained, and limited, to be exerciſed according to the cuſtom of the manor. This cuſtom, being ſuffered to grow up by the lord, is looked upon as the evidence and interpreter of his will, which is no longer arbitrary and precarious, but fixed and aſcertained by the cuſtom to be the ſame, and no other, that has time out of mind been exerciſed and declared by his anceſtors. A copyhold tenant is therefore now full as properly a tenant by the cuſtom, as a tenant at will; the cuſtom having ariſen from a ſeries of uniform wills. And therefore it is rightly obſerved by Calthorpe (on Copyholds, 51. 54.) that copyholders and cuſtomary tenants differ not ſo much in nature as in name; for although ſome be called copyholders, ſome cuſtomary, ſome tenants of the verge, ſome baſe tenants, ſome bond tenants, and ſome by one name and ſome by another, yet they all agree in ſubſtance and kind of tenure;—all the ſaid lands are holden in one general kind, that is, by cuſtom and continuance of time; and the diverſity of their names doth not alter the nature of their tenure. See COPYHOLD.

CUSTOM-HOUSE, an office eſtabliſhed on the frontiers of a ſtate, or in ſome chief city, or port, for the receipt of the cuſtoms and duties of importation and exportation, impoſed on merchandizes, by the authority of the ſovereign, and regulated by tariffs, or books of rates.

There are ſeveral cuſtom-houſes in the ſeveral ports of England : the moſt conſiderable is that of London. It is under the direction of nine commiſſioners appointed by patent ; who have the charge and management of all the cuſtoms (the petty farms alone excepted) in all the ports of England.

Other officers are, a ſecretary, ſolicitors, receiver-general, comptrollers of the iſſues and payments of the receiver-general, comptroller-general, patent comptroller, patent collector, inſpector of the out-port collectors' accompts, inſpector-general of the exports and imports, regiſter-general of all ſhips of Great Britain, ſurveyors-general, ſurveyors of the out-ports, regiſter of the ſeizures, receivers, collectors and ſurveyors, in various departments, ſearchers, &c. all holding their places by patents : with other inferior officers, appointed by warrant from the board of treaſury.

CUSTOMS and SERVICES. See CONSUETUDINIBUS, &c.

CUSTOR, in *Geography*, a river of Hungary, which runs into the Theis near its conflux with the Danube.

CUSTOS, PETER, in *Biography*, a painter, born in Antwerp, ſometimes alſo called Peter Balthaſar, and more commonly Balteus. He was received into the company of painters at Antwerp, in the year 1579, and excelled in his repreſentations of fairs, village feaſts and landſcapes, in the ſtyle of Peter Breughel. According to Heinecken, he publiſhed, under the name of Balthaſar, a book of the Genealogies of the Counts of Flanders, enriched with forty portraits and figures—The arms and devices of the knights of the golden fleece, &c.

CUSTOS, DOMINICUS, the ſon of the preceding Cuſtos, who was alſo a native of Antwerp, and at firſt called Balteus, but being afterwards eſtabliſhed as an engraver and printſeller at Augſbourg he reſumed his real name *Cuſtos*. He died in 1612, leaving three ſons, Raphael, David, and Jacob, who were alſo engravers. The plates of this artiſt are neatly executed, but they diſcover a want of taſte, and a ſtiffneſs which renders them diſagreeable to the eye. The following are amongſt his beſt works : "Fuggerorum et Fuggerarum Imagines," a book in folio, containing 64 portraits, 1593, very rare. A ſecond edition was afterwards publiſhed at Augſbourg, augmented by others of Lucas and Wolfgang Killian to the number of 127. "Effigies piorum ac doctorum aliquot Virorum, ad vivum delineatæ, et æri inciſæ per Dom. Cuſtos, 1594," 12 pieces. "Tyrolenſium Principum Comitum genuinæ Eicones, 1599," containing 28 plates, full lengths, folio. He alſo engraved after Baroccio, Paul Bril, Baſſan, the Caracci and other maſters. His mark is compoſed of the letters D. C. united with an A and an F. Strutt. Heinecken.

CUSTOS *Brevium*, the name of an office belonging to the court of common pleas, executed by four perſons, and two deputies, &c. who receive and keep all the writs, and put them upon files, every return by itſelf ; and at the end of each term, receive of the prothonotaries all the records of the *niſi prius*, called the *poſteas*.

The writs are firſt brought in by the clerks of aſſiſe of every circuit to the prothonotary, who enters the iſſue in the cauſes, to enter judgment. Four days after the return, the prothonotary enters the verdict, and judgment thereupon, into the rolls of the court ; and then delivers them over to the *cuſtos brevium*.

The *cuſtos brevium* alſo makes entry of writs of covenant, and concords on fines ; and makes copies and exemplifications of all writs and records in his office, and of all fines levied : the fines, when engroſſed, are divided between the cuſtos brevium and chirographer ; the former keeping the writ of covenant and the note, the latter the concord and foot of the fine. This officer is made by the king's letters patent.

In the court of king's bench there is likewiſe a *cuſtos brevium & rotulorum*, who files ſuch writs as are there uſed to be filed, and all warrants of attorney ; and tranſcribes or makes out records of *niſi prius*, &c. This office is held by two perſons.

CUSTOS *placitorum coronæ*, in our *Ancient Writers of Law*, ſeems to be the ſame with him we now call *cuſtos rotulorum*, which is mentioned in the writ *de odio & atio*.

CUSTOS *rotulorum*, an officer who has the cuſtody of the rolls, or records of the ſeſſions of peace ; and, ſome ſay, of the commiſſion of peace itſelf.

He is always a juſtice of the peace and quorum, in the county where he hath his office ; and being the principal civil officer in the county, as the lord lieutenant is the chief in military command, he is generally ſelected on account of his wiſdom, countenance, or credit. By the 37 Hen. VIII. c. 1. (altered by 3 and 4 Edward VI. c. 1, but reſtored by 1 Will. c. 21 :) no perſon ſhall be appointed to the office of *Cuſtos rotulorum*, but ſuch as ſhall have a bill ſigned with the king's hand for the ſame ; which ſhall be a ſufficient warrant to the lord chancellor to make a commiſſion, aſſigning and authorizing thereby the ſame perſon to be *cuſtos rotulorum*, until the king hath by another bill with his own hand appointed one other perſon to have the ſame office, by himſelf, or his ſufficient deputy, learned in the laws, and meet and able to ſupply the ſaid office. By his office he appears to be rather a miniſter than a judge : becauſe the commiſſion of the peace, by expreſs words, lays this ſpecial charge upon him ; *Quod ad dies & loca prædicta, brevia, præcepta, proceſſus, & indictamenta prædicta coram te & dictis ſociis tuis venire facias*. It is his province to appoint the clerk of the peace.

CUSTOS *ſpiritualium*, the perſon who exerciſes ſpiritual or eccleſiaſtical juriſdiction in any dioceſe, during the vacancy of the ſee.

This, by the canon law, belongs to the dean and chapter ; but, in England, to the archbiſhop of the province, by preſcription : though divers deans and chapters do challenge it, by ancient charters, from kings of this land.

If the archiepiſcopal ſee be vacant, the ſpiritual juriſdiction is committed to the dean and chapter. (2 Rol. Abr. 22, 223.) The guardian of the ſpiritualities may be either guardian in law, *jure magiſtratus*, as the archbiſhop is of any dioceſe in his province ; or guardian by delegation, being the perſon whom the archbiſhop or vicar-general doth for the time appoint. The *Cuſtos ſpiritualium* hath all manner of eccleſiaſtical juriſdiction of the courts, power of granting licences and diſpenſations, probate of wills, &c. during the vacancy, and of admitting and inſtituting clerks preſented ; but ſuch guardian cannot, as ſuch, conſecrate or ordain, or preſent to any benefices. Stat. 13 Eliz. c. 12. Wood's Inſt. 25, 27.

CUSTOS *temporalium*, the perſon to whoſe cuſtody a vacant ſee was committed by the king as ſupreme lord ; who, as a ſteward of the goods and profits, was to give an account to the eſcheator, and he into the exchequer.

His truſt continued till the vacancy was ſupplied by a ſucceſſor, who obtained the king's writ *de reſtitutione temporalium;* which was commonly after conſecration, but ſometimes before. See Custody *of temporalties*.

CUSTREL. The ſhield bearer among the ancients was ſo called.

CUSTRIN, or Kustrin, originally *Kotzryn*, in *Geography*, from a large lake of that name between Cuſtrin and Sonnenburg, is a handſome and ſtrongly fortified town of Pruſſia, in the Newmark of Brandenburg, on the confluence of the rivers Oder and Warther, ſurrounded on all ſides by marſhes and moraſſes, 21 miles N.E. of Frankfort on the Oder, and 60 miles eaſt of Berlin. The approach to Cuſtrin on the ſide of the middle mark is by a cauſeway of nearly four miles in length, which has not leſs than thirty-ſix bridges; and on the ſide of the Newmark by another cauſeway, which has ſeven bridges.

In 1758 the Ruſſians under general Fermor reduced Cuſtrin to a heap of ruins by means of bombs and red-hot bullets: but the fortifications commanded by the brave Pruſſian colonel Shack de Wuthenow held out againſt their attempts; and the great Frederick having raiſed the ſiege and beat the Ruſſians at Zorndorf, lodged the Ruſſian officers his priſoners along with the common ſoldiers in the caſemates, and pointing at their uncomfortable quarters, obſerved that they were indebted to their own cruelty for the badneſs of their accommodations.

Different, however, has been the fate of Cuſtrin in 1806. Panic-ſtruck at the rapid advances of the French after the memorable battle of Jena, or confident that there was no Pruſſian army near to relieve the town, colonel Ingerſleben, who commanded at Cuſtrin in October 1806, ſurrendered on capitulation to marſhal Davouſt, on the 31ſt of the ſame month. The garriſon, which conſiſted of 4000 men, were made priſoners of war, and marched to France. The officers were permitted to return to their reſpective homes on parole. When the French entered the town on the firſt of November, they found 90 cannons on the ramparts, and immenſe magazines in the place.

CUT, in *Inland Navigation*, denotes the ſame with canal, branch, or arm. See Canal.

Cut, in *Agriculture*, is a term often uſed to ſignify the operation of caſtrating or gelding young animals, as lambs, calves, fowls, &c.

Cut. There are ſix cuts eſtabliſhed for the uſe of the cavalry to be made with the broad ſword or ſabre, for which ſee Sword-*Exerciſe*.

To cut off, is to intercept or ſeparate a party, detachment, or convoy from the army, corps, or place it belongs to or is deſtined for; or to ſeparate one part of an army from the reſt, and either take them priſoners, or deſtroy them. It is a phraſe variouſly applied and in familiar uſe.

To cut off an enemy's retreat, is to manœuvre in ſuch a manner, as to prevent an hoſtile army or body of men from returning when cloſely preſſed, either to their entrenchments or to a fortified town, which they had ſallied or marched out from; or to prevent a detachment, advanced corps, or part of an army from leaving a poſition they have occupied, and retiring to another poſition in order to effect a junction with the main body of their army; or to prevent an hoſtile army or corps, that enters a country for the ſake of making incurſions, or for the purpoſe of conqueſt, whether the attempt be made by land or water, from returning within their own frontiers or on board their ſhips; or to reduce them to ſuch difficulties without both ſuſtaining a great loſs of men and leaving many things behind them, and thereby to force them for the ſake of re-embarking without moleſtation into a convention on terms neither very advantageous nor very honourable, as happened laſt war at the Helder. Armies may be cut off either in toto, or in part, through the ignorance, timidity, or miſmanagement of thoſe who command them, or through the ſuperior talents and ſkill of an enemy's general, who amidſt the hurry, confuſion, noiſe, and deſolation, that generally attend pitched battles, ſuddenly takes advantage of ſome opening in the wings or centre of his enemy's army, or of thoſe favourable incidents which occur in every engagement. When an army is ſuperior in numbers to another, provided it be not too numerous for all its parts to be eaſily managed for the purpoſes of co-operation, and is commanded by a ſkilful and intelligent officer, it may always cut off a part at leaſt of the forces oppoſed to it when they come into action.

To cut ſhort, a ſort of cant phraſe among military people; as when they ſay, that ſoldiers are cut ſhort of their pay, of their allowances, &c.

To cut up, to kill or deſtroy: When we ſay that the cavalry went in purſuit of a flying enemy, and cut the moſt of them up, we mean, that the cavalry killed or deſtroyed the moſt of them.

To cut through, to penetrate, to open a paſſage or cut a way through. A ſmall body of reſolute and brave men, will ſometimes, when ſurrounded or in difficulties, extricate itſelf from apparent captivity or deſtruction by opening or cutting a paſſage for themſelves through ſuperior force. The Roman hiſtory affords many, and the Britiſh ſeveral inſtances of this nature.

Cut *a feather*, in *Sea Language*, is when a well-bowed ſhip ſo ſwiftly preſſes the water, that it foams or froths.

To cut the ſail, is to unfurl it, and let it fall down.

To cut and run, is to cut the cable and make ſail inſtantly, without waiting to weigh anchor.

Cut-*baſtion*. See Bastion.

Cut-*purſe*, in *Law*; if any perſon *clam & ſecreté*, and without the knowledge of another, cut his purſe, or pick his pocket, and ſteal from thence above the value of twelve pence, it is felony excluded clergy. 8 Eliz. c. 4. 3 Inſt. 68.

Cut-purſes or *ſaccularii* were more ſeverely puniſhed than common thieves, by the Roman and Athenian laws.

Cut-*roof*. See Roof.

Cut-*water*, the ſharp part of the head of a ſhip below the beak. It is ſo called becauſe it cuts or divides the water before it comes to the bow, that it may not come too ſuddenly to the breadth of a ſhip, which would retard her. See Ship.

Cut-*water*, in *Ornithology*, the Sea-crow of Edwards, Black-ſkimmer of Latham, and Rynchops *nigra* of Gmelin; which ſee.

CUTACIUM, in *Ancient Geography*, a town of Aſia, in Armenia.

CUTAMBULI, in *Medicine*, a name given by the old writers to certain worms bred under the ſkin, and cauſing by their creeping a very uneaſy ſenſation. Afterwards the ſame word was uſed to expreſs certain uneaſy itchings cauſed by a ſcorbutic habit, and reſembling the crawling of worms.

CUTANEOUS, from *cutis*, the ſkin, belonging or relating to the ſkin. Thus we ſay cutaneous-diſeaſe, cutaneous eruption, &c.

Cutaneous *diſeaſes*, or *eruptions*, compriſe all the variety of diſcolorations, ſpots, and excreſcences, which ariſe on the ſkin, and which have obtained various appellations, according to the difference of their forms; ſuch as pimples, puſtules, veſicles, ſcales, raſhes, tubercles, &c, (which ſee reſpectively.). The modifications of theſe, again, conſtitute the different *genera* of cutaneous diſeaſe; as the ſmall-pox, meaſles, itch, leproſy, &c.; ſome of which are accompanied with fever, and complete their courſe in a ſtated time, and by regular ſtages; others, in much greater number, are chronic diſeaſes, and are irregular and various both in appearance and duration. The chronic diſeaſes of the ſkin are often tedious and difficult of cure; and the utility of the remedies, recommended by phyſicians and ſurgeons, has been conſiderably diminiſhed by the inaccuracy with which the diſeaſes have been deſcribed, ſo that medicines, which had been found efficacious in one form of diſeaſe, have been miſapplied to others, and their efficacy denied. Many modern writers, indeed, have contented themſelves with one or two general terms, ſuch as *ſcorbutic*, *herpetic*, and *leprous*, by which they have indiſcriminately deſignated all cutaneous eruptions. So long as this inaccuracy of language is continued, little improvement can be expected in our knowledge of the nature and treatment of theſe diſeaſes. It is fortunate, therefore, that we have now an arrangement of cutaneous diſeaſes, in which each is conſidered according to its external character, as conſiſting of one or other of the ſimple forms above-mentioned, viz. of pimples, ſcales, &c. This arrangement was deviſed by Dr. Willan: the following is an outline of it.

Orders and Genera of Cutaneous Diſeaſes.

Order I. Papulæ (*Pimples.*)

Genera.
Strophulus (Red gum, tooth eruption, &c.)
Lichen (Spring eruption, ſcorbutic pimples, &c.)
Prurigo (Gratelle, or univerſal itching of the ſkin.)

Order II. Squamæ (*Scaly diſeaſes.*)

Lepra (Leproſy of the Greeks.)
Pſoriaſis (Dry or ſcaly tetter.)
Pityriaſis (Dandriff.)
Icthyoſis (Fiſh-ſkin.)

Order III. Exanthemata (*Raſhes.*)

Rubeola (Meaſles.)
Scarlatina (Scarlet fever.)
Urticaria (Nettle raſh.)
Roſeola (Roſe raſh.)
Purpura (Purple or ſcorbutic raſh.)
Erythema (Red raſh.)

Order IV. Bullæ (*Large irregular Bladders.*)

Eryſipelas (St. Anthony's fire.)
Pemphigus (Veſicular fever.)
Pompholyx (Water-blebs.)

Order V. Veſiculæ (*Veſicles.*)

Herpes (Ring worm, ſhingles, wild fire, &c.)
Varicella (Chicken pox, and ſwine pox.)
Vaccinia (Cow-pox.)
Miliaria (Miliary eruptions.)
Eczema (Heat eruption.)
Aphthæ (Thruſh.)

Order VI. Puſtulæ (*Puſtules.*)

Impetigo (Running tetter.)
Ecthyma (Large inflamed puſtules.)
Variola (Small pox.)
Scabies (Itch.)
Porrigo (Scald-head, honey-comb-ſcab, &c.)

Order VII. Tubercula (*Tubercles.*)

Phyma (Boils, carbuncles, &c.)
Verruca (Warts.)
Molluſcum (Small ſoft wens.)
Vitiligo (White ſmooth tubercles.)
Acne (Stone pock, red tuberculated face, &c.)
Lupus (or Noli me tangere.)
Elephantiaſis (Arabian leproſy.)
Frambœſia (Yaws.)

Order VIII. Maculæ.

Ephelis (Sun ſpots.)
Nævus
Spilus, Moles, and other original marks.

Every one of theſe *genera* is ſubdivided into *ſpecies*, ſo as to include all the modifications of cutaneous diſeaſe.

There is a ſimplicity, and, comparatively ſpeaking, a facility of diſcrimination, connected with this arrangement, as founded excluſively on external character, which render it worthy to be ſtudied; and it is only by the uſe of one common nomenclature, like this, that writers on diſeaſes of the ſkin will be enabled to make themſelves intelligible, or to underſtand each other. See each *Genus* in alphabetical order. See alſo Willan's Deſcription and Treatment of Cutaneous Diſeaſes, 4to.

CUTANEUS Colli, in *Myology*, a name given to the platyſma myoides.

Cutaneus *externus nervus*, in *Neurology*, is the ſame with the muſculo-cutaneous nerve of the upper extremity.

Cutaneus *internus nervus*, is a ſuperficial nerve of the upper extremity. See Nerve.

CUTCH, in *Geography*, a territory of conſiderable extent in Hindooſtan, ſituated in the S.E. of Sindy;—the eaſtern branch of the Indus ſeparating the two countries. It extends along the northern coaſt of the *gulf of Cutch*, and is ſeparated from Guzerat by the Puddar river, or one of its branches. The preſent capital and reſidence of its rajah is *Boodge-boodge*, which ſee. Cutch is compoſed chiefly of hills, woods, and ſandy wilds, but its interior part is very much unknown. The mouths of ſeveral rivers appear in the map of its coaſt; and the ancient maps deſcribe the Puddar river as diſcharging itſelf into the gulf of Cutch, through theſe openings. Major Rennell thinks it poſſible, that the river formed by the Coggar, and other ſtreams, may diſcharge itſelf by one of theſe openings: unleſs it loſes itſelf in the ſand of the deſert, which borders on the north of Cutch. On the S. coaſt of the gulf of Cutch is a diſtrict inhabited by a piratical tribe, named "Sangarians," who cruize for merchant ſhips as far to the weſt as the gulf of Perſia. The capital of this ſtate is Noanagur; Bate or Bait, and Aramroy, are its principal ports. The Ayin-Acbaree takes notice of the founding of Noanagur by a rajah, who was driven out of Cutch about 300 years ago; and ſays, that the territory in which it is ſituated is named "Little Cutch."

The province of Cutch, as well as the weſtern parts of the peninſula of Guzerat, are governed by rajahs of their own; and do not ſeem to have undergone much change by the late revolutions in Hindooſtan. Cutch is not only a barren country, but in its nature too ſtrong to be eaſily attacked. And the weſtern part of Guzerat is mountainous and woody; and inhabited by a wild, hardy race; and therefore, on both accounts, unfavourable to the progreſs of a Mahratta army.

CUTHA, in *Ancient Geography*, a country of Aſia, in Aſſyria. See Cush.

CUTHBERT, St. the 6th biſhop of Durham, who died A.D. 686, in a hermitage upon the Farne iſlands, having reſigned the biſhopric of Lindisfarne, or Holy iſland, about two years before. His body was brought to Lindisfarne, where it is ſaid to have remained until a deſcent of the Danes, about 763, when the monaſtery was nearly deſtroyed. The monks on this occaſion fled to Scotland, with the relics of St. Cuthbert, which they deemed their chief treaſure. Many fabulous ſtories are recorded with regard to the migrations and miracles of the body of this ſaint through various parts of Scotland and the north of England: at length, however, the ſaint is ſaid to have choſen for his place of reſidence a place named Wardlaw or Wardilaw, in a foreſt called Danholeme near Cheſter-le-ſtreet, whither the biſhop's ſee had been transferred. It is ſaid that the Northumbrian catholics keep ſecret the preciſe ſpot of the ſaint's ſepulchre, which is only entruſted to three perſons at a time. When one dies, the ſurvivors aſſociate to them, in his room, a perſon judged fit to be the depoſitory of ſo important a ſecret. The Entrochi found among the rocks of Holy iſland, are denominated "St. Cuthbert's bead." While forming thoſe beads he is ſuppoſed to ſit during the night upon a certain rock, and uſe another as his anvil. This ſaint's legend contains many other ſtories not more probable.

Cuthbert's *Beads*, in *Natural Hiſtory*; theſe Mr. Walcott has ſhewn to be ſeparated joints of the Entrochus, of which he has figured ſeveral in his "Petrifactions found near Bath," *fig.* 61. Theſe abound in ſome of the Bath free-ſtone ſtrata, particularly in the ſtone-pits uſed for making of the new road leading from King's-down to Bradford; where alſo pundibs, both ſmooth and ſtriated, high-waved cockles, and two other curious foſſil ſhells (*figs.* 32 and 37.) are found in abundance.

Cuthbert *duck*, in *Ornithology*. See Anas.

CUTHITES. See Cush.

CUTICLE, in *Vegetable Anatomy*. See Bark, Cortex, and Epidermis.

CUTICULA, in *Anatomy*, is the inorganic, and inſenſible covering, which univerſally inveſts the ſurface of the cutis, or true ſkin. See Skin.

CUTICULAR Glove, in the Phil. Tranſ. denotes a ſeparation of the *cuticle* from the *cutis*, from the wriſt to the finger-ends, &c. in the form of gloves, occaſioned by a ſingular kind of fever. See the caſe and hiſtory related, ibid. vol. lix. N° 38. an. 1769.

CUTILIÆ, or Cutila, in *Ancient Geography*, a town of Italy, in the country of the Sabines, E. of Reate. It is ſpoken of by the ancients as a conſiderable city, famous for its ſulphurous waters. This country, and that of Reate, were, according to Varro, the moſt elevated part of Italy, and called *Umbilicum*, or the "the navel" of Italy. The town was ſituated on the banks of a lake called *lacus Cutilienſis*. In this lake were floating iſlands, and Pliny relates that a kind of moving foreſt was obſerved in it. The waters were reckoned ſalubrious, and uſed for fortifying the ſtomach and nerves. Suetonius ſays, that the emperor Veſpaſian reſided here during the ſummer, and according to Xiphilinus, this was the place in which he died.

CUTINA, a town of Italy, in the country of the Veſtini.

CUTIS, in *Anatomy*, is the ſtrong, vaſcular, and ſenſible membrane; which every where covers the ſurface of the body, and conſtitutes the organ of touch: it is alſo called dermis and true ſkin. See Skin.

CUTLER, a military artificer, whoſe buſineſs is to forge, temper, and mount all ſorts of ſword-blades.

CUTLERIAN Lectures, lectures on mechanics founded in 1664 by ſir John Cutler, who appointed a ſalary of 50*l.* a year, and ſettled it upon Mr. Hooke for life; the preſident, council, and fellow of the royal ſociety, being entruſted to appoint both the ſubject and number of the lectures.

CUTLERY. Under this head we ſhall compriſe the articles knives, forks, razors, and ſciſſors. They are all either made of ſteel or of iron, with ſteel to form the edge.

Three kinds of ſteel are made uſe of in the manufacture of different articles of cutlery, *viz.* common ſteel, ſhear-ſteel, and caſt-ſteel; theſe different kinds are made from what is termed bliſtered ſteel, which has hitherto been obtained of good quality only from certain kinds of bar iron brought from Sweden and Ruſſia.

The bar iron is ſtratified with powdered charcoal in a furnace termed a converting furnace, within a receſs termed a pot, from 7 to 14 feet long, 3 feet broad, and $2\frac{1}{2}$ feet deep, the whole covered cloſe up with a mixture of clay and ſand, ſo as to prevent the acceſs of atmoſpheric air. A ſtrong heat is applied for about 8 days; as ſoon as the pot is cooled, which is in about 8 days more, the bars are taken out, and the iron is found to be converted into ſteel; it always appears bliſtered upon the ſurface, and hence is termed bliſtered ſteel. When theſe bars are taken to the tilt, and drawn into rods of various dimenſions, it is called common ſteel. All the cheaper cutlery are made of this ſteel, and alſo all kinds of forks.

When a number of bars of bliſtered ſteel are laid together, heated to a welding heat in a forge furnace, and drawn down into bars under a forge hammer, they conſtitute what is termed ſhear ſteel. It has received this name from its being made uſe of to make wool ſhears. It is alſo termed Newcaſtle ſteel, from having been firſt made at that place.

Shear-ſteel is exceedingly kind and tough. All the edge tools which require great tenacity without great hardneſs, are made of it, ſuch as table-knives, ſcythes, plane-irons, &c. It is alſo freer from flaws, on account of the welding heat which has been given to it.

Caſt-ſteel is formed by melting bliſtered ſteel in covered crucibles, and pouring it into caſt-iron moulds, ſo as to form it into ingots: theſe ingots are then taken to the tilt and drawn into rods of ſuitable dimenſions. No other than caſt-ſteel can aſſume a fine poliſh, and hence all the finer articles of cutlery are made of it, ſuch as the fineſt ſciſſors, pen-knives, razors, &c.

Formerly caſt-ſteel could only be worked at a very low heat; it can now be made ſo ſoft as to be welded to iron with the greateſt eaſe. Its uſe is conſequently extended to making very ſuperior kinds of chiſſels, plane-irons, &c.

Forging of Table Knives.

Two men are generally employed in the forging of table knives, one called the foreman or maker, and the other the ſtriker.

The ſteel called common ſteel is employed in making the very common articles; but for the greateſt part of table knives which require a ſurface free from flaws, ſhear-ſteel is generally preferred. That part of the knife termed the blade, is firſt rudely formed and cut off. It is next welded to a rod of iron about $\frac{1}{2}$ inch ſquare, in ſuch a manner as to leave as little of the iron part of the blade expoſed as poſſible. A ſufficient quantity of the iron now attached to the blade, is taken off from the rod to form the bolſter, or ſhoulder and the tang.

In order to make the bolſter of a given ſize, and to give it at the ſame time ſhape and neatneſs, it is introduced into a die, and a ſwage placed upon it; the ſwage has a few ſmart blows given it by the ſtriker. This die and ſwage are by the workmen called prints.

After the tangs and bolſter are finiſhed, the blade is heated a ſecond time, and the foreman gives it its proper anvil finiſh; this operation is termed ſmithing. The blade is now heated red-hot and plunged perpendicularly into cold water. By this means it becomes hardened. Being thus hardened, it requires to be tempered regularly down to a blue colour: in this ſtate it is ready for the grinder. Forks are generally a diſtinct branch of manufacture from that of knives, and are purchaſed of the fork makers by the manufacturers of table knives, in a ſtate fit for receiving the handles.

The rods of ſteel from which the forks are made, are about $\frac{3}{5}$ths of an inch ſquare. The tang and ſhank of the fork are firſt roughly formed. The fork is then cut off, leaving at one end about 1 inch of the ſquare part of the ſteel. This part is afterwards drawn out flat to about the length of the prongs. The ſhank and tang are then heated, and a proper form given to them by means of a die and ſwage. The prongs are afterwards formed at one blow by means of the ſtamp; this machine is very ſimilar to that uſed in driving piles, but it is worked by one man. It conſiſts of a large anvil fixed in a block of ſtone nearly on a level with the ground. To this anvil are attached two rods of iron of conſiderable thickneſs fixed 12 inches aſunder, perpendicularly to the anvil, and diagonally to each other. Theſe are faſtened to the ceiling. The hammer or ſtamp, about 100 lbs. in weight, having a groove on either ſide correſponding to the angles of the upright rods, is made to ſlide freely through its limited range, being conducted by its two iron ſupporters. A rope is attached to the hammer which goes over a pulley on the floor of the room above, and comes down to the perſon who works the ſtamp: two correſponding dies are attached, one to the hammer, and the other to the anvil. That part of the fork intended to form the prongs, is heated to a pretty white heat and placed in the lower die, and the hammer containing the other die, is made to fall upon it from an height of about 7 or 8 feet. This forms the prongs and the middle part of the fork, leaving a very thin ſubſtance of ſteel between each prong, which is afterwards cut out with an appropriate inſtrument called a flie-preſs. The forks are now annealed by ſurrounding a large maſs of them with hot coals, ſo that the whole ſhall become red-hot. The fire is ſuffered gradually to die out, and the forks to cool without being diſturbed. This proceſs is intended to ſoften, and by that means to prepare them for filing. The inſide of the prongs are then filed, after which they are bent into their proper form and hardened. When hardened, which is effected by heating them red-hot and plunging them into cold water, they are tempered by expoſing them to the degree of heat at which greaſe inflames.

Penknives are generally forged by a ſingle hand with the hammer and the anvil ſimply. The hammer in this trade is generally light, not exceeding 3½ lbs. The breadth of the face, or the ſtriking part, is about one inch, if broader it would not be convenient for ſtriking ſo ſmall an object. The principal anvil is about 5 inches, and 10 upon the face, and is provided with a groove into which a ſmaller anvil is wedged. The ſmaller anvil is about 2 inches ſquare upon the face. The blade of the knife is firſt drawn out at the end of the rod of ſteel, and as much more is cut off along with it as is thought neceſſary to form the joint. The blade is then taken in a pair of tongs, and heated a ſecond time to finiſh the joint part, and at the ſame time to form a temporary tang for the purpoſe of driving into a ſmall haft uſed by the grinder. Another heat is taken to give the blade a proper finiſh. The ſmall receſs called the nail hold, uſed in opening the knife, is made while it is ſtill hot by means of a chiſſel, which is round on one ſide, and flat on the other.

Penknives are hardened by heating the blade red-hot and dipping them in water up to the ſhoulder. They are tempered by laying them ſide by ſide, with the back downwards upon a flat iron plate laid upon the fire where they are allowed to remain till they are of a brown or purple colour.

The blades of pocket knives, and all that come under the denomination of ſpring knives, are made in the ſame way.

The forging of razors is performed by a foreman and ſtriker as in making table knives.

They are generally made of caſt-ſteel. The rods as they come from the tilt are about ½ inch broad, and of a thickneſs ſufficient for the back of the razor.

There is nothing peculiar in the tools made uſe of in forging razors: the anvil is a little rounded at the ſides which affords the opportunity of making the edge thinner, and ſaves an immenſe labour to the grinder.

Razors are hardened and tempered in a ſimilar manner to penknives. They are however left harder, being only let down to yellow or brown colour

The forging of ſciſſors is wholly performed by the hammer, and all the ſizes are made by a ſingle hand. The anvil of the ſciſſor-maker weighs about 1½ cwt.; it meaſures on the face about 4 by 11 inches. It is provided with two gates or grooves for the reception of various little indented tools termed by the workmen boſſes; one of theſe boſſes is employed to give proper figure to the ſhank of the ſciſſors; another for forming that part which has to make the joint; and a third is made uſe of for giving a proper figure to the upper ſide of the blade. There is alſo another anvil placed on the ſame block containing two or three tools called beak irons, each conſiſting of an upright ſtem about 6 inches high, at the top of which projects a horizontal beak; one of theſe beaks is conical, and is uſed for extending the bow of the ſciſſors, the other is a ſegment of a cylinder with the round ſide upwards containing a receſs for giving a proper ſhape and ſmoothneſs to the inſide of the bow.

The ſhank of the ſciſſors is firſt formed by means of one of the boſſes, above deſcribed, leaving as much ſteel at the end as will form the blade. A hole is then punched about a ¼ inch in width a little above the ſhank. The blade is drawn out and finiſhed, and the ſciſſors ſeparated from the rod a little above the hole. It is heated a third time, and the ſmall hole above mentioned is extended upon the beak-irons ſo as to form the bow. This finiſhes the forging of ſciſſors. They are promiſcuouſly made in this way without any other guide than the eye, having no regard to their being in pairs. They are next annealed (for the purpoſe of filing ſuch parts of them as cannot be ground) and afterwards paired.

The very large ſciſſors are made partly of iron, the blades being of ſteel.

After the forging, the bow and joints, and ſuch ſhanks as cannot be ground, are filed. The rivet hole is then bored, through which they are to be ſcrewed or riveted together. The common kind of ſciſſors are only hardened up to the joint. They are tempered down to a purple or blue colour. In this ſtate they are taken to the grinder.

Grinding and poliſhing of Cutlery.

The various proceſſes which come under this denomination are performed by machinery, moving in general by the power of the ſteam engine or a water wheel.

Grinding wheels or grinding mills are divided into a number of ſeparate rooms; every room contains ſix places called troughs; each trough conſiſts of a convenience for running a grindſtone and a poliſher at the ſame time, which is generally occupied by a man and a boy.

Two of the above troughs are repreſented in *Plate* I. *Cutlery:* A is a wooden wheel, called a drum, the axis of which runs through the whole length of the room. On the ſame axis are placed three other drums, one of the ſame length with the above, and two of half the length. Each of the large drums carries four ſtraps, which give motion to the two ſtones *c*, *c*, and to the poliſhers *b* and *e*, by paſſing round their reſpective pullies *g*, *g*, *g*, *g*: *d*, *d*, *d*, *d*, are the places where the workmen ſit, and as he ſits aſtride for the purpoſe of leaning over the ſtone, the ſeat is termed a horſe.

The buſineſs of the grinder is generally divided into three ſtages, viz. grinding, glazing, and poliſhing.

The grinding is performed upon ſtones of various qualities and ſizes, depending on the articles to be ground. Thoſe expoſing much flat ſurface, ſuch as ſaws, fenders, &c. require ſtones of great diameter, while razors whoſe ſurface is concave, require to be ground upon ſtones of very ſmall dimenſions. Thoſe articles which require a certain temper, which is the caſe with moſt cutting inſtruments, are moſtly ground on a wet ſtone; for which purpoſe the ſtone hangs within the iron trough H, filled with water to ſuch a height that its ſurface may juſt touch the face of the ſtone.

In the manufactories of Sheffield not leſs than five various qualities of ſtone are employed. The moſt valuable of the five is termed the Wickerſley ſtone, from its being brought from a village of that name, about nine miles eaſt of Sheffield.

It is of the ſandſtone kind, rather firmly indurated, of a compact texture. It appears to conſiſt of very hard ſilicious particles cemented together with a ſofter medium. Both in the wet and dry ſtate, it cuts with great facility, and is particularly adapted for grinding razors, penknives, table knives, and the inſide of the blade of ſciſſors.

Another very uſeful ſtone is termed the whitening ſtone. It is of a blueiſh white colour, exceeding the Wickerſley ſtone in hardneſs, in firmneſs, and in cloſeneſs of texture. It is particularly employed for grinding the outſide of the blade of ſciſſors, and other articles requiring great ſmoothneſs and neatneſs of ſhape.

Forks, and the ſhanks of ſome ſciſſors, are ground upon a dry ſtone, termed the fork-ſtone. It is a very ſharp grit ſtone of a whitiſh colour, very ſimilar to that of which millſtones are formed. The ſtones employed for grinding ſaws and files are of a ſimilar quality with the fork-ſtone, of a yellowiſh grey colour.

It is neceſſary that the ſtones move with a certain velocity, in order to produce a maximum of effect.

If the velocity be too great, two evils are generally to be expected: the firſt (which is moſt to be dreaded) is the breaking of the ſtone, the ſecond is the ſtone almoſt ceaſing to cut; this is alſo the caſe with drills, files, and other ſimilar inſtruments; if they move too rapidly over the ſurface they are cutting, they generate much heat, but do not cut ſo well.

The ſurfaces of all ſtones are contrived to move with about the ſame velocity. This is effected by means of different ſized pulleys. The drums above deſcribed are four feet in diameter, and make from 120 to 140 revolutions in a minute, and the pulley on the axis of the ſtone muſt be of ſuch diameter as to cauſe the ſurface of the ſtone to move at the rate of from 600 to 700 feet per ſecond.

We cannot wonder at the dreadful effects of the breaking of a ſtone when we conſider the great velocity with which they move. The horſe or ſeat of the workman projects over the centre of the ſtone, and is ſecured to a beam of wood on a level with the ground by means of a ſtrong chain. This in ſome meaſure ſecures the workman from thoſe pieces of the ſtone, which might be projected upwards againſt the under ſide of the horſe. But as it is quite uncertain what direction the fractured parts may take, the above contrivance is only a partial defence againſt theſe ſhocking accidents. It ſometimes happens that the chain is broken, and the man and horſe together projected to a conſiderable diſtance.

Means have been recently adopted by ſome of the grinders to prevent, in a great meaſure, the breaking of ſtones, which conſiſt in a different method of faſtening the ſtones upon the axis. The old method conſiſts in wedging on the ſtone by means of wooden wedges. The improved method is to ſecure the ſtones to the axis by means of two circular plates, which are ſcrewed firmly againſt the ſides of the ſtone. By this means the parts of the ſtone are kept together. On the contrary, when the wedges are employed, a force is conſtantly exerted to break the ſtone; this effect is increaſed when the ſtones are uſed wet, from the circumſtance of the wood abſorbing moiſture.

Glazing is a proceſs following that of grinding: it conſiſts in giving that degree of luſtre and ſmoothneſs to an article which can be effected by means of emery of the various degrees of fineneſs. The tool on which the glazing is performed, is termed a glazer. It conſiſts of a circular piece of wood, formed of a number of pieces in ſuch a manner that its edge or face may always preſent the endway of the wood. Were it made otherwiſe the contraction of the parts would deſtroy its circular figure. It is fixed upon an iron axis ſimilar to that of the ſtone: ſome glazers are covered on the face with leather, others with metal conſiſting of an alloy of lead and tin; the latter are termed caps. In others the wooden ſurface above is made uſe of. Some of the leather-faced glazers, ſuch as are uſed for forks, table knives, edge tools, and all the coarſer poliſhed articles, are firſt coated with a ſolution of glue and then covered with emery. The ſurfaces of the others are prepared for uſe by firſt turning the face very true, then filling it with ſmall notches by means of a ſharp-ended hammer, and laſtly filling up the interſtices with a compound of tallow and emery.

The pulley of the glazer is ſo much leſs than that of the ſtone, that its velocity is more than double, being in general at the ſurface that of 1500 feet in a ſecond. The glazer and its pulley are ſeen at *e* and *b*.

The proceſs of poliſhing, conſiſts in giving the moſt perfect poliſh to the different articles. Nothing is ſubjected to this operation but what is made of caſt-ſteel, and has been previouſly hardened and tempered.

The poliſher conſiſts of a circular piece of wood covered with buff leather, the ſurface of which is covered from time to time, while in uſe, with the crocus of iron, called alſo co-leather of vitriol.

The poliſher requires to run at a ſpeed much ſhort of that of the ſtone, or the glazer. Whatever may be its diameter, the ſurface muſt not move at a rate exceeding

70 or 80 feet in a ſecond. This diminiſhed velocity is effected by cauſing its ſtrop to paſs over the rounded part of the axis of the drum as ſhewn at B.

Grinding of Table Knives.

The ſtones made uſe of are from 35 to 45 inches in diameter, and about ſix inches broad upon the face. This ſtone is a ſpecies of ſand ſtone, before termed the Wickerſley ſtone. It is firſt turned, or raiſed exceedingly true, and then notched upon the face with a ſharp-edged tool to make it cut faſter. This ſpecies of ſtone cuts aſtoniſhingly faſt, and has the peculiar property of not heating to a great degree any ſubſtance ground upon it. It is valuable on that account for grinding thoſe articles which have been previouſly hardened. Table knives are ground firſt upon this ſtone, and afterwards upon one of finer texture, called the whitening ſtone. This prepares them for the glazing. The glazer is about 20 inches diameter and 5 inches broad, covered on the face with thick leather. This leather is thinly coated with glue, and is rolled in a quantity of emery. As ſoon as the glue is ſet the glazer is fit for uſe. It runs upon an iron axis, in the ſame manner as the ſtone. The bolſter of the knife, when plane, is alſo ground and glazed in a ſimilar way.

Forks.

The ſtone on which forks are ground are from 18 to 24 inches in diameter and about 2¼ inches broad. It is a very ſharp grit, ſomething harder than that laſt mentioned. The face of the ſtone is a little rounded, for the purpoſe of meeting hollow parts, which are obſerved in all forks. The grinder holds the fork croſſwiſe on the ſtone, and very dexterouſly gives it a kind of circular motion; by this means he makes the ſhank very round. The ſhank and neck of the prongs are ground upon this ſtone. The ſtone being dry, a profuſion of ſparks is given out, and the fork becomes heated with the great friction, till it is blue. The prongs are afterwards ground upon a wet ſtone, from 14 to 18 inches diameter and about 7 inches broad. The ſhank and neck of the prongs are finiſhed upon a glazer of a ſimilar ſhape to that of the ſtone on which they are ground; this glazer is of wood covered with leather, and prepared upon the ſurface with glue and emery, in the ſame manner as that for table knives. The prongs are finiſhed upon a glazer of the ſame materials, but flat upon the face, about 8 inches both in diameter and breadth. The inſides of the prongs are dreſſed by means of thin leather ſtraps about 2 inches broad and 18 inches long; they are firſt coated with glue and then covered over with emery: as ſoon as the glue is ſet the ſtrop is introduced between the prongs of the fork, and is drawn backwards and forwards till the part becomes ſufficiently clean.

Grinding of Penknives.

The ſtone made uſe of for penknives is the Wickerſley ſtone, about 16 or 18 inches in diameter when new, and is worn down to about 9 or 10 inches; the breadth is about 4½ or 5 inches. This ſtone, as has been before obſerved, having ſo little tendency to heat the ſubſtances ground upon it, is generally made uſe of dry for grinding penknives. There are ſeveral advantages in grinding upon the dry ſtone. It does not wear ſo faſt. The edges of the ſtone are kept ſharper and the ſurface evener; but the great advantage is, that the ſtone cuts much faſter. When the ſurface of a dry ſtone becomes clogged with the particles of ſteel adhering to it, a piece of ſoft iron is always at hand, which being rubbed over it ſoon clears it of its incumbrance, and a freſh cutting ſurface is preſented.

All the finer penknives, after being ground the firſt time, go back to be handled or hafted. The handles are wrapped in paper to keep them from being ſoiled, and the knives thus hafted are again returned to the grinder. The blades are all ſlightly ground over again upon a ſtone kept for the purpoſe of one determinate ſize. The flat parts of the blade are next glazed upon a glazer or lap made of lead, and for common articles of wood. After the lap is turned perfectly true, and a number of notches are made in the face; the ſurface is rubbed over with emery and greaſe. If it is found to cut too keen it is ſlightly rubbed over with bees wax. This proceſs would finiſh the common ſort of knives, but the finer blades are afterwards poliſhed upon the poliſher already deſcribed.

Grinding of Razors.

Razors are generally ground upon the ſtones which are laid aſide by the grinders of penknives and ſciſſors. They take them when about the diameter of 8 inches, and wear them down to 4 or 5 inches. Theſe ſmall ſtones are highly proper for razors, in order to give to the blade a requiſite degree of concavity and correſponding thinneſs to the edge. The razors are next glazed upon laps of metal, of a ſize correſponding with the ſize of the ſtone, and afterwards poliſhed upon a poliſher of wood covered with leather, ſimilar to thoſe uſed for penknives. The proceſs of poliſhing, indeed, is always performed on the ſame kind of tool, differing only in ſize.

Grinding of Sciſſors.

The ſtones made uſe of by the ſciſſor-grinder are of two kinds; the one of the ſame ſize and quality with that uſed for penknives, and the other of the ſame nature with that uſed in the grinding of table-knives, and which the workmen term a whitening ſtone. The firſt is employed to grind the inſide of the blades, and the latter for grinding the outſide. Sciſſors, the blades of which alone are hardened, are never ſent to the grinder before they are hardened and tempered. After the blades of the ſciſſors are ground they are returned to the maker, and are fitted and ſcrewed together, and properly adjuſted for cutting. This being done, they are taken to pieces and returned to the grinder. The ſciſſors being ſlightly ground over again are finiſhed upon their appropriate glazer. The inſides of the blades, and all the other parts which are not rounded, are glazed upon a glazer of metal, of a ſize correſponding to the ſtone on which they were ground; for the inferior articles the glazer is of wood.

When the ſhanks of ſciſſors are ſufficiently plane to admit of grinding, they are ſent to the ſhank-grinder, a workman ſolely employed in grinding the ſhanks and in dreſſing thoſe parts of the ſciſſors which have been filed, and which cannot be touched by the glazer.

The ſhanks of larger and commoner ſorts of ſciſſors are ground upon a ſtone ſimilar to that uſed for grinding the ſhanks of forks, but the finer kinds are ground upon the Wickerſley ſtone already deſcribed. Being ground, they are glazed upon a glazer of wood faced with leather, of the ſame ſize and ſhape with the ſhank of the ſciſſor. The remaining parts of the ſciſſors, which have been only filed and rubbed with ſand but are ſtill deſtitute of poliſh, are finiſhed by bruſhing.

The bruſh is an inſtrument conſiſting of a circular piece of wood ſet upon the face with very hard briſtles. Two bruſhes are generally employed in ſucceſſion. The firſt is made uſe of with greaſe and emery, which gives a coarſer ſort of poliſh. The ſecond is uſed with crocus and water to give the proper finiſh to the ſurface. If the blades of the ſciſſors are required to be poliſhed, which is frequently the caſe, they are again ſent to the firſt grinder, who poliſhes them upon a poliſher ſimilar to thoſe deſcribed for razors and penknives. It will be here proper to remark that the ſhanks of the above kinds of ſciſſors, being ſoft, cannot aſſume the poliſh with crocus, as nothing but caſt-ſteel in the hardened ſtate is ſuſceptible of that peculiar luſtre. An imitation of poliſhing is, however, given to the ſoft ſhanks by means of a burniſher of poliſhed hardened ſteel.

The more delicate and finer ſorts of ſciſſors, in order to render all the parts ſuſceptible of poliſhing, are hardened quite up to the bow, in conſequence of which the order of manufacturing is a little varied, from that of the ſciſſors having ſoft ſhanks. After being forged, filed, and having the hole drilled for the ſcrew, the inſides of the blades are ground, and they are fitted and ſcrewed together. They have next to be hardened and tempered, and as it is a common property of ſteel to warp during that proceſs, the two ſides of the ſciſſors are firmly bound together by means of iron wire. The ſcrew being withdrawn, which would be liable to be hardened along with the ſciſſors, they are heated red-hot all over, and immerſed in water up to the bow.

After being thus hardened they are heated, for the purpoſe of tempering them till the blades appear of a purple and the ſhanks of a blue colour. The wire is then taken off, and the ſciſſors are finiſhed by proceſſes ſimilar to thoſe above deſcribed, with the difference of the ſhank being poliſhed with crocus along with the blades. After the ſciſſors return the laſt time from the grinder they only require to be ſharpened, wiped clean and ſcrewed together. Previous to wiping, however, they are generally put into pulverized quick-lime, which greatly tends to the preſervation of their luſtre by abſorbing the moiſture from the ſurface; the preſence of which is well known to facilitate the ruſting of poliſhed ſteel.

Some of the very fine ſciſſors are elegantly and variouſly ornamented. Formerly they uſed to be ornamented with ſtuds of gold or poliſhed ſteel, arranged round the joint of the ſciſſor or along the ſhank.

The ſtuds are each furniſhed with a ſmall tang, by which they are inſerted into ſmall holes made in the ſciſſors. The holes are made while the ſciſſors are ſoft, and the ſtuds are inſerted after the ſciſſors are poliſhed.

More recently the ſame parts are inlaid with circular bits of gold, which are poliſhed along with the ſciſſors and afterwards ornamented on the ſurface by engraving. Sciſſors are alſo ornamented by means of gilding, blueing, and etching. The gilding is performed in two ways; the firſt by dipping the finiſhed article into a ſolution of muriate of gold in alcohol; the ſecond with metallic gold laid on by means of heat. The firſt kind of gilding has been rejected on account of its want of permanency. The ſecond, though very durable, is objectionable on account of the heat employed in the proceſs, which is ſo great as to make the ſciſſors too ſoft.

Various devices, ſuch as letters, coats of arms, &c. are ſometimes put upon ſciſſors, but more frequently upon razors and ſwords, by means of etching. The figures are drawn upon the poliſhed ſurface with a varniſh, made by diſſolving reſin in oil of turpentine. Every other part of the articles is covered with the ſame varniſh, excepting what is to form the ground of the picture. The expoſed part is then covered with dilute nitric acid, which is ſuffered to remain upon it till it is ſuppoſed to be ſufficiently corroded. It is then rinſed in water to take away the acid, and the varniſh is removed by means of oil of turpentine. The ground of the picture appears of a dead white, while the figure, and other parts of the article, diſplay their original poliſh.

Cutlery made of Pig-Iron.

Great quantities of various kinds of cutlery have been made of pig-iron, by means of caſting, particularly forks and ſciſſors. The models are made of lead, alloyed with a little antimony. The articles are caſt in ſand, in flaſks ſimilar to thoſe uſed in caſting ſmall articles of braſs. The metal employed is of that ſort of pig-metal known by the name of N° 1, from the large quantity of carbon contained in it. It fuſes at a lower temperature, and becoming more liquid on that account, it is the only kind which can be uſed for ſmall articles.

The metal is fuſed in crucibles of Stourbridge clay, in the common air furnace employed in iron founderies. The articles, when caſt, are almoſt as brittle as glaſs. This, in a great meaſure, is occaſioned by the moiſture in the ſand, which effects this change upon the metal in a manner ſimilar to that by which ſteel becomes hardened. In order to obviate this hardneſs, the caſtings are cemented with aſhes or ſand, for the purpoſe of annealing them. Caſt-iron pots of a cylindrical ſhape are employed for this purpoſe. They are about 12 inches diameter, and about the ſame depth. A number of theſe pots are filled nearly to the top with the goods to be annealed: a quantity of fine ſand or aſhes is then employed to fill up the interſtices, and to cover them completely, ſo as to exclude the air. The pots are placed in a furnace, and are ſurrounded with ſmall coaks, for the ſake of carrying on ſlow combuſtion. They are heated very gradually to a temperature little ſhort of fuſion, and they are as gradually allowed to cool. The whole time occupied in heating and cooling is from 24 to 30 hours. They are found, after this proceſs, to have become very ſoft, and to be capable of bending a little without breaking. They afterwards are finiſhed in a manner ſimilar to thoſe which are forged, with the exception that they are not hardened and tempered: were they ſubject to that proceſs, they would return to the ſame ſtate as before annealing.

Notwithſtanding the great demand which has been for caſt cutlery, on account of their very low price, they are ſo completely deſtitute of utility, that ultimately they cannot fail to diſgrace both the merchant and manufacturer. If a preference can be given to any of them, it is in favour of the ſciſſors. The knives and forks are not only liable to break, but they ſoon turn black, and can be very little improved by the common mode of cleaning, as by the beſt means they are only ſuſceptible of a miſerable poliſh.

Various attempts have been made with a view to improve the caſt cutlery, the moſt ſucceſsful of which is by Mr. Lucas of Sheffield; and for his method he ſome time ago obtained a patent. By Mr. Lucas's proceſs, the caſt metal articles are converted from their brittle and crude ſtate into malleable iron or ſteel at pleaſure, without injuring the ſurface, or diſtorting the figure of the article. Nails of various kinds have been made in this way, more flexible and equally tenacious with thoſe of wrought iron. This method conſiſts in ſtratifying the articles, in pots ſimilar to thoſe employed for annealing, with an oxyd of iron. Calcined iron-ſtone pulverized was firſt made uſe of, but was found to make the ſurface of the metal ſo rough as to render thoſe articles uſeleſs. This inconvenience was in ſome meaſure obviated by laying a thin ſtratum of ſand between the metal and oxyd of iron. Any ſort of earth, containing a portion of the oxyd of iron, is capable of bringing about this change. The red ſand which abounds in ſome countries, or loam, or clay, containing oxyd of iron, would anſwer very well. The theory of this proceſs is obvious. The caſt-iron conſiſts of iron and charcoal, or carbon; and it is to the preſence of the carbon that we attribute the peculiar qualities of caſt-iron different from thoſe of a malleable iron and ſteel. The oxyd of iron, with which the caſt-iron articles are ſtratified, conſiſts of iron combined with oxygen. During the proceſs of cementation, the oxygen of the oxyd combines with the carbon of the caſt-iron, forming carbonic acid, which is diſſipated in the form of air. For the particulars of the proceſs, ſee the articles IRON and STEEL.

Specimens of ſciſſors, table knives and forks, and even penknives, have been made ſo complete by the above proceſs, that the beſt judges could not diſtinguiſh them from thoſe made of the beſt ſteel. An inſurmountable objection, however, ſtill remains, which will preclude the application of this important diſcovery in the manufacture of thoſe articles which require a fine edge, and every other article which requires to be hardened and tempered.

This metal, previous to hardening and tempering, is equally tough with the beſt ſteel or iron, but afterwards becomes very brittle, at leaſt much more ſo than we ſhould expect from ſteel ſo apparently good. The reaſon of this will be explained under IRON and STEEL.

Handling of Table Knives.

The handles of table knives are made of ivory, bone, horn, and wood. They are formed in two different ways: one, by drilling a hole into the handle, and cementing into it the tang of the knife. This kind is by the manufacturers termed round tangs. The other kind of handle conſiſts of two ſides, which, when laid on each ſide of the tang, and paired together, form the handle. The two ſides are termed ſcales, and knives of this kind are called ſcale tangs.

Ivory handles are the moſt valuable, and in the greateſt repute. The greateſt part of them is made for the round tangs. Theſe are of various patterns, ſuch as octagon, oval, and fluted. The octagon and oval handles are filed into the intended form, and afterwards rubbed firſt with fine ſand and water, and afterwards with powdered chalk and water. The fluting of the handles is performed by means of a ſharp tool of the ſcraping kind, having the figure of the flutes upon its face.

The tangs are cemented into the handles with roſin mixed with whitening.

A very convenient and durable handle is made of ſtag horn. The round parts of the horn which are of proper thickneſs are ſelected for the round tangs. The outſides of the other parts of the horn are cut into ſcales, which make the ſcale tanged handles. The ſurfaces of the ſtag-horn handles are invariably left in their natural ſtate.

The ſmall end of the ox-horn, termed the tip, is generally employed for making the handles of table knives. The tips are formed into hafts of a great variety of patterns, by means of preſſing between two dies. This advantage is obtained from the well known property of horn being ſo ſoft and ductile when hot, as to admit of conſiderable extenſion. The dies employed for preſſing the horn are repreſented in *fig.* 2. A and B, the upper and lower dies, are made to form the bits of a pair of tangs, on the even faces of which the exact figure of the handles is formed, as repreſented in the figure.

The pieces of horn intended to be preſſed are firſt ſoftened in hot water, and then cut to the ſize deemed requiſite exactly to fill the mould. The dies are heated to the temperature of about 400° Fahrenheit, or ſomething ſhort of the heat required to burn oil. The horn, with a little oil, is then laid between the dies, which are placed in the preſſing vice, *fig.* 3, conſiſting of a compound lever, acting with a ſcrew at A, and turning round the handle B, ſimilar to the common vice. The force required to be given at the handle is not more than what a man may perform with eaſe. The motion being now reverſed, the tangs are withdrawn, and the horn is found to have received the full impreſſion of the die.

If the handles are plain, and the horn be native black, the firſt preſſing is ſufficient; if, however, they are not ſufficiently black, they are dyed after the firſt preſſing in a liquid, containing logwood and green vitriol. The proceſs of dyeing takes off that ſmooth gloſſy ſurface given by the dies, which is reſtored by preſſing them a ſecond time in dies a little leſs than thoſe employed for the firſt preſſing. If the handles require to be fluted, or otherwiſe ornamented, they are preſſed a ſecond time in dies containing the intended figure.

The above handles, after they come from the preſs, require only to have blades inſerted, and to be poliſhed by means of rotten-ſtone or chalk and oil.

The handles of bone are made from the ſhank of the ox. The thickneſs of the ſolid parts of the bone is never ſufficient to make the handles equally thick with thoſe of ivory. Some of the bones are very denſe and hard, but can always be diſtinguiſhed from ivory by the colour. Such handles, in order to correct their defect in colour, are dyed green in liquid, conſiſting of the oxyd of copper diſſolved in aqua ammonia. The hartſhorn of the ſhops, being the cheapeſt preparation of ammonia, is always uſed. The proportions are about ſeven ounces of the oxyd of copper to one gallon of hartſhorn.

After dyeing, the blades are cemented into the handles, which are afterwards poliſhed. When the dye does not contain any ſubſtance capable of ruſting the blade, the handles are dyed after the blades are inſerted.

Various kinds of wood are employed in making the handles of table knives. The very common articles have handles of birch wood, which are expeditiouſly made by being turned in an oval lathe. They are afterwards dyed black or red. After this they only require the blades to be put into them, and to be burniſhed with a ſmooth ſtone, termed blood-ſtone. A ſuperior kind of wood handles are made of various foreign wood, ſuch as lignum vitæ, ebony, &c. Handles are ſometimes made of very thin ſilver in the ſheet, and of plated copper. The thin metallic ſhells, which form the outſide of the handle, are made in two halfs, by being forced into a ſteel dye, by means of lead; the two ſides are afterwards ſoldered together, and the hollow part filled up with a cement of roſin and pulverized brick. The cement ſerves to give firmneſs to the thin ſhell of metal, and at the ſame time to ſecure the blade.

Handling of Penknives.

The handles of penknives in general conſiſt of three parts, *viz.* the outer ſcales, the inner ſcales, and the ſpring. The outer ſcales, which are only ornamental to the knife, are made of various ſubſtances, ſuch as horn, ſtag-horn, ivory, bone, tortoiſe-ſhell, and pearl. The two latter ſubſtances are employed for the moſt valuable knives. The beautiful variegated horn ſtands the next in eſtimation. But the moſt durable ſcales are made of ſtag-horn.

The inner ſcales, which ſerve to give firmneſs and durability to the knife, and to which the outer ſcales are attached, are made of iron, braſs, and ſometimes of ſilver: the ends of the inner ſcales intended to receive the blade is in general made thicker, and is termed the bolſter of the knife. The ſcales of thoſe knives having no bolſters are cut out of thin plates of the metal of which they are made. Iron ſcales with bolſters are forged with the hammer.

The ſpring is of ſteel, running along the back (and in ſingle blade knives round the end) of the handle, and ſerves to ſeparate the ſcales from each other; and by its elaſticity exerted upon the tang of the blade, it ſecures the knife in the ſituations of being ſhut or open. The inner ſcales and the ſpring being forged, and the outer ſcales being provided, they are put into the hand of a workman, who finiſhes the whole of the handling department.

His tools conſiſt of a vice, a ſmall anvil, and hammer, a variety of files, ſteel burniſhers, a breaſt-plate, drill-bow, and drills of various kinds; a glazer coated on the face with emery and glue, to poliſh the different parts; and a buff, which is an inſtrument ſimilar to a glazer; but inſtead of being coated with emery and glue, it is uſed with oil, and fine ſand, and rotten-ſtone. It is employed to poliſh the ſurface of the outer ſcales. The buff and the glazer are turned by the foot, in a manner ſimilar to that of the common ſtreet-grinder. He is alſo provided with a number of hardened ſteel plates, about one-twelfth of an inch thick, and in ſhape correſponding to the different patterns of the handles: each plate contains holes in ſituations anſwering to the holes in the handle, by which the ſpring and blade are ſecured in their places. The inner ſcales are each ſecured to one of the plates above, for the ſake of drilling holes through them oppoſite to the holes in the plate. The ſcales are then faſtened on each ſide of the plate by temporary pins, and the edges are filed down to the plate. By this means the handles are made exactly of the pattern required. The ſpring is next drilled, placed between the ſcales, and ſecured in its proper ſituation by temporary pins, till it is filed quite level with the edges of the ſcales. A hole being drilled through the tang of the blade, one of the above pins is taken out, and the ſpring thrown back, ſo as to allow the blade to paſs between the bolſters, in which ſituation it is faſtened by means of a temporary pin. The tang is then filed ſquare, to correſpond with the bolſter and the ſpring.

The blade, the ſpring and the ſcale being properly adjuſted to each other, the different parts are ſeparated by taking out the pins.

All the viſible parts of the ſpring are next filed ſmooth, and the ſpring bent a little inwards, for the ſake of giving it greater power when placed in its intended ſituation. The ſpring is then hardened, by heating it red-hot and immerſing it in water; it is afterwards tempered, by rubbing it over with greaſe, and heating it till the greaſe inflames: the viſible parts being glazed and burniſhed, the ſpring is deemed finiſhed.

Our next proceſs is to place the outer ſcales of horn or other ſubſtance upon the inner ſcales.

Scales of horn or tortoiſe-ſhell are heated, and expoſed while warm to the action of a ſcrew-preſs, for the purpoſe of making them flat.

The ſcales are then made of uniform thickneſs, by means of filing. In the next place, the ſhield of tin or ſilver is introduced.

As this is a proceſs of ſome ingenuity, at leaſt ſo far as concerns the forming a receſs for the different ſhaped ſhields, we ſhall deſcribe the tools employed, with the aſſiſtance of the following figures.

Fig. 2. is a plate of hardened ſteel, about one-twelfth of an inch thick, and of breadth and length ſuitable to the ſize of the ſhield. A hole is made through the plate exactly of the figure of the ſhield; and every different pattern of courſe requires a different plate. *Fig.* 3. repreſents the drill employed to cut the intended figure in the horn or other ſubſtance.

This differs from the common drill, in having the ſprings faſtened into the part B, by means of two ſcrews, A, A. The ends, *b*, *b*, are made ſharp like the points of a drill, and are capable of boring up to the ſhoulder *a a*. The plate, *fig.* 2, is placed upon the ſcale, and fixed in the vice; the ſprings of the drill are then preſſed till the ends, *b*, *b*, enter the hole of the plate. It is plain that if the drill be preſſed and turned round, that the force of the ſpring will cauſe the cutting parts to make a figure the ſame as that of the plate. The depth of the receſs is limited by the ſhoulders, *a*, *a*. The ſilver ſhields are cut out of the ſheet by means of a punch; thoſe of tin are firſt caſt, and afterwards ſtruck into a receſs made in a die by means of the plate and drill above mentioned.

The ſhield being ſecured in its proper place, the outer ſcales are pinned upon the inner ones; the compound ſcales are next pinned together with the temporary pins, and both their edges are filed and finiſhed together. They are again ſeparated, and the inſides of the inner ſcales poliſhed; after which the blades, ſpring, and ſcales are all riveted together. The next thing is to file and burniſh the joint and bolſter; and laſtly, to finiſh the outer ſcales. This is performed by filing, ſcraping, and buffing, firſt with fine ſand, and laſtly with rotten-ſtone.

Handling of Razors.

After the blades of razors are ground and poliſhed, they only require to be handled and ſet or ſharpened.

The handle of a razor conſiſts of two ſides, called ſcales, which are made of various ſubſtances. The moſt valuable are made of pearl, tortoiſe-ſhell, ivory, and native horn. The handles of the greateſt quantity of razors, however, are made of preſſed horn, ſome of which are dyed black, and others ſpotted to imitate tortoiſe-ſhell, and hence are termed mottled ſhell. Pearl is a ſubſtance very ſeldom made uſe of for the handles of razors. In the firſt place, they are very expenſive, on account of the very high price of the ſhells; and ſecondly, they are very liable to be broken, as well in manufacturing as when in uſe. Ivory makes a very neat handle; but their very great expence in manufacturing, added to the great price of the raw material, renders their price very high. In the opinion of moſt, they are not neater, nor by any means ſo durable, as the handles of preſſed horn. Tortoiſe-ſhell makes a beautiful handle, when uſed in the ſtate in which it is cut from the ſhell; but on account of its high price, it is uſed with more economy by preſſing it in a manner ſimilar to that of horn. The preſſing, however, deprives it of a great part of its beauty. No handles for elegance and durability can exceed thoſe of native horn, when the ſpecimens are properly ſelected for the purpoſe. Since, however, the handles of preſſed horn are in no way objectionable, but, on the contrary, are the moſt generally preferred, we ſhall be more particular in the deſcription of this branch of manufacture.

Having already deſcribed the proceſs of preſſing the handles of table knives, and ſince the ſcales of razors are preſſed by a method ſtrictly ſimilar, it will be unneceſſary to give a ſeparate deſcription.

The dies in which the ſcales of razors are preſſed are made to preſs one pair at a time. The pieces of horn intended for preſſing are in the proceſs ſometimes extended as much as two inches.

The handles of preſſed horn are divided into three varieties, *viz.* the native black, conſiſting of horn which is black previous to being preſſed; thoſe of the ſecond variety are ſuch as are dyed black, or other colour, after being preſſed; and handles of the third kind are thoſe deſtined for mock ſhell, for which the moſt clear and colourleſs ſcales are ſelected.

Thoſe of the firſt kind, after preſſing, retain their native black, and are much eſteemed for their permanent colour. The ſcales, which are partially coloured, are generally dyed black with a dye made of logwood and ſulphat of iron: ſome are dyed red, and others green. The former are dyed with archill, and the latter with indigo diſſolved in the ſulphuric acid.

The imitation of tortoiſe-ſhell is performed by a proceſs called ſpotting, which conſiſts in the application of a compoſition to the ſurface of the horn, by which it becomes irregularly coloured.

The compound conſiſts of one part of minium, four parts of common pot-aſh, and ten parts of quick-lime: as much water is added as will give it a pulpy conſiſtence. It is then laid upon the upper ſurface of the ſcale with a ſtick as careleſsly as poſſible, and is ſpread thicker in ſome parts than in others, for the purpoſe of giving a variety of ſhades. The ſubſtance is allowed to remain upon the ſurface for ſix or eight hours; and the latter part of the time they are placed before the fire. After the compoſition is removed, the ſurface exhibits a ſtriking imitation of tortoiſe-ſhell. The ſingular effect of this ſubſtance is evidently the reſult of ſome chemical change. The lime appears to anſwer two purpoſes: it takes the carbonic acid from the pot-aſh, and at the ſame time ſerves to give a proper conſiſtence to the maſs. The lead and the pure pot-aſh together are eſſential to producing the effect; though, when ſeparately applied, no change is obſerved. The fact is, that the colour is produced by the diſſolved oxyd of lead in the alkali. A colourleſs ſolution of this kind may be advantageouſly uſed for the ſpotting of horn. May not this compound be found of uſe in giving colour to other animal ſubſtances, ſuch as hair, leather, &c.?

The handles of razors are frequently ornamented by means of ſhields of various figures, ſome of which are of ſilver, others of yellow metal, and of an alloy formed of lead and tin. The ſilver and yellow metal ſhields are preſſed into the ſubſtance of the horn by means of a preſs ſimilar to a fly-preſs. The ſcale and the ſhield are placed between the two dies of a figure correſponding with the ſhape of the ſcales, the dies being previouſly heated to a temperature ſomething ſhort of that employed in the firſt preſſing. A ſufficient force is then exerted upon the ſcrew to force the metal into the horn. Figures, letters, and other ornaments, are introduced by the ſame method.

The ſhields of lead and tin are put in by firſt making in the ſcales a proper receſs, by means of the ſpring-drill deſcribed in *figs.* 2. and 3., and afterwards filling it with the melted metal. The greateſt number of ſhields are of this kind.

The handles of pearl, ivory, &c. which cannot be made by preſſing, have the proper ſhape given to them by means of the file. The ſhields are then introduced by firſt making the proper receſs with the ſpring-drill, and afterwards ſecuring the ſhield by means of rivetting, but more completely by the following method. After the ſhield is cut out to its proper ſhape, it is made concave on one ſide, and convex on the other; at the ſame time the edge is a little bevelled towards the convex ſurface. The cutting part of the ſpring muſt be ſo formed as to make the bottom of the receſs to receive the ſhield a little larger than at the top. The ſhield being then introduced with the concave ſide downwards, and hammered upon the convex ſide, becomes firmly ſecured.

The ſcales of the handle in the ſtate already deſcribed are now fit for the reception of the blade. A piece of white metal, an alloy of lead and tin, called the head, is next placed between the ſcales at one end, to allow the blade to go between when the razor is ſhut; the blade is then ſcrewed in its place, and the ſcales faſtened together by means of rivets, which are of iron, braſs, and ſometimes of ſilver. Zinc wire has been recently uſed for the purpoſe, and receives a good poliſh. The handles of razors in the ſtate left by the preſs and the file are firſt ſcowered with ſand and water, and afterwards poliſhed upon a buff.

A ſuperior kind of fine cutlery is manufactured in London, chiefly by the ſurgical inſtrument-makers: the excellence of which conſiſts in the great attention paid to its fabrication; the quality of the ſteel, and above all to the correctneſs of the ſeveral temperatures under which it is hardened, and the reduction of this by the proceſs called tempering.

The eſtimation theſe articles are held in, allows the manufacturer to employ the ſuperior workmen, and alſo to reject, during any part of the proceſs of manufacture, ſuch articles as from ſlight flaws, cracks, or even any inferior quality in the ſteel, may be objectionable.

The proceſs of the manufacture differs alſo from the circumſtance of the ſame workman beginning and completing the article. Engines and complicated machinery are never uſed: therefore his ſkill and abilities being exerted, greater perfection is obtained. The hardening of ſteel depending on the quick abſtraction of the heat given, different mediums are made uſe of, as quickſilver, water, oil, &c. The tempering, or reduction of the hardening, is not governed by the colour only, but by a more accurate method (propoſed by Hartley); the exact variations of temper are given in a fluid, into which a Fahrenheit's thermometer graduated to the boiling point of mercury is immerſed, and the delicacy of this operation may be ſufficiently underſtood, from the various colours produced on the ſteel, at the various temperatures ſhewn by the thermometer. The change or ſcale takes place at 430, and finiſhes at nearly 600. Nine changes of colour are obſervable at about 20 degrees diſtance of each other, *viz.*

430	Slight colour inclining to yellow.
450	Straw colour, pale.
470	Yellow.
490	Brown.
510	Brown with purple ſpots.
530	Purple.
550	Bright blue.
560	Blue.
600	Blackiſh blue inclined to ſcale or oxyd.

From 430 to 470 is chiefly employed for razors, and ſome of the finer edged ſurgical inſtruments.

470 and 490 for penknives, and ſome pointed inſtruments.

From 510 to 550 includes pocket-knives, table-knives, carvers, ſciſſors, &c. &c.

The experience of the workman is much required, and alſo a knowledge for what purpoſe the edge is to be employed, during theſe three ranges of temperature.

550 and 560 Spring temper.

Setting.

The operation of ſetting an edged inſtrument, is the giving it a more permanent, or laſting edge, by means of a hone, or any other fine cutting ſtone. Every article is left from the wheel with a thin wiry or notched edge. This muſt be removed, and one ſubſtituted of an angular form; the more obtuſe the angle, the ſtronger the edge, and *vice verſa*. This angular edge is obtained in ſeveral ways; ſometimes by the thickneſs of the back of the inſtrument, but more generally by the elevation of the back from the ſtone.

Razors are ſet upon a ſtone brought from Germany. Their backs being thick, they are laid perfectly flat, and rubbed backward and forward on each of their ſides, till the wire or notched edge gives place to a fine ſmooth one. The uſe of a ſmall quantity of oil on the ſurface of the ſtone is requiſite.

Penknives are ſet upon a ſtone brought from Turkey, and from its property of abſorbing oil, it is called an oil-ſtone. They are held at an elevation of the back juſt ſufficient to keep it from touching the ſtone; and the greateſt attention is here requiſite, to give them the ſame exact elevation, during the removal of the wire edge. They have alſo a few ſtrokes given them as a finiſh, upon a hard kind of green ſtone.

Sciſſors are ſet upon the oil-ſtone; they are held nearly upright, that their edges may be turned toward their inner ſide.

Pocket-knives, carving, and table-knives, are ſet at an elevation, upon a ſtone, called a rag-ſtone, of a fine ſandy texture, and without the uſe of oil.

CUTRIGURI, in *Ancient Geography*, a people who inhabited the diſtrict adjoining to the Palus-Mæotis; and formed a part of the Huns.

CUTTABUNK, in *Geography*, one of the *Elizabeth iſlands*, which ſee.

CUTTER, in *Sea Language*, denotes a ſmall veſſel commonly navigated in the Engliſh Channel, furniſhed with one maſt, and rigged as a ſloop. Many of theſe are uſed in an illicit trade; and others employed, under the direction of the admiralty or cuſtom-houſe, by government to ſeize them.

Cutter is alſo the name of a ſmall boat belonging to ſhips of war. It is broader, deeper, and ſhorter than the barge or pinnace: fitter for ſailing; and uſually employed in carrying ſtores, proviſions, &c. to and from the ſhip. Clincher-work is uſed in the ſtructure of theſe boats.

Cutter *of the tallies*, an officer of the exchequer, who provided wood for the tallies, and cut the ſum paid upon them. See Tally.

Cutter, in *Mechanics*, is a circular piece of well tempered ſteel, varying in diameter, from the dimenſions of a ſhilling, to the ſize of a crown-piece, and having notches cut on its edge generally of the ſhape of ſaw-teeth, but ſometimes finer, like the indentations of a coarſe file; when fixed, by means of a central hole, on the revolving arbor of an engine for cutting the teeth of a wheel, it forms the ſpaces between the teeth of a breadth equal to its own thickneſs, and when its ſides are flat the ſpace ſo formed is a ſmall parallelogram, pointing to the centre of the wheel. It is therefore neceſſary that every engine ſhould have a variety of cutters, differing in thickneſs as well as ſhape, to form the teeth of wheels, that require different degrees of ſtrength, and forms adapted to particular purpoſes. The reader will ſee in our ſubjoined account of Cutting-*Engine*, a reference to the plates in which ſome of the varieties of cutters may be ſeen both in a detached ſtate, and alſo attached to the engine of which they form a conſtituent part.

Cutter-*Gauge* is a contrivance for aſcertaining and expreſſing the exact thickneſs of a cutter, ſuch as is deſcribed in our preceding article. The workman who is in the conſtant habit of uſing a cutting engine will, indeed, generally gueſs what cutter is proper for any wheel, of which he knows the diameter and number of teeth wanted, particularly when it is of ordinary dimenſions; but ſtill it is neceſſary to verify his conjecture, by a previous partial trial on a piece of uſeleſs metal of ſimilar radius, or by marking only with the cutter, or a marking knife, the edge of the wheel itſelf, till he is ſatisfied that the teeth and ſpaces, when cut of the requiſite depth, will be reciprocally of due dimenſions. To avoid ſuch previous trial, Mr. Robert Hynam of St. Peterſburgh invented an inſtrument for gauging and expreſſing the thickneſs of cutters, which was laid before the Society of Arts at the Adelphi, and honoured with a reward. [See vol. xvii. of their Tranſactions, 1799.] The inſtrument here alluded to manifeſts conſiderable ingenuity, but in our opinion is too complex and expenſive to become of general uſe. An ordinary wire-gauge, or plate of ſteel with notches, having parallel ſides of various dimenſions, would, we think, be found equally ſerviceable in practice. The method is ſimply this; when the wheel is ready for cutting, deſcribe a circle on its plane to repreſent the pitch-line, more or leſs diſtant from its extreme edge, accordingly as the teeth are to be fine or coarſe, and meaſure the diameter of this circle in inches and tenths of an inch, for the practical diameter of the wheel; in the next place, multiply this diameter by 3.1416, or otherwiſe multiply it by 22, and divide the product by 7, and the inches thus obtained will be the circumference of the pitch-line of the wheel, by which, if the number of teeth propoſed for the wheel be divided, the reſult will be the number of teeth per inch that the wheel is to be cut into; but as there are as many ſpaces as teeth in every wheel, it muſt be recollected, that both a tooth and a ſpace go in this calculation for one tooth only; hence, when the teeth and ſpaces are reſpectively of equal dimenſions, the cutter that makes the ſpace ought to be only one half of the calculated dimenſions; that is, a wheel found to be of ſix inches circumference at the pitch-line, in order to be cut into ſixty teeth, or ten per inch, will require a cutter of only one twentieth of an inch thick, to make the tooth and ſpace equal to each other. Suppoſe now the gauge-plate to have a dozen notches, of $\frac{1}{10}$th, $\frac{1}{12}$th, $\frac{1}{14}$th, &c. up to $\frac{1}{34}$th of an inch breadth reſpectively, theſe notches will be proper gauges for cutters to uſe for 5, 6, 7, &c. up to 17 teeth per inch, on a ſuppoſition that the plane of the cutter is preciſely at right angles to the arbor on which it revolves in action; but as it is found in practice, that moſt cutters, however carefully made, cut notches or ſpaces broader than the thickneſs of the cutter, particularly when the cutter has been newly ſharpened, it may be a neceſſary precaution, after the cutter, choſen by the gauge, has formed one ſpace in the wheel, to compare that ſpace with the gauge rather than the cutter itſelf, as determined by calculation of the wheel's diameter, and requiſite number of teeth, taken conjointly. In this way a ſuitable cutter for any practical number of teeth in a given wheel may be readily determined without previous trial. In thoſe caſes, however, where it is deemed deſirable to have the teeth larger than the ſpaces in any wheel, its fellow, or correſponding wheel of the pair, muſt have its teeth ſmaller than the ſpaces; ſo that one of the two wheels muſt be cut with a cutter thicker than a mean cutter and the other with one thinner. We have given a table of diameters in our article Clock-*making*, where the workman will find the various dimenſions and correſponding number of teeth per inch already calculated for him, which therefore he may take by inſpection, and chooſe his cutters, accordingly, (as we have there directed in the uſes of the table) by the mere help of his gauge-plate, or even without, provided the cutters once gauged were marked agreeably to the number of teeth per inch they have been gauged for; and alſo provided the original thickneſs at the cutting part be not altered by the act of ſharpening.

CUTTERS, a term with *Miners*, for joints or partings in a vertical direction, or nearly, between the different blocks of coal, as they lie in the ſeam; theſe are croſſed again, nearly at right angles, by other vertical joints called backs, and theſe together much facilitate the getting of the coal in a mine.

CUTTERAH, in *Geography*, formerly a town, now a ruined village of Hindooſtan, in the country of Oude; remarkable for being the ſcene of the deciſive battle of 1774, in which Sujah Dowlah defeated the Rohillas, by which action the fate of that brave people was determined; for Haffez-Rhanut, their chief, was ſlain, and our army penetrated their country as far as Loll Dong at the foot of the mountain. This place is now a motley aſſemblage of ruinous mud houſes, not a tenth part of which are inhabited: 20 miles S.S.E. of Bereilly.

CUTTING, a term uſed in various ſenſes, and various arts; in the general it implies a diviſion or ſeparation.

Cutting, in *Coinage*. When the laminæ, or plates of the metal, be it gold, ſilver, or copper, are brought to the thickneſs of the ſpecies to be coined, pieces are cut out of the thickneſs, and nearly of the weight, of the intended coin; which are now called *planchets*, till the king's image hath been ſtamped on them.

The inſtrument wherewith they cut, conſiſts of two pieces of ſteel, very ſharp, and placed over one another; the lower a little hollow, repreſenting a mortar, the other a peſtle. The metal put between the two, is cut out in the manner deſcribed under Coinage.

Note. Medallions, where the relievo is to be great, are not cut but caſt, or moulded.

Cutting is particularly uſed in *Heraldry*, where the ſhield is divided into two equal parts, from right to left, parallel to the horizon, or in the feſſe-way.

The word is alſo applied to the honourable ordinaries, and even to animals and moveables, when they are divided equally the ſame way: ſo, however, as that one moiety is colour, the other metal. The ordinaries are ſaid to be *cut*, *couped*, when they do not come full to the extremities of the ſhield.

Cutting, in the *Manege*, is when the horſe's feet *interfere*; or when with the ſhoe of one foot he beats off the ſkin from the joint of another foot.

The part moſt frequently bruiſed is the ſide of the fetlock joint, where the toe of the hoof is turned out, the inner quarters of the ſhoe or hoof are more frequently the parts that do the miſchief; but when the toe is turned in, the injury is done by the anterior part of the ſhoe. If the toe is turned out, the inner quarter of the cruſt is moſt frequently lower than the outer. This condition of the hoof neceſſarily inclines the fetlock joint of the foot that ſupports the weight, nearer to the foot in motion. Farriers, ſays Mr. Coleman, in his "Obſervations on the Structure, &c. of the Foot of the Horſe" (vol. i.) generally attend to the hoof that cuts, and not to the hoof of the injured leg; but while the leg is in the air, no ſhoe can alter its direction; and the ſmall quantity of horn, or iron, that can be removed from the hoof and ſhoe, very rarely prevents cutting. But it is very practicable to alter the poſition of the leg, that ſupports the animal; and thus the foot in motion may preſerve the ſame direction without being liable to cut. The outer quarter of the cruſt ſhould be lowered, and the inner quarter preſerved. This operation will tend to make the bottom of the hoof the reverſe of its former ſtate, that is, the inſide quarter higher than the outſide, and this will throw the fetlock joints farther from each other. Where the ſole is thin, very little of the cruſt can be removed from the outſide; and thus it will be neceſſary to attend to the ſhoe. The inner quarter ſhould be thickened, and the outer quarter made thin, which will produce the ſame effect, as altering the horn; or, if the hoof be ſufficiently ſtrong, both theſe remedies may be applied at the ſame time.

When the toe inclines inward, ſays Mr. White, in his "Compendium of the Veterinary Art" (vol. i.), it renders a horſe liable to cut on the inſide of the knee, at the lower part of the joint: this is ſometimes termed the "ſpeedy cut," from its happening upon the trot or gallop, and is conſidered as a dangerous failing in a horſe:—the pain occaſioned by it ſometimes cauſing him to fall very ſuddenly. The remedy for this is to keep the toe as ſhort as poſſible, that being the part which inflicts the wound, and to alter the improper poſition of the foot. Cutting frequently depends upon weakneſs or fatigue, and is therefore liable to happen to young horſes when rode very hard over deep heavy ground. The only remedy in this caſe is to avoid the cauſe till the legs acquire more ſtrength, and to protect the wounded part with leather, or a boot, as it is termed. Whenever a horſe cuts, it is deſirable to aſcertain what part it is that inflicts the wound; and this may be often done by applying tar to the wounded part, which of courſe will adhere to the part of the hoof or ſhoe that comes in contact with the wound.

Cutting, in *Surgery*, denotes the operation of extracting the ſtone out of the bladder by ſection. See Lithotomy.

Cutting-*glaſs*, in *Surgery*. See Cupping-*glaſs*.

Cutting-*Engine*, in *Mechanics*, is the name of an engine, which divides and cuts a wheel, pinion, or rack, into any aſſigned number of teeth, which office it performs both with accuracy and expedition. While the art of conſtructing wheel-work was yet in its rude ſtate, the dividing of a wheel into the requiſite number of circular parts, and cutting away the notches or ſpaces by a manual operation with a file, was not only a tedious but an imperfect way of proceeding, which left ſuch inequalities in the ſize and ſhape of the tooth, as were but ill ſuited to tranſmit any applied force in an equable manner, or to perpetuate the duration of the parts once made. To facilitate ſuch manual operation by a file, the ſimple platform was invented, deſcribed by father Alexander, in his book on clock-making, which was a circular plate of braſs, from ten inches to a foot, or more, in diameter, with as many concentric circles thereon, as the uſual numbers of teeth in the wheels and pinions of clock-work required to be divided into correſponding parts of a circle. In the centre of this platform was fixed a ſtem, or faſt arbor, round which an alidade, ruler, or index, with a ſtraight edge, pointing to the centre, turned freely into any given point of a required circle, by means of which the diviſions of any given circle were transferred to a wheel, placed on the ſaid ſtem under the ſaid index, by a marking point. This mode of dividing a wheel is ſtill imitated by the enamellers and engravers of clock-faces, and is certainly an eaſy way of transferring diviſions from a larger to a ſmaller circle for various purpoſes, where the accuracy of an aſtronomical inſtrument is not required; but ſtill the ſpaces were required to be cut by hand with a file; at length a little frame was mounted on the index, which was contrived to direct and confine the file in ſuch a way as to cut the notches of a wheel, placed over the index, with leſs deviation from the truth than could be managed by mere manual dexterity; this addition, no doubt, led to the adoption of a circular file, or cutter, and of ſuch other appendages as completed the conſtruction of a ſimple cutting-engine; and it is aſſerted ["Etrennes Chronometriques" par M. le Roy] that Dr. Hook was the firſt perſon who contrived ſuch an arrangement, as could merit the name of a cutting-engine, [machine a fendre.] The doctor's invention, which, like many other of his inventions, has proved to be of permanent and great utility in mechanics, conſiſted of an entire tranſmutation of the old ſtationary platform, with its moveable appendages, into a moveable platform inſerted into a ſtrong metallic frame with ſtationary and additional appendages; the machine thus converted into an engine, or ſelf-acting piece of mechaniſm, conſiſted of the ſtrong frame; the ſliding ſupporting bars of the platform, or plate, with an horizontal ſcrew of adjuſtment for diſtance from the circular file; the divided plate with a revolving arbor to receive the wheel to be cut; and the alidade fixed to the great frame, in the poſition of a tangent line to any of the divided circles, and applying its bent and rounded point to the punched marks of diviſion on the circle ſucceſſively, as the plate revolved, in the act of cutting the ſucceſſive teeth of a wheel. This conſtruction of the engine is very nearly the ſame that remains in the tool ſhops of the preſent day. The original diviſions of the circles, *viz.* 360, 300, 150, 90, 60, &c. are alſo retained in the ordinary engines, though many of the ſmaller numbers are included in the larger ones, and are therefore ſuperfluous; for taking every fourth hole of 360, is the ſame as uſing the circle of 90, or every ſixth the ſame as uſing the circle of 60; alſo taking every other hole of 300 is the ſame as uſing the circle of 150. As theſe ordinary engines are very limited in their operations, by reaſon of their powers extending only to the numbers marked on the divided circles; and as the prime numbers are not uſually inſerted, we find that different ingenious men, both in France and England, have contrived additional apparatus to render the engine more perfect. Indeed ſo long ago as the year 1716, Henry Sully brought into England, among his collection of new tools, a ſuperb engine, made by M. de la Faudrière, which has been mentioned by Julien le Roy, and deſcribed by Thiout in his "Traité d'Horlogerie." About 1730, M. Taillemard made further improvements in the cutting-engine, particularly by introducing a tubed arbor inſtead of an arbor with a ſquare hole, which had been uſual before. After Taillemard, his apprentice Hulot continued to conſtruct engines in a ſuperior way in France, and is ſucceeded by his ſon Hulot the younger, whoſe execution is deemed equal to that of his father.

M. Fardoil, another French mechaniſt, contrived a plate to his engine, which afforded the means of cutting any number of teeth in a wheel, prime or compoſite, by a circular rack and endleſs ſcrew, the latter of which is fixed in a ſtationary poſition. The deſcription of this engine is given in Thiout's work which we have already mentioned, to which the curious reader is referred for a full account. The number of notches on the circumference of the plate, which has no divided circles, is ſtated to have been 420, ſo that one revolution of the ſcrew anſwered to a tooth, where the wheel was required to be cut into 420 teeth, and in proportion as the micrometer-head of the ſcrew was turned more or leſs than an entire revolution, were the teeth reciprocally fewer or more numerous than 420. This number ſeems to have been choſen in preference to any other, by reaſon of the many compoſite parts it is capable of being divided and ſubdivided into. In practice it was neceſſary to divide the number 420, and alſo the number of teeth of the propoſed wheel by ſome common diviſor, in order to reduce the terms into their loweſt denomination; then the quotient ariſing from the number of the wheel's teeth, in uſing the common diviſor, was made the number for the diviſions of the micrometer-head, and the larger quotient coming from the term 420, was the proper number of diviſions of the ſaid divided micrometer-head neceſſary to paſs the index after cutting each tooth. An example will render this mode, which was certainly ingenious, intelligible to any ordinary reader, who has ſeen an engine. Let the number of teeth to be cut be 249, then the common diviſor will be 3, and $\frac{420}{3}=140$, likewiſe $\frac{249}{3}=83$; the ſmaller quotient therefore 83 is the number of diviſions proper for the micrometer-head, fixed to the axis of the endleſs ſcrew, and 140 of thoſe diviſions muſt paſs the index after each cutting operation; the reſult in this caſe will be the ſame as if the micrometer had had 249 diviſions, and 420 of theſe had paſſed the index after the cutting of each tooth. The micrometer-head had a ratchet wheel and contrivance for making number *one* of the diviſions come back to its original ſituation after each operation, like the contrivance in the engine for dividing ſextants and nautical circles, which engine will be ſeen in another place. This mode of cutting all kinds of numbers, ingenious as it is, requires, however, various micrometer-heads to ſuit ſuch prime number, which prime numbers themſelves require dividing previouſly; conſequently the real advantages of this contrivance are by no means adequate to its profeſſions. Berthoud has given a deſcription and drawing of a French machine for cutting the teeth of wheels and pinions, in his "Eſſai ſur l'Horlogerie," and alſo in his "Hiſtoire de la Meſure du Temps," ſuch as he conſiders of the beſt conſtruction; and in his "Traité des Horloges Marines," he has deſcribed an apparatus for forming the ends of the teeth by means of a concave file confined in a frame, which makes it move in a given direction; which deſcription, together with the drawing, is copied into his "Hiſtoire de la Meſure du Temps." We ſatisfy ourſelves with a reference to theſe contrivances, in order to deſcribe two engines of Engliſh conſtruction, which have not been previouſly deſcribed, and which, we think, merit a particular notice, both as ſpecimens of ingenuity, and as engines of great utility in daily practice. Theſe engines we have already referred to under our article Clock-*making*; one as being uſed by the late Brown of King-ſtreet, Seven-Dials, London, which we learn was projected, and partly made between the years 1770 and 1780, by Hindley of York, when in London; and the other, as being contrived by the late Rehé, mechaniſt to the naval board of works, and purchaſed by Troughton for the uſe of a relative, who is ſince dead, and who is ſucceeded by James Fayrer of No. 35, White-Lion-ſtreet, Pentonville, who now uſes it. On a reference to Mr. Troughton's books, we find, that his late brother divided Rehé's engine-plate in the year 1783, which fixed the date of its conſtruction; and from this as a model it was, that the inventor conſtructed a ſimilar one for Dr. Milner, the dean of Carliſle, of the expence of which that gentleman had not formed a competent judgment at the time he gave his order, to make as good an engine as could be conſtructed, which occaſioned ſome demur about the payment. The worthy dean little ſuſpected that the engine he had ordered would coſt him three hundred pounds or guineas; and the reader will not be leſs ſurpriſed to be told, that Rché's engine, with its apparatus, was ſold at his ſale for 700l.

Cutting-Engine by Hindley.

The cutting-engine contrived by Hindley is repreſented in *Plate* II. of *Engines*. *Fig.* 1, is a perſpective view of the entire engine in a ſtate proper for cutting, with the exception of the foot-wheel ſurrounded by the cord that gives motion to the revolving cutter, and of the bench to which that wheel is attached, and on which the engine reſts; but the reader who has ſeen a common turning-frame, or other mechaniſm turned by the foot, can readily conceive how a ſimilar motion may be given to the cutting-engine by a lever, placed nearly horizontally under foot, and connected with the crank of the large wheel's arbor: *figs.* 2 and 3, ſhew the cutter frame detached from the engine, the firſt of which ſuppoſes the eye placed over it, and the other at one end when viewing it; we ſhall ſpeak of them more minutely, and alſo of ſome figures in *Plate* III., when we have deſcribed the engine in its entire ſtate.

A B C D E F is a ſtrong iron frame, fixed by the end pieces at E and F to a ſteady bench, to which alſo the large wheel for the cord is faſt, but not ſeen in the drawing; the ſide-pieces of the frame, A B and C D, are exactly parallel to each other, and their upper edges are terminated by two ſlopes that form an oblong and obtuſe wedge, on which the ſunk baſe of the cutter-frame, G H I K, reſts, and ſlides ſmoothly when one of the handles and micrometer head at L turns the horizontal ſcrew, between B and D, that is tapped into a piece of metal behind the cutter-frame and attached thereto. M is a ſtrong tube of braſs fixed to the ſide of A B by four ſcrews ſeen to the right and left in the ſquare part to which the tube is faſt: within this fixed tube M there is another tube N ſeen above it, which conſtitutes the revolving arbor of the large circular plate O, under the frame; the annular ſhoulder-piece, P, reſting on the top of tube M, and pinned or ſcrewed faſt to the interior tube N, bears the whole weight of the plate O: a ſection of theſe tubes, containing another tube and arbor of a pinion to be cut, is given in *fig.* 1. of *Plate* II. The plate, O, is about a foot in diameter, and marked into a number of divided circles, with holes drilled through at each divided point, the uſe of which will be explained preſently. Through the inner tube N, or axis of the plate O, paſſes a ſolid arbor on which the plate, Q, is fixed, with a few notches cut on one ſide; this ſolid arbor is fixed by a ſcrew, under the centre of the plate O, as ſeen in *fig.* 1. *Plate* II., and may be taken out at pleaſure, and a projecting pin fixed in this ſolid arbor, below the wheel, takes into a correſponding notch made in the tube N, which contrivance makes the ſolid arbor and tube, N, reſt or revolve together, as circumſtances require, and alſo along with them the circular piece of metal Q, placed faſt to the ſolid arbor by a collet and tapped nut ſcrewing down upon the ſuperior end of the arbor, formed into a ſcrew, as ſeen in the figure. Of theſe ſolid arbors there is a variety belonging to the engine, with their ſuperior ends varying in thickneſs to ſuit the different holes of different plates Q, or in other words, to ſuit the central holes of different wheels previouſly turned and fitted to their reſpective arbors; but it is not neceſſary to introduce thoſe different arbors into our drawing, as their ſhape is common, and their dimenſions vary only at the ſuperior end, where the wheel fits. In conſequence of the connection of the ſolid innermoſt arbor with the tube N attached to the platform or divided plate O, whenever this plate revolves a given quantity, or diviſion of one of its circles, the wheel fixed to the ſolid arbor, above the frame, moves with it preciſely the ſame portion of a circle, and preſents itſelf to the cutter or revolving circular ſaw R, borne by the moveable frame G H I K, and having a ſmall pulley round the poſterior end of its arbor, which is ſeen embraced by the cord that puts it in motion. Whenever the handle S, attached to the cutter-frame, as may be ſeen more clearly in *fig.* 2, is lowered by hand, the cutter, R, deſcends with it till meeting with the edge of the plate, or wheel Q, it cuts a notch through it, while the moving pulley gives motion to the ſaid cutter; as ſoon as this notch is cut, the depth of which is regulated by the ſcrew of the handle L, that moves the whole cutter-frame, the handle, S, is permitted to aſcend, which it does by means of a ſpiral ſpring ſeen in the middle of the cutter-frame preſſing under the top portion in *fig.* 2; the cutter is then free from the notch of Q, and the latter is at liberty to advance round whenever the plate, O, is moved; during this time an index, with a fixing point, T, called by the French an alidade, holds the plate in a firm poſition, in conſequence of the point, T, penetrating one of the drilled holes of the divided circle, made choice of for the operation; this point, T, is next raiſed by the right thumb preſſing on its oppoſite end at U, while the fingers of the ſame hand turn the plate, the ſpace of one diviſion or more as may be required; the left hand in the mean time graſping the handle S, and the foot continuing to turn the large wheel, that is the firſt mover; the motion of the large plate has now brought Q, the wheel to be cut, a correſponding ſpace round, to the ſituation required for cutting another notch, which the cutter immediately does on being brought down by S, the handle for the left hand, into contact; the operation of raiſing the fixing point T, and of moving the large plate O, another diviſion, is repeated, and the wheel, Q, is again in a ſituation to have its third notch cut; and thus the operations of moving the large plate and lowering the revolving cutter are alternately repeated till there are as many notches cut in the edge of the wheel, as the divided circle contains drilled holes of diviſion, provided the plate is turned only the ſpace of a ſingle diviſion; but when the plate is moved two diviſions of the circle every time the point, T, is raiſed, then the number of notches cut in the wheel will be only half the number of ſuch diviſions; ſo that any divided circle on the plate will ſerve for a wheel that is either the whole number, or any exact aliquot part of that number. For the ordinary engine this deſcription would have been ſufficient to have conveyed to the reader an adequate idea of the operation of cutting a wheel fit for all common purpoſes; but the engine before us is comprehenſive in its uſes, and takes in all numbers prime and compoſite, whether divided on the plate or not, which lie under 360, its greateſt number of diviſions in one circle; nay, it will go even beyond this number if found neceſſary, as will appear from a little cloſer inſpection. In an ordinary engine, the fixing-index, or alidade, is made elaſtic, and placed on the ſide of the principal frame, and is moveable on the end oppoſite to the fixing point, ſo as to be capable of being placed as a tangent line to any one of the divided circles, but has no ſcrew or micrometer to alter its length or poſition when once fixed, on which account a wheel cannot be cut into any other number of teeth, but ſuch as are laid down on the plate, or ſuch as are derived from thoſe, by taking every ſecond, third, or fourth, &c. hole of the diviſions; whereas in the engine before us the fixing index, U T, is not attached to the frame, but to the four-armed piece of braſs V W X Y, that is moveable round the inferior end of the fixed tube M at V, and connected with a worm-ſcrew by means of teeth cut on its branch Y, as ſhewn in the figure; the worm near Y is fixed by a cock to the end-piece E of the large frame, and has a micrometer head, Z, divided into ſixty notches, inſtead of dividing lines, that the elaſtic index *f*, above Z, ſeen ſcrewed to the ſaid end-piece of the frame, may make ſuch a noiſe in paſſing the ſaid notches of the micrometer-head as are audible to the workman, who therefore has no need to examine the dividing marks by the eye in the act of cutting. The branch, X, has an oblong hole in it, that the contiguous end of branch Y may be adjuſted in it, by fixing the racked end near Y in a proper ſituation to act freely with the worm ſcrew when wanted; the piece of braſs *a*, with a long open in the middle, and ſcrewed at *g* to the ſide, A B, of the principal frame, has the ſcrew, *d*, paſſing through it to fix the branch X, whenever the worm-ſcrew is not required to be in uſe, which in this caſe fixes the index, T U, to the frame A B, but when the worm is uſed, as hereafter deſcribed, the thumb-ſcrew, *d*, is turned back. The arm W *b*, to which the index and fixing point, T, are attached, ſlides, in the adjuſtment for a given circle to be uſed on the plate O, along an under bar of ſimilar dimenſions, which it covers, and which is a part of V continued; the interior end of W *b* is kept to its direction by the fixed clamp, *b*, that moves on pivots near the letter *b*, at one ſide, and has a fixing point that penetrates the holes of diviſion made and numbered, along the upper or ſliding bar, with figures that indicate the diviſions of any given circle to which the fixing point, T, of the fixing index is at any time placed; therefore, when a wheel is required to be cut into any number of teeth, found upon the divided bar W *b*, this bar is ſlided in or out, while the fixing point of clamp *b* is held up, till the hole deſignated by the required number falls under the ſaid point, in which ſituation it is made faſt by the thumb-ſcrew *e*, and the point, T, then falls into one of the drilled holes of the proper circle of plate O, which in ordinary engines contains the numbers itſelf. The index, T U, of the fixing point of the plate O, turns on pivots above *h* when preſſed by the thumb at U, and has a ſpring underneath that makes it return, and holds it faſt in any aſſigned hole of a given circle of the plate during the cutting of a ſpace in the wheel required to be cut; but when the plate is wanted to be at liberty to move a large portion of a revolution for any purpoſe, the ſpring juſt mentioned can be locked, ſo as to hold the point, T, above the plane of the plate, till the act of cutting commences. By the help of this appendage to the engine a wheel may be cut into a number of teeth not divided on the plate in the following manner; ſuppoſe a wheel of 62 teeth were required to be cut, and that there were no divided circle on the plate nearer than one divided into 60 holes, to cut it from; then having fixed the wheel on the ſolid arbor by the fixing nut, in the ſituation of Q, and having ſlided the divided bar W *b* till the fixing point of *b* falls into the hole deſignated by 60 on the ſaid bar, let it be fixed there by the thumb-ſcrew *e*, and let the point T fall into any one of the holes drilled in the circle 60, which will now be exactly under it; alſo let the thumb-ſcrew *d* be turned back to ſet the four-armed piece at liberty to move by the worm-ſcrew Y attached to the micrometer-head Z; in this ſituation of the apparatus cut a notch in the wheel, then preſs on the end U of the index and carry the plate in the direction from O towards T, the quantity of two diviſions, which will be two teeth in the wheel if they were cut, the cutter in the mean time being raiſed from the wheel, as in the drawing: turn in the next place the micrometer ſcrew, and count the turns and parts of the micrometer until the wheel is brought back to its original ſituation; that is, till the cutter on trial is found to drop eaſily into the notch before cut without rubbing on one edge of the notch more than on the other. Let the turns of the micrometer thus counted be 7, and 14 notches or marks out of 60 over, for the meaſure of two teeth in caſe 60 teeth had been the number to be cut, which will be 434 notches on the micrometer-head paſſed over by the index *f*; then if theſe notches be divided by 62, the teeth to be cut there will be $\frac{434}{62} = 7$, for the number of notches that the large plate O ought to be turned back after each tooth is cut, in a direction oppoſite to that of the plate's motion, when made to revolve after the fixing point, T, is raiſed; the proceſs therefore now to be uſed in cutting, is to raiſe the point T in the firſt place, then to move the plate from O towards T, one diviſion or $\frac{1}{60}$ of the circle, after that to turn the micrometer back 7 notches of the 60, which carries the plate back again from T towards O, a ſmall quantity, ſo as to form a tooth of $\frac{1}{62}$ inſtead of $\frac{1}{60}$ of the whole number to be cut. Laſtly, let the notch be cut, and repeat the ſame proceſs at every cutting, and it will be found at laſt that a wheel of 62 teeth has been cut inſtead of one of 60, on account of there being 62 times 7 notches in the 434, that have in the whole paſſed the index *f*, during the time that the wheel has been under the act of cutting. Should it happen, as will generally indeed be the caſe, that there is a remainder in the diviſion of the notches by the teeth of the wheel to be cut, the remaining numbers may be interculated thus: as a ſecond example, let the number of teeth be 61 to be cut from the ſame circle of 60, and let the turns of the micrometer, as before, be 3, with 37 notches over, out of 60, for the ſpace of a ſingle diviſion on the plate O; in this caſe there will be only 217 or half the former number of notches in the whole, to be divided by 61, the quotient ariſing from which is three, with a remainder of $\frac{34}{61}$, ſo that, properly ſpeaking, $3\frac{34}{61}$ notches of the micrometer ought to be drawn back after every ſhifting of the fixing point T, but this is not practicable without a ratchet, and returning back to the micrometer, which the engine has not got; therefore as 34 is only 3 more than half of 61, and as one notch on the micrometer does not affect the motion of the plate O in a ſenſible manner, the notches may be taken alternately 3 and 4 in ſucceſſion, except in three equidiſtant points of the wheel, where 4 may be taken twice in ſucceſſion, which mode of interpolation of the notches belonging to the remainder, as they accumulate, may be practiſed with any other numbers, and the difference thus occaſioned among the teeth will not be ſenſible even under a magnifying glaſs. The writer of the preſent article has ſeen and examined a wheel of 126 teeth cut from a circle of only 100 diviſions in this manner, which appeared as evenly divided, as if it had been cut from a circle drilled or punched into 126 diviſions.

If the number of teeth to be cut had been taken fewer than the diviſions in the circle uſed on the plate, the micrometer-head muſt, in that caſe, have been turned the contrary way, to augment the divided ſpaces of the plate, and to enlarge the ſize of the teeth in proportion as their number is decreaſed, which effect can now be readily apprehended without further detail.

But this property of being capable of cutting wheels into all aſſigned practical numbers of teeth, is not the only advantage that this engine poſſeſſes over the common engines ſeen in the tool-ſhops: when the cutters of theſe engines require to be changed, the arbor, on the middle of which they are fixed, requires to be taken out of its frame, and to be replaced and adjuſted to the centre of the plate, or middle of the ſolid arbor, as frequently, which is troubleſome: alſo as the cutter-arbor revolves round ſtationary pivot-holes, the bottom of each notch cut in a wheel is neceſſarily a portion of the circumference of a circle, which in a thick wheel requires to be filed into a ſtraight line after the cutting is finiſhed. Both theſe inconveniencies are obviated in our preſent engine. To avoid the firſt inconvenience, the cutter, R, is put on the projecting end of its arbor, and can be taken off and put on without diſplacing the arbor from its moveable frame. When, however, the cutters vary in thickneſs, they require an adjuſtment of their middle part to the middle of the ſolid arbor that bears the wheel to be cut, which is done by a contrivance ſeen beſt in *fig.* 2; where R, as before, is the cutter, and H I an arbor, round the pivots of which the top of the frame, to which the handle, S, is attached, revolves, and to which the ſaid top is united by a ſmall handle *i;* when the ſcrews, *k* and *l*, are looſe, the top of the frame, *k l m n*, is at liberty to have a motion in the direction from H to I, or the contrary; but the ſmall handle, *i*, is ſcrewed at the middle to the arbor H I, and at the interior end to the top of the frame, near the fork of the large handle S; ſo that, as the bearing parts H and I, beyond the two ends of the arbor, have no lateral motion, whenever the ſcrews, *k* and *l*, are looſe, and the end, *i*, of the ſmall handle is moved towards H, the whole top, *k l m n*, and cutter, R, are carried towards I, and the contrary when the end, *i*, of the ſmall handle is moved towards I; this ſide motion of the cutter, and of its arbor, affords the ready means of adjuſtment for cutting the ſpaces, and conſequently of forming the teeth of any wheel with a given cutter, in a direction tending exactly to the centre of the ſaid wheel; and when the adjuſtment is made, and examined by the notch in gauge *p*, *fig.* 1, which ought to fall on the middle of the cutter, when turned round its centre of motion at its lower extremity, the tightening ſcrews, *k* and *l*, may be turned home again, and the cutter will remain adjuſted. With reſpect to the other advantage of cutting the bottom of each ſpace in a ſtraight line, however thick the required wheel may be, *fig.* 3 will furniſh an explanation; here is a ſide view of the cutter ſeen leſs obliquely than in *fig.* 1, and detached from the other mechaniſm; H, as before, is the place, where the proper centre of motion of the arbor H I, in *fig.* 2, is, and R again is the cutter; the arbor of the cutter is hid, but can eaſily be apprehended to be admitted to paſs up and down the opening *s t*, of the part, K, of the frame, as ſeen in *fig.* 1; while a roller or friction-wheel, ſurrounding the ſaid arbor, touches the interior ſides of the fork *s t;* this property of the cutter's aſcending and deſcending in a ſtraight line, when the handle, *s*, is raiſed or lowered, would however be checked by the limit of diſtance from R, the centre of the cutter, to H, the centre of motion; but the pieces, H and I, have alſo each a centre of motion at their lower extremities, as at *r*, which allow the centre H, and its correſponding one at I, to approach to, and recede from, the oblong aperture, *s t*, twice in each aſcent and deſcent of the cutter; namely, once above its preſent horizontal poſition, and once below. The perpendicular ſcrew at *u*, forms a ſtop to the aſcent of the arbor, and a correſponding one below at *r*, forms a ſimilar ſtop to its deſcent; the latter of which is alſo uſed as a limit for the depth of a contract wheel's teeth, during the operation of cutting. When a very large wheel is to be cut, there is a part of the cutter frame behind G, not ſeen, which is tapped, to receive the ſcrew of the handle L, in *fig.* 1, one half of which tapped piece is cut away, and allows the other ſemicircular part to be ſet at liberty from the ſcrew, by turning on a hinge, to enable the frame to ſlide freely to the rough diſtance, without turning the ſcrew, which contributes to expedition in the adjuſtment of the cutter's diſtance from the ſolid arbor that bears the wheel. In common engines it may be proper juſt to mention the large plate O, together with its ſecondary frame that ſupports its lower pivot, is adjuſted by the horizontal ſcrew to the cutter, the frame of which cutter remains always fixed to the principal frame.

Beſides the parts above deſcribed, the engine before us has got two appendages, that render its uſes ſtill more comprehenſive, namely, a contrivance for cutting pinions on the arbor, and an apparatus for cutting ſtraight racks, with which we will finiſh our account of this engine.

Fig. 1. of *Plate* III. (of Engines), is an elevation of the appendage for holding a pinion on its arbor, together with a ſection of the concentric tubes above the large plate referred to above, but not ſeen. In *fig.* 1. of *Plate* II. A B is a portion of the principal frame, denoted by the ſame letters as before, M and M, a ſection of the fixed tube M. In *fig.* 1. of *Plate* II., N and N, a ſection of the revolving tube N, or axis of the plate, P and P, its bearing ſhoulder, and Q R, a third tube, inſtead of the ſolid arbor, holding the pinion arbor faſt, and fixed by the milled nut, R, under the plate O, ſeen now as a ſtraight line: the ſtage of the innermoſt tube at Q, has many holes drilled into it, tapped ſo that not only a pinion, but a wheel alſo, may be attached to it, and cut, after it is faſt to its arbor; of theſe tubes, Q, R, there are many varieties, differing in bore and ſize of the ſtage, to ſuit different purpoſes. The piece *a b*, attached to the frame A B, by two ſcrews at *a*, has an oblong opening, receiving the ſliding piece *c*, that can be fixed by a thumb-ſcrew behind, at any height, and that admits the horizontal bar *d*, to ſlide through it, before it is fixed; at the part *e*, of *a b*, is a hole with a ſlit, that allows it to open or cloſe by the action of the ſcrew *f;* through this hole *e*, the ſteel wire, *g*, paſſes, and forms a bearing for the upper pivot of the arbor, *p*, of the pinion, which otherwiſe would yield to the cutter, while the bar *d*, preſſing againſt the ſaid arbor near the pinion, prevents its bending during the operation of being cut, or *ſlit*, as this operation is uſually called, which is performed like the cutting of a wheel, already deſcribed.

Fig. 2. of *Plate* III. is a plan of the upper ſide of a ſmall plate of braſs, and of its appendages, for holding a rack during the act of cutting, and for limiting the ſize of the teeth to any given dimenſions; *a b*, is the plate in queſtion, mounted over the frame of the engine, near the cutter, by means of a ſtrong bar, like *a b*, in *fig.* 1, and placed in the ſame ſituation, as may be ſeen in *fig.* 3, which is an end view of *fig.* 2; the two little ſcrew-holes at each ſide of the letter *b*, in *fig.* 2, ſhew the place of attachment; and a ſtrong ſcrew, paſſing through the larger hole at *c*, enters the ſuperior end of the main arbor of the engine plate, and fixes this mechaniſm ſteady enough to bear the action of the cutter, applied in the uſual way. The bar to be cut into a ſtraight rack lies upon this plate *a b*, from *d* to *e*, between the cocks *d* and *e*, on one ſide, and the adjuſtable bar *f*, on the other, which bar ſliding in the two oblong openings, may be fixed at the required diſtance from the ſaid cocks, by means of the two ſcrews at its oppoſite ends taking into two nuts beneath, while a couple of thumb-ſcrews *g*, *h*, ſeen in *fig.* 4, which is a ſide view, preſs above the ſaid bar intended for the rack, and keep it firmly down. The pinion *i*, with twenty teeth, is uſed as the head of a micrometer

meter ſcrew, which the elaſtic index, *k*, reſts upon, ſo as to make an audible ſound, to ſerve as a reporter of each twentieth part of a revolution; it is ſeen in the *figs.* 2, 3, and 5, the laſt of which is the plane of the inferior ſide of the plate *a b*, and without which the whole contrivance could not well be explained in an intelligible manner: on the arbor of the pinion, *i*, is an endleſs ſcrew or worm, ſeen in *fig.* 5, into the ſpiral ſpace of which a ſingle tooth, *l*, is inſerted; the bar, *l*, which is ſeen preſſing againſt the cock *c*, as a thin bar in *fig.* 2, has a joint near the pinion *i*, on which the catch, *m*, turns, when lifted by the lever *n*, which lever itſelf turns on a pin in the bar *l*, as a fulcrum. The catch *m*, as repreſented in *figs.* 2 and 5, is raiſed a little from the bar *l*, and has a ſpring, attached to the bar *l*, preſſing it back again into contact with this bar; conſequently the end, *n*, of the lever is now nearer to the pinion, *i*, than it would be, if the end, *m*, of the catch were not removed, in oppoſition to its ſpring, from the excavated part of the plate. The catch, *m*, which is ſeen covering the bar, *l*, in the ſide view in *fig.* 4, has an oblong opening, through which the fixing thumb-ſcrew, *o*, paſſes, as well as through an opening in *l*, not ſeen, into the cock *e*, in *fig.* 2; and the bar, *l*, is itſelf attached to the plate by a ſliding cock *p*, in *fig.* 5, and alſo by a dove-tailed piece attached to the cock *e*, in *fig.* 2, on which piece the concealed dove-tailed opening of *l* ſlides, when the worm is in motion. From this detail of the different parts of action, it may now be conceived, that when the pinion, *i*, is turned, its worm actuates the ſingle tooth attached to the bar *l*, and conſequently moves this bar, together with the lever *n*, and catch *m*, a quantity in or out, that depends on the direction and quantity of the pinion's revolution, after which motion, it may be fixed to the cock *e* of the plate, by the fixing ſcrew *o*; and as the edge of this cock *e* is divided into inches and tenths, a ſtroke made on the contiguous edge of the bar, *l*, ſerves as an index to meaſure the tenths paſſed over; the thread of the worm-ſcrew is ſo cut, that one revolution of the pinion draws the bar *l*, and its appendages, juſt one-tenth of an inch: conſequently, one tooth of the ſaid pinion, counted by the noiſe of the elaſtic index *k*, meaſures $\frac{1}{20}$ of $\frac{1}{10}$, or $\frac{1}{200}$ of an inch. As the ſame letters of reference apply to all the four *figs.* 2, 3, 4, and 5, a further deſcription, it is preſumed, is unneceſſary. In uſing this apparatus, the cutter-frame of the engine is adjuſted ſo, that the cutter intended to be uſed is brought into contact with the edge of the bar to be cut, at the excavation near the end, *m*, of the catch, and is made to cut a notch, as though a wheel were to be cut; the cutter is then raiſed out of the notch thus cut to a proper depth, and the pinion, *i*, is turned, ſo as to make the end, *m*, of the catch fall into and fill the ſaid notch, the rack being in the mean time preſſed faſt by the ſcrews *g* and *h*, ſeen in *fig.* 4; the lever, *n*, is then depreſſed, which takes the catch, *m*, out of the notch; and ſuppoſing $\frac{1}{10}$ of an inch to be the thickneſs of the tooth to be cut, the pinion is turned back again two entire revolutions, one for the ſpace, and the other for the tooth, in which new ſituation the bar, *l*, is ſet faſt, by the fixing ſcrew *o*; the rack is now ſet at liberty, by turning back the preſſing ſcrews *g* and *h*, and the rack is moved gently by hand, towards the pinion *i*, until the catch *m*, in its adjuſted and fixed ſituation, falls again, by means of its ſpring, into the ſame notch which it occupied before it was moved by the worm-ſcrew; the rack is a ſecond time preſſed by the ſcrews *g* and *h*, and a ſecond notch is cut as before, which now forms the tooth of a requiſite thickneſs; again the catch, *m*, is lifted by the lever *n*, the rack ſet at liberty, and moved till the ſecond notch is caught by the catch, where it is in a ſituation to be fixed for the cutting of the third notch, or ſecond tooth; and thus the alternate proceſs of raiſing the catch, and moving the bar of the rack, till it is caught in the next ſucceeding notch, is repeated before each cutting, till as many teeth are cut as are wanted; the pinion and its worm ſcrew having performed their whole office before the ſecond notch was cut. When the rack is required to be cut into teeth on nearly its whole length, it is uſual to begin about the middle, and to cut one half firſt, and then to reverſe for the other half, and begin again from the notch firſt cut, which mode of operation requires not only the ends of the rack, but the ſurfaces alſo, to be reverſed, after the firſt half of the work is performed.

On the plate of this engine there are thirty divided circles, with the points of diviſion drilled quite through; numbered thus; 365, 360, 144, 100, 60, 30, 96, 90, 80, 78, 72, 54, 48, 62, 94, 92, 64, 59, 86, 88, 84, 82, 76, 74, 70, 68, 58, 56, 52, and 49, which diviſions include all the uſual numbers introduced in the wheels of clock-work; and ſuch as are not found here may be obtained by the help of the micrometer, when wanted for planetary motions, or other extraordinay purpoſes.

Cutting Engine by Rehe.

Plate IV. *of Engines* exhibits a general perſpective view of the engine for cutting the teeth of wheels, as originally made by Rehe for his own uſe, and which, we have ſaid before, is now the property of Mr. Troughton of Fleet-ſtreet. It is drawn to one-fourth of the real ſize. AABCDE is one ſolid maſs of caſt-iron, formed into a frame in the mould, of which A A is the upper horizontal part, B and C the ends of the ſaid frame, and D E its baſe, fixed with four ſtrong ſcrews (the heads of which are viſible) to a wooden frame, to which the large wheel is appended, that gives motion to the revolving cutter and ſome intermediate pullies placed over the head to give a due direction to the moving cord: this large wheel and theſe pullies are purpoſely omitted in the drawing to give room for the engine itſelf to be taken on a good ſcale. F and G are a pair of cheeks forming a part of H I, which is another piece of caſt-iron of the ſhape of a parallelogram, having an oblong aperture through the greateſt part of its length, along the middle. K L is the platform, or large plate, of the engine, in which are drilled the dividing holes of a variety of circles; its diameter is nineteen inches; the arbor of this plate is a ſtrong braſs tube, M N, reſting in a hole on the baſe, D E, of the large frame, and having a ſcrew formed on its circumference at N, with a correſponding tapped nut, that has got a handle to turn it by; it has alſo a ſlit cut through it to admit a wedge under the nut, as may be ſeen without further deſcription; the upper part of the arbor is ſupported by a hole in the top part of the frame A A, and paſſes freely through the oblong aperture of H I. The tubed arbor, M N, of the large plate will receive a variety of arbors ſucceſſively, each of which has a ſlit to receive the wedge already named, near N, while the nut N, turned firmly down on the wedge, ſets the interior arbor, that carries the wheel to be cut, faſt at the ſhoulder O, on below its ſuperior end. The interior arbor is, however, compoſed of two pieces, of which the upper part bears the wheel and is ſcrewed faſt into the lower part between M and O. There is a great variety of the upper parts of the interior arbor to ſuit different central holes of different wheels, as well as different ſhoulders, or reſting places, for the wheels to lie upon in a ſteady manner, all which would take ſeveral plates to repreſent, but may be eaſily conceived to be only different ſizes and ſhapes of the ſame thing; it may, notwithſtanding, be right juſt to remark, reſpecting theſe bearing pieces of the arbor, that the centering of the wheel does not depend on the ſcrew part that enters the concealed arbor, but on a circular bed, M, made at the top of the lower half of the arbor, which a correſponding circular piece of metal of the upper half, under the bearing ſhoulder that holds the wheel, near O, exactly fits, by which means the wheel is certain to be placed in the centre of the large plate, which is an eſſential condition. The wheel, which is ſeen with a few notches cut, is faſtened by a collet preſſed down on its plane, by a tapped nut ſcrewed from above the arbor. P Q is a braſs frame, embracing the ſolid cheeks G and F, and bearing the cutter and its arbor R, that has got a pulley on its poſterior end, round which the cord of the firſt mover goes, and to which it gives the motion at firſt produced by the foot; when the cutter is taken out to be changed, the end piece S, and a circular piece concealed at the oppoſite pivot of the cutter arbor, are ſet at liberty, by the tightening ſcrews, T and T, being turned back *pro tempore;* a plan and ſide view of one of the cutters, of which there is a great variety of ſizes and ſhapes, may be ſeen in *fig.* 2, of *Plate* VI., and the arbor diſmounted and ſeparated into its parts in *fig.* 5, of *Plate* V., of one half its real ſize, both which may be underſtood by inſpection of the figures, in the latter of which *a* is the pulley on the end of the arbor, *b* the part where the cutter is fixed by preſſure of the tubed part *e*, urged by the nut *f*, when ſcrewed home. When the hand U, in *Plate* IV., is turned, which has a pinion on its arbor taking into a ſtraight rack, fixed to the part embracing the cheek C, out of ſight, the whole braſs frame has a motion, up or down, as the handle may direct, which is always given it in the operation of cutting each notch. This motion of the whole cutter frame is made eaſy and ſmooth by eight ſectoral pieces of hard poliſhed ſteel acting as friction wheels againſt parallel bars, attached to the cheeks, both within and without the ſaid cheeks; of theſe ſectoral pieces 1, 2, 3, and 4 are ſeen, but the others, placed in their oppoſite and correſponding places, are concealed from the view, by the intervening parts of the mechaniſm. Behind Q, on the poſterior part of the cutter frame, is a box containing a ſpring, with a chain fixed at its lower end to a piece of metal, not ſeen, between the cheeks and behind the cutter frame, which ſpring balances the weight of the frame in any poſition, and renders the working pleaſant. Near the character 3 is a perpendicular ſcrew ſeen, the lower end of which bears againſt a ſolid piece fixed between the cheeks, when the frame is lowered ſo much that the cutter is free from the wheel it is cutting; which ſcrew is alſo the part of adjuſtment for the exact depth of a ſpace in a contrate wheel, while the barrel and chain limit the aſcent. The whole of this cutter frame is attached to the horizontal parallelogram HI, and is moved to or from the wheel to be cut, by a horizontal ſcrew on the arbor of handle V, which enters a tapped part of the metal under the cutter frame, and when the due diſtance for making the teeth of a proper depth is aſcertained, the whole of the moveable part of the engine is fixed faſt in its given poſition, by the clamping piece W, and croſſed nut, that takes the ſcrew on the upper end of a bolt, paſſing up from below the top, A A, of the large fixed frame; the clamping piece, W, has a dove-tailed projection under it, that enters and fills the breadth of the oblong aperture of H I, and keeps the piece at right angles thereto. X is the fixing index, or index-bar with a fixing point, that holds the large plate in a given poſition: this index-bar ſlides into an octagonal ſocket Y, to which it is firmly fixed, when neceſſary, by the thumb-ſcrew ſeen under it; and near Y is a micrometer head divided into 30 diviſions, for which a pin behind it forms an index; by means of this micrometer ſcrew the fixing index can be made to protrude, or retire, any given ſmall quantity, and when its fixing point reſts in one of the drilled holes of the large plate, it conſequently takes the plate along with it, and alſo the wheel fixed at the top of the plate's ſolid arbor. The ſocket Y has another octagonal hole at right angles to the former one, which enables it to ſlide along the octagonal axis Z, ſo that the fixing point of X may approach to or recede from the centre of the plate, and be made to fall into any given divided circle; the numbers of each circle are laid down on the ſmall oblong plate *a*, for which a line on the moving ſocket, Y, forms an index. This part of the apparatus belonging to the plate would have been ſufficient, if the operator were to take the trouble of counting the holes of diviſion on the plate as he turns it in the act of cutting; but in thoſe caſes where every ſecond, third, or fourth, &c. hole only is taken by the fixing point, in order to cut a wheel into one half, one third, one fourth, &c. part of the number laid down in any circle, ſuch counting is very troubleſome; therefore a curious addition of a moving index *b*, *c* is introduced to be a ſubſtitute for the counting. This index turns on the arbor of the large plate, and has a ſliding point and thumb-ſcrew *c*, to fix it in any given hole of the circle choſen for the fixing point of X to reſt in: *d e* is a ſliding ſtop, paſſing through a cock fixed to the part, A A, of the principal frame, and is held in any given ſituation by the thumb-ſcrew over it; and *f g* is another ſtop attached to a ſecond cock, fixed in like manner to A A; which ſecond ſtop can be placed in various poſitions, by means of its own ſlit and two thumb-ſcrews, and alſo of the two ſlits in the cock at right angles to the length of the ſtop. The uſe of the moving index is this; when the fixing point of X is faſt in its proper hole of any given circle, the moving index is brought ſo near to it, that its point will fall into the next contiguous, or ſecond next hole, in which ſituation the inner ſtop, *d e*, is brought to bear againſt it and fixed, then the moving index, *b c*, is removed back over two, three, four, or as many holes as are to be counted at each act of cutting a notch of the wheel, from the index X, and is put into the hole ſo counted, in which ſituation the outer ſtop, *f g*, is brought to bear againſt it and made faſt; now it is eaſy to conceive, that if one hand were to raiſe the fixing index, X, out of its hole, whilſt the other hand were to bring the moving index together with the large plate into which it is inſerted, until it meets with the inner ſtop *d e*, the point of X would then cover the hole counted, into which it might be permitted to fall at random, and it would find its own proper hole under it; then raiſing the moving index from its hole, and moving it to the outer ſtop, would place it over the hole to be next counted, into which it might alſo fall at random. Thus the operation might be repeated all round any given circle, while the ſtops would act as counters, and the moving index as a handle to move the plate by; but this mode of uſing the indices would occupy both the hands of the operator, and would require a ſecond perſon to turn the handle U, and to attend to the cutter; an appendage therefore to the moving index is added, which connects the moving with the fixing index in ſuch a way, that one hand is competent to manage the whole operation even without the eye being directed to the part, after the ſtops are properly ſet, and the indices adjuſted; thus, at the part *b* of the moving index is a milled head, like a thumb-ſcrew in appearance, placed on the perpendicular ſmall rod *h*, that paſſes through this index freely, and attached to a lever *i*, that is moveable on a pin or centre of motion, at the inferior end of the cock *k*, placed faſt to the moving index; this lever, *i*, paſſes on, beyond its centre of motion, till it meets with a long lever under the plate, lying in the direction of the dotted lines paſſing by K on the plate; this ſecond or long lever is faſt to the octagonal axis of ſocket Y, which, it has been ſaid, is alſo the axis of motion of the fixing index X; it is eaſy then to ſee, that, when lever *i* lies under the lever of the axis Z, puſhing down the milled head, *b*, over the moving index, will raiſe the fixing index out of its hole, on the large plate, and ſet the plate at liberty to move; and alſo when the ſaid milled head, *b*, is quitted, the fixing index will fall again into the hole that may happen to be under it, and will be kept cloſe by the ſcrew *l*, preſſing the long lever down by the intervention of the pin *m*, at its extreme end; all therefore that is neceſſary to be obſerved in moving the plate, after the indices and ſtops are properly adjuſted, is, to preſs with the thumb of the left hand on the nut *b*, before the moving index is carried forwards with the plate, and to let it go before the ſaid index is made to return without the plate, for an attention to this particular raiſes and lowers the fixing index alternately in the way, and at the times required. When however a wheel is required to be cut into a number of teeth, not to be obtained from one of the divided circles alone, another operation becomes neceſſary, to take or give a tooth or teeth to complete the number deſired; this is done by the micrometer head of the ſocket, Y, of the fixing index, which will puſh the index out, or draw it in, any ſmall aſſignable quantity, and will conſequently puſh on or draw back the whole plate a correſponding quantity, provided the micrometer be turned when the fixing point of X is in its hole of the divided circle that is uſed; when this operation is neceſſary at the cutting of every tooth, the moving index does not fall into a hole, but gradually advances to, or recedes from, its original ſituation, till it arrives at the next contiguous hole, when one tooth only is to be added or ſubtracted: but when more than one are required to complete the required number of teeth, the point of the moving index will gradually paſs over as many divided ſpaces of the plate, from its original ſituation, as there are teeth required to be added or ſubtracted; ſo that, if four teeth are to be gained or loſt by means of the micrometer, the moving point will traverſe one divided ſpace of the plate during the cutting of each quarter of the wheel, and in the ſame proportion for any other number to be taken or given; whence, at any period, during the act of cutting a wheel into a number not inſerted on the plate, it may be ſeen by inſpection of the moving point, at what rate the gain or loſs is proceeding upon, which indication forms a good check upon the original calculation by which the micrometer is guided. This advantage, ariſing from the point of the moving index having a progreſs or regreſs over the ſupplementary diviſions, is the more deſirable in this engine; becauſe, the fixing index which ought to be always a tangent to the divided circle uſed, and to have its point at a right angle to the central arbor of the plate, does not preſerve the latter condition rigidly, when puſhed out or drawn in; which deviation renders the reading of the micrometer in practice, leſs accurate than the theory ſuppoſes; an objection from which the more complex mechaniſm of Hindley's engine is free. When a wheel of 142 teeth was cut on our preſent engine, in our preſence, from a divided circle of 140, nineteen turns of the micrometer were found equal to a motion of two divided ſpaces, as compared with the moving point, when left ſtationary againſt the outer ſtop: therefore, as there are 30 diviſions on the micrometer head at Y; 19 × 30, or 570, were the whole diviſions to be divided by the number 142, and gave a quotient of 4, with a remainder of $\frac{2}{142}$; conſequently, after every moving of the plate for a new cutting, four diviſions of the micrometer head were turned in a backward direction, to leſſen the ſize of the teeth, and to increaſe their number in the proportion 142 : 140; but at two oppoſite points of the wheel, the remaining two were interpolated, by giving five diviſions inſtead of four at each place; the additional diviſion on the micrometer, however, made at each of the ſaid two places, made no ſenſible difference in the ſize of thoſe teeth, nor would it have been of any importance, if the remainder, which was ſo ſmall, had been neglected altogether. A ſimilar proceſs, as explained more fully in our account of Hindley's engine, muſt be adopted agreeably to a ſimilar calculation, for any other number of teeth to be taken in or left out by the aid of the micrometer. The original circles of the large plate were divided by Troughton's dividing-engine into the following numbers, *viz.* 720, 580, 504, 396, 365, 364, 300, 276, 228, 192, 186, 170, 162, 156, 140, 128, and 118; to which have been ſince added, at different times, the numbers 274, 260, 206, 148, 136, 130, 111, 103, 101, 87, 83, 74, 65, 47, 43, 41, and 37, ſo that, by this engine, all numbers under 100 can be cut without the help of the micrometer, except 97, 95, 89, 88, 79, 77, 61, 53, and 49.

When our preſent engine is uſed to cut pinions on their arbors, a ſteel perpendicular bar deſcends from a beam in the room directly over the centre of the plate, and holds the upper end of the arbor ſteady, while the lower end is made faſt to the revolving arbor. There are alſo many other uſeful appendages to the engine, ſome of which merit a particular deſcription and correſponding drawings, which we have obtained.

Fig. 1, of *Plate* V. is a detached cutter frame of one-fourth of the real ſize, to be uſed occaſionally when a wheel is wanted to act with a worm-ſcrew, in which caſe the teeth are required to be a little inclined from the axis to the right or left, accordingly as the ſcrew is a right or left-handed ſcrew. When this cutter frame is uſed, it is attached to the cheeks G, F, in *Plate* IV., without diſturbing the frame already attached. A B is a ſtrong braſs plate with two forked pieces, C, D, projecting back from its poſterior plane near the top; theſe forks enter over the ſliding frame S Q, in *Plate* IV., and embrace the two tapped ſtuds *n* and *p* not ſeen, within the cheek, by which they are held faſt when preſſed by the tapped nuts of the ſaid ſtuds; at A, the bottom of the plate A B, in *fig.* 1, of *Plate* V., is a ſcrew which enters the ſmall tapped hole, near I, on the ſliding piece H I, in *Plate* IV., and a correſponding ſcrew at the other ſide, out of ſight, holds the fourth or concealed corner of the ſaid plate A B, ſo that this plate, when thus attached, may be conſidered as a part of H I, in *Plate* IV., behind which additional plate the common cutter frame is concealed, and remains uſeleſs for the time. E F is a ſecond plate of braſs of nearly a ſemicircular ſhape and graduated on its periphery; this ſecond plate is attached to the former one, A B, by two tapped bolts paſſing through the long opening G, and made faſt with nuts at E and F, by which means this ſecond plate can be placed at any given height on A B, and a motion, which it has round E, as a centre, allows of its being placed to any angle of obliquity marked on its periphery; the circular ſlit at E, allowing the upper or fixing bolt to paſs along it to any required poſition, before it is fixed by the nut: the cutter frame, H I K L, moves on pivots in the feet of E F, near A and K, which pivots are turned out of an horizontal line to the right or left, by the obliquity given to the plate E F, and conſequently the cutter arbor, L I, has alſo an obliquity, which makes the cutter at the middle of it cut the notches in an oblique direction; this cutter, however, having but one centre of motion, or rather one pair of centres, cuts the bottom of the notches of a wheel in a circular direction. The arbor of the cutter has a pulley which gives it motion, and the two pulleys, *a* and *b*, over it have no other uſe, but to direct the cord to the larger diſtant pullies, not ſhewn in the drawing. When the plate, E F, is adjuſted to zero, or horizontal line, it may be uſed for cutting ordinary wheels, but is liable to be diſplaced by accident or jerks in cutting; therefore is uſed only for wheels with oblique teeth. The French engine recommended by Berthoud, as made by Hugot has, notwithſtanding, no other cutter frame but that which is adjuſtable for obliquity. The vertical ſcrew, *d*, is a reſt for limiting the depth of the ſpaces of contrate wheels in cutting, and alſo for ſtopping the deſcent of the frame further than is neceſſary in cutting other wheels: the opening B of the plate A B ſeems to have no other uſe, except for the eye to look through at the cutter, when the workman ſtands behind the cheeks to turn the firſt moving wheel of the cord, which wheel, we remarked, is not very conveniently placed to conſult the eaſy poſition of the body, during the act of cutting. This frame being attached to the ſliding part H I, of *Plate* IV., is of courſe capable of the adjuſtment for diſtance from the arbor of the plate, on which the wheel is placed, that requires to be cut.

Fig. 2, of *Plate* V. is a repreſentation of the apparatus for cutting the interior edge of an annular wheel, ſuch as is uſed in a theodolite, and ſolar microſcope, &c. of $\frac{1}{4}$ of the actual ſize. A B is the ring or annular wheel to be cut, which is fixed to the top of the arbor by means of the wooden chuck, on which it was turned in the lathe, and *a b c d* is a ſhort frame for the cutter *e*, and cutter-arbor, ſeen detached in two pieces in *fig.* 3 of $\frac{1}{2}$ the real ſize. This ſmall frame is attached to the face of the cutter frame in *Plate* IV.; its arbor, *a b*, enters the hole of the arbor at S, and an oppoſite hole not ſeen in *Plate* IV., after the arbor, R, has been previouſly removed, and is made faſt by the two ſcrews *x* and *x*, entering the holes *c* and *d*, of *fig.* 2. *Plate* V.; the interior teeth are then formed by the ſmall cutter, by a proceſs ſimilar to that of cutting the exterior teeth of a wheel in the ordinary way.

Fig. 4, of *Plate* V. is a contrivance of $\frac{1}{4}$ of the real ſize, for cutting a rack into any number of teeth per inch, by the aid of the engine plate and common cutters, thus; A and B are two ſtrong cocks ſcrewed faſt to the oppoſite ſides of H I, already deſcribed in *Plate* IV.; C is a piece of metal forming a bed for the oblong bar, D E, to reſt on; this bar, which is a rack already cut, is placed with its teeth in action with a wheel of 74 teeth nicely rounded, that is attached to the arbor of the plate in the uſual way; under the bar D E, and faſt to it, is a rib parallel to its ſides, moving eaſy in a correſponding long groove made in the bed, C, to receive it, the motion of which is made ſmooth by friction wheels interpoſed and borne by the bed; the bar, D E, has a great number of holes drilled and tapped in it, that the moveable corks or clamping pieces, F, F, and F, may fix any bar, G, to be cut into the requiſite rack; when the mechaniſm is thus arranged and properly fixed, the motion of the wheel, cauſed by moving the ſubjacent plate, a given number of holes of any circle fixed on, will carry the racked bar D E, and bar G along with it, over the bed a certain diſtance, between the cutting of each ſpace of bar G, and this diſtance may be made $\frac{1}{10}$th, $\frac{1}{15}$th, or $\frac{1}{20}$th of an inch, according to the number of divided holes on the plate, paſſed over by the moving index, between each operation of cutting.

Theſe three appendages render the engine competent to cut teeth in all ways, and on all wheels and bars that are in uſe in mechanical contrivances; but the teeth thus formed with ordinary cutters, are in the ſhape of parallelograms, and require to be rounded by hand with a file or files of different coarſeneſs and ſhape; the contriver, in common with other workmen, had experienced the inconvenience attending the finiſhing, both as it was a laborious operation, and liable to produce irregularities in the ſhape of the tooth, on which the equable tranſmiſſion of power and velocity entirely depend, in clocks, watches, and other delicate machines; he therefore conſtructed his cutters in ſuch a way, that they rounded the teeth at the ſame time that they cut the ſpaces; this invention is very important to the ſucceſsful application of racks and wheel-work in many caſes, where a good ſhape of the tooth is indiſpenſable, and has been claimed by both Rehe and the late ingenious Merlin; but which of the two, if either, was the real inventor, remains to be decided.

Plate VI. *of Engines*, contains the drawings of ſome cutters to anſwer the purpoſe of rounding the teeth during the act of cutting, and alſo the apparatus for forming the cutting edges and for ſharpening them when blunt, which apparatus is indiſpenſably neceſſary to accompany the engine when *finiſhing cutters*, as we ſhall henceforth call them, are adopted in practice.

A A, in *fig.* 1, is the front ſide of a wooden bench, to which a foot wheel, as a firſt mover, is fixed out of the drawing, and B B is a ſmall frame attached to its inferior plane; C C C is a ſpecies of ſmall lathe, with a three-grooved pulley revolving on a ſolid arbor, together with the arbor itſelf; this lathe is attached to the braſs plate D D, and by means of it ſcrewed faſt to the wooden bench A A; at the exterior end of the arbor that bears the pulley, is fixed a circular copper plate, E, with its plane at right angles to the ſaid arbor, which plate conſequently revolves with the pulley, when the foot wheel gives motion to the cord that embraces it: juſt above the braſs plate, D D, of the ſmall lathe, lies parallel thereto another ſtronger but ſmaller plate, F F, attached to and borne by a ſide plate, G G G G, that fits the frame under the bench, and ſlides up or down to nearly the height required in uſe, in which it is fixed by the thumb ſcrew at H, under the bench; at the ends of the plate F F, which we will call the bed of the cutter frame, or frame for holding the cutter while grinding, are two croſs bearing pieces near F and F reſpectively, on each of which are cut three ſemicircular notches, ſome of which are ſeen at *a*, *a*, and *a*; I I is the horizontal plate of a cutter frame reſting on the horizontal tapped wire, K, that has got a milled nut ſcrewing upon the tapped part beyond the bed F F, and has its oppoſite bearing end concealed under the other parts; this plate, I I, may be fixed to any part of the bearing wire, K, by the thumb ſcrew *b*, and will have a little circular motion round the wire, to the right or left, when not held in the hand, or nicely balanced; above this plate, I I, lies a ſtill ſmaller plate, L, that bears the cock M, and another ſimilar one concealed, but oppoſite to it; which ſmall plate, L, is moveable round a centre of motion under it, on the next ſubjacent plate I I, but can be fixed in any given poſition by the thumb ſcrew at L, agreeably to the graduations marked near its extreme end, beyond the circular groove penetrated by the thumb-ſcrew, for which graduations a line on the ſmall cock, *d*, conſtitutes an index: into the cock M, and the one concealed, paſſes an arbor not ſeen, that may be called *e*, which is capable of being fixed by preſſing ſcrews at the exterior ſides of the ſaid cocks; acroſs this arbor, *e*, at right angles, is a long hole, or tube, into which the cutter arbor is inſerted, and fixed by a preſſing ſcrew N; ſo that the plane of the cutter may be made either horizontally parallel to the copper circle E, or to ſtand in an inclined direction; accordingly as the arbor, *e*, is turned more or leſs round before it is fixed by its preſſing ſcrews at M, and at the oppoſite pivot; while the thumb ſcrew at L, by the help of the graduations near it, fixes the planes of the cutter and circular plate, E, vertically parallel, or at any given angle of reclination to each other, as the ſhape of the acting faces of the tooth may require; the nut at D limits the proximity of the cutter to the circle E. In the preſent poſition of the cutter, its plane is ſmoothed by emery ſmeared over the copper circle, as the arbor revolves, and while the plate, I I, has a circular motion given it backwards and forwards by hand, round the bearing wire K, which alternate motion carries the cutter acroſs the plane of the grinding circle E, and aſſiſts the grinding; upon the arbor *e*, not ſeen, is a ſecond divided ſcale of a circular ſhape, like a micrometer head, by means of which the ſituation of this arbor, and conſequently of the cutter's plane, is adjuſted before the preſſing ſcrews are made quite faſt; and a ſmall gauge, near *f*, like a ſmall leg and foot, moveable at its knee, on the cock, preſents its heel to a tooth of the cutter, and limits its poſition in ſuch a way, that each ſucceeding tooth to be ſharpened may be fixed, by the preſſing ſcrews, in preciſely the ſame ſituation while they are reſpectively ſharpened. By the help of theſe various adjuſtments of the plane of a cutter, ſuch, for inſtance, as is ſeen in two views in *fig.* 2, the preceding or cutting part of each tooth is made thicker than the following part, and alſo the part at the periphery thicker than the part nearer to the centre, which ſhape makes the cutter clear itſelf in the ſpace it cuts as it advances, a condition that experience has proved to be neceſſary in forming or ſharpening a cutter When one plane of each tooth of a cutter has been gone round, the planes are reverſed, and the cutter fixed as before by the help of the ſcales, gauge, and ſcrews, and then the former proceſs of grinding the teeth ſingly in ſucceſſion is repeated.

When the plate I I, with its appendage, which together we have called the cutter frame, is lifted out of the ſemicircular notches or bearings on the ends of the bed F F, and is laid aſide; another nearly ſimilar frame, ſeen in *fig.* 3, is put into its place, with the parallel wires, *a*, *a*, and *a*, reſting in the ſaid ſemicircular notches, as in *fig.* 1, are denoted by the ſame characters; in this ſituation the nut, D, in *fig.* 3, falls in the place of nut D in *fig.* 1, and anſwers the ſame purpoſe of adjuſtment for proximity of the cutter to the grinding circle E; the ſmall upper plate, L, is alſo nearly the ſame as in *fig.* 1, both as to its poſitions and uſes, where alſo the index line of the ſmall cock, *d*, points out the degree of obliquity on the graduated ſectoral part; but here the frame is not a ſingle plate I I, reſting on the bed as in *fig.* 1, but has a motion round the pivots *h* and *h*, placed on another plate that bears the wires *a*, *a*, and *a*, ſo that the two plates may be made to open, and form a blunt wedge, by turning the ſcrew *k*, which bears on the lower plate with its point, and is tapped into the upper plate, after which adjuſtment for height, which cannot be made nicely by ſliding G G G G only, the poſition is rendered permanent by the fixing nut, *l*, that takes a tapped ſtud fixed to the lower plate. In this figure, the arbor that holds the cutter is in the ſituation of the arbor *e*, *fig.* 1, which we ſaid cannot be ſeen; and the ends of the teeth are preſented to the grinding face of E, which poſition of the cutter could not be attained by the mechaniſm of *fig.* 1. On the cocks that bear the pivots of the cutter arbor, are fixed two ſmall cannons, on which the bent arms, *m* and *m*, revolve, and are fixed by the preſſing ſcrews *n* and *n*; the play of the arbor is limited by the two thumb-ſcrews *o* and *o*, fixing the ſtops in their reſpective places; and a wire, *k*, connected with the arms *m* and *m*, forms the centre of motion of the leg or gauge, which is here better ſeen than in *fig.* 1, and performs a ſimilar office. It is hardly neceſſary to add, that after each tooth is pointed in this way, the fixing ſcrews *m* and *m*, and alſo the gauge *f*, are releaſed for the moment, and brought back again to their original ſituation at the adjuſtment of every ſucceſſive tooth to the grinder.

For ſharpening the front edge of a tooth, the cutter muſt be reverſed, the bed lowered, and the nut, D, turned back, till the poſition, repreſented in *fig.* 4, be obtained; in which the teeth are ſuceſſively ground as before directed.

The mechaniſm above deſcribed is all that would be neceſſary, if the tooth of the cutter were made by ſtraight lines to cut teeth of a ſhape like a parallelogram, but to round them at the ſame time required another addition, which remains to be deſcribed.

In *fig.* 5, are ſeen two different views of a cutter, ſuch as will round the teeth and cut them at the ſame operation, by means of the ſides of the cutter's teeth being formed into curves; theſe curves ought to be epicycloids, or involutes of a circle to conſtitute a tooth of any wheel of the exact ſhape requiſite for the equable tranſmiſſion of power and velocity, and theſe curves ſhould vary in ſhape with the ſize of the wheel compared with its pinion or fellow-wheel; but ſuch niceties cannot be obtained in practice without almoſt infinite trouble; therefore the ſame cutter, once ſhaped and ſharpened, is uſed for wheels of different diameters, where its thickneſs is found proper. *Fig.* 6, ſhews how the ſide curves of the cutter's teeth are formed, where a cylinder of copper is ſubſtituted in the ſmall lathe C C C, *fig.* 1, for the arbor and circular plate E; *fig.* 3, is then applied to the bed F F, and the ſide of the tooth is adjuſted to touch the ſide of the cylinder as it revolves; this mode of application would make the curve circular if the cutter-arbor were to ſtand at right angles with the grinding cylinder; but as any degree of obliquity can be given, by undoing the thumb-ſcrew *b*, and moving L, the poſition ought to be ſuch as to make the tooth reſt obliquely againſt the cylinder, more or leſs, as the ſhape may require, in which caſe an elliptic curve, inſtead of a circular one, is formed on the edge of the cutter, by reaſon of the oblique ſection of a cylinder forming an ellipſe, which curve approximates nearly to the ſhape required in a given degree of obliquity, and may always be uſed when once determined. When the curves on one ſide of each tooth of the cutter are thus formed, which are aſſiſted by a motion lengthwiſe of the frame in the bed, while the wires *a*, *a*, and *a*, ſlide in their bearing notches, the planes of the cutter are reverſed and the oppoſite correſponding curves are formed in a ſimilar manner. Cutters of this kind not only facilitate the labour of making wheels, but render them more perfect than manual filing can poſſibly do; and it is to be regretted that clockmakers in general will not go to the additional expence of having them thus formed. Thus, each of the two engines we have deſcribed, have appropriate advantages; and we think it would not be difficult to conſtruct one that would unite the advantages of both, and be preferable to either.

CUTTING-*off*, in *Military Language*. See RETRENCHMENT.

CUTTING, in *Inland Navigation*, ſignifies the ſame with digging or excavating; and thus they ſay, ſuch a part of the canal is in level-cutting, or in deep-cutting, according as the ſurface of the water is nearly level with, or conſiderably ſunk below, the natural ſurface of the ground. Several of the moſt remarkable inſtances of deep-cutting upon the Britiſh canals, are mentioned in our article CANAL. See *Plate* I. *Canals*, *fig.* 6.

CUTTING, in *Painting*, the laying of one ſtrong lively colour over another, without any ſhade or ſoftening. The cutting of colours has always a diſagreeable effect.

CUTTING *in wood*, a particular kind of ſculpture, or engraving; denominated from the matter wherein it is employed.

It is uſed for various purpoſes; as, for figured letters, head and tail-pieces of books; and even for ſchemes, and other figures, to ſave the expences of engraving on copper: and for prints, and ſtamps for paper, calicoes, linens, &c.

The invention of cutting in wood, as well as that in copper, is aſcribed to a goldſmith in Florence; but it is to Albert Durer, and Lucas, they are both indebted for their perfection. See ENGRAVING and PRINTING.

One Hugo de Carpi invented a manner of cutting in wood, by means whereof, the prints appeared as if painted in claire-obſcure. In order to this, he made three kinds of ſtamps for the ſame deſign; which were drawn, after one another, through the preſs for the ſame print: they were ſo conducted, as that one ſerved for the grand lights, a ſecond for the demi-teints, and a third for the outlines and the deep ſhadows.

The art of cutting in wood was certainly carried to a very great pitch above two hundred years ago; and might even vie, for beauty and juſtneſs, with that of engraving in copper. It was reduced however to a low condition, as having been long neglected, and the application of artiſts was wholly employed on copper, as the more eaſy and promiſing province: not but that wooden cuts have the advantage of thoſe in copper on many accounts; chiefly for figures and devices in books; as being printed at the ſame time, and in the ſame preſs, as the letters: whereas, for the other, there is required a particular impreſſion. In the repreſentation of plants and flowers, and in deſigns for paper-hangings, where the outline only is wanted to be printed, in a bold full manner, this method will be found cheaper and more effectual than the uſe of copper-plates. It has been lately revived by the Bewicks of Newcaſtle; and ſeveral other perſons have applied the art with great ſucceſs; ſo that ſome of their vignettes have a brilliancy and force, which almoſt rival the firſt and fineſt productions on copper.

The cutters in wood begin with preparing a plank or block, of the ſize and thickneſs required, and very even and ſmooth on the ſide to be cut: for this, they uſually take beech, pear-tree, or box; though the latter is the beſt, as being the cloſeſt, and leaſt liable to be worm-eaten. The wood being cut into a proper form and ſize, ſhould be planed as even and truly as poſſible; it is then fit to receive the drawing or chalking of the deſign to be engraved. But the effect may be made more apparent, and the ink, if any be uſed in drawing, be prevented from running, by ſpreading thinly on the ſurface of the wood, white lead, tempered with water, by grinding with a bruſh pencil, and afterwards rubbing it well with a fine linen rag, whilſt it is wet; and when it is dry, bruſhing off any looſe or powdery part with a ſoft pencil.

On this block they draw their deſign with a pen, or pencil, juſt as they would have it printed. Thoſe who cannot draw their own deſign, as there are many who cannot, make uſe of a deſign furniſhed them by another; faſtening it upon the block with paſte made of flour and water, with a little vinegar, or gum tragacanth; the ſtrokes or lines turned towards the wood.

When the paper is dry, they waſh it gently over with a ſponge dipped in water: which done, they take off the paper by little and little, ſtill rubbing it a little firſt, with the tip of the finger; till at length there be nothing left on the block, but the ſtrokes of ink that form the deſign, which mark out ſo much of the block as is to be ſpared, or left ſtanding. Figures are ſometimes cut out of prints, by taking away all the white part or blank paper, and cemented with gum-water to the ſurface of the wood.

The reſt they cut off, and take away very curiouſly with the points of very ſharp knives, or little chiſſels, or gravers, according to the bigneſs or delicacy of the work; for they need no other inſtruments.

It differs from engraving in copper, becauſe in the former, the impreſſion comes from the prominent parts, or ſtrokes left uncut; whereas in the latter, it comes from the channels cut in the metal.

The manner of printing with wooden prints is much more expeditious and eaſy than that of copper-plate: becauſe they require only to be dipped in the printing-ink, and impreſſed on the object in the ſame manner, and with the ſame apparatus as the letter printing is managed; and for purpoſes that do not require great correctneſs, the impreſſion is made by the hand only, a proper handle being fixed to the middle of the print, by which it is firſt dipped in the ink, ſpread by means of a bruſh, on a block of proportionable ſize covered with leather; and then lifted up inſtantly, and dropped with ſome little force on the paper, which is to receive the impreſſion. Handmaid to the Arts, vol. ii. p. 222.

CUTTING, in *Gardening*, a ſmall portion of a branch, twig, ſhoot, or other part of a plant, cut off for the purpoſe of planting, with a view of increaſing the kind of tree, ſhrub, or plant from which it is taken.

There are numerous trees, ſhrubs, and plants which are capable of being propagated with facility in this way; but in ſome, the young tender ſhoots or branches of one or two years growth can only be employed with ſucceſs; while in others, the large boughs, or even poles, may be made uſe of with the greateſt certainty of their growing. This is the caſe with moſt of the aquatic kind of plants; as the willows, poplars, &c. And there are ſtill others in which the leaves can be had recourſe to, as the agave and aloe kinds.

For the moſt part in the herbaceous and ſucculent plants, cuttings of one or two years growth are commonly uſed;

but in thoſe of the tree ſort, thoſe of one year; and in thoſe of the hard wooded kind, thoſe of the ſame years' growth.

The moſt proper lengths for making the cuttings are different in different ſorts, according to the nature and habits of growth of the plants; but in common, from three or four inches to a foot, or a foot and a half; the ſtrongeſt requiring in general the moſt length to be left to them.

In the buſineſs of the choice of ſhoots, branches, or other parts for this uſe, thoſe of the firmeſt and moſt even growth, and the freeſt from lateral ſhoots, ſhould be fixed upon. In moſt ſtrong-ſhooting trees and ſhrubs, and all the more ſucculent plants, the cuttings ſhould be taken from the lateral or terminal ſhoots. The cuttings in the herbaceous are uſually made from the ſtems that ſupport the flowers, which ſhould be cut off from the bottoms, and afterwards divided into ſuitable lengths for the purpoſe.

In ſome particular ſorts, as thoſe of the tree and ſhrub kinds, it is found advantageous in ſome caſes to take them off with an inch or more of the former year's wood, as in the vine, laurel, and ſome others of a ſimilar nature.

In the mode of preparation of cuttings for planting, the only thing neceſſary is that of trimming of ſuch ſide-ſhoots as may be preſent, and occaſionally the crooked ſtraggling tops in the deciduous kinds; but this ſhould not be done in the evergreen or herbaceous ſucculent ſorts. Where the ſhoots are of conſiderable length, the lower parts ſhould principally be employed for the purpoſe of cuttings.

The proper ſeaſons for planting out cuttings are, according to their kinds, either the ſpring, ſummer, or autumn. The firſt and the laſt are in general the beſt for moſt ſorts of trees and ſhrubs. Thoſe of the herbaceous and flowering kind moſtly ſucceed beſt when planted in the ſpring and ſummer months; but thoſe of the luxuriant and more ſucculent ſort anſwer beſt when put into the earth in the ſummer ſeaſon.

In the buſineſs of planting the cuttings of different ſorts of plants, ſuch as thoſe of the tree, ſhrub, and other kinds that are not ſucculent, they ſhould be put nearly two-thirds of their lengths into the ground; but thoſe of the ſucculent ſort ſhould only be put lightly into the ſoil, ſo as juſt to ſupport them in their proper poſition, as when put in too deep they are apt to rot, and do not take root ſo readily. The cuttings of moſt of the tree, ſhrub, and plant kinds ſhould be put into the ſoil as ſoon as poſſible after they are made; but thoſe of the ſucculent tribe are better to remain out of the earth till the cut parts be fully incruſted or healed over, as when put in while the moiſture is oozing out, they are apt to rot and be deſtroyed. In all the ſorts the mould ſhould be well preſſed about them, and in the former kinds be kept properly cool by watering. It is alſo of great uſe to keep them perfectly ſteady in the earth when they are firſt put into it.

In the management of cuttings after being planted out, different methods muſt be purſued according to circumſtances; ſome ſucceed perfectly in the open ground, others in ſheltered ſhady ſituations; ſome require to be placed in pots, for the convenience of occaſional protection in ſevere weather, and others to be plunged in hot-beds in order to promote their ſtriking root, as is fully explained under the culture of each particular ſort of plant.

The length of time which is neceſſary for ſtriking root is alſo different in the different ſorts. In many of the tree, and ſome of the herbaceous, ſhrubby, and ſucculent kinds, it will be perfectly effected in the courſe of one or two months; and in almoſt all the ſorts in the courſe of a twelvemonth. When aſſiſted by artificial heat, it is always effected in a more expeditious manner than where the contrary is the caſe.

In this method of propagation, the varieties of all the different curious ſpecies which are capable of being increaſed in this way, may be equally preſerved and kept diſtinct, as in the practices of budding, grafting, and layering.

In order to raiſe plants of many ſorts in this manner, much attention is not only neceſſary in regard to ſeaſon, but great care required in their management.

CUTTING-*Box*, in *Rural Economy*, is a contrivance of the box kind conſtructed for the purpoſe of cutting different ſorts of materials, as ſtraw, hay, and the haulm or ſtems of various plants, as thoſe of the pea, bean, and other ſimilar kinds by the hand, into a ſmall ſtate, or what is uſually denominated chaff, to be employed as cattle fodder.

It is a ſort of tool which has undergone various alterations and improvements ſince it was firſt invented; but it is only neceſſary to notice thoſe which have more lately been made, for the preſent purpoſe. The firſt of which conſiſts in the addition of what is termed a *preſſer*, to the original long, narrow box, which is open on the upper part. This is formed of a piece of wood of the ſame length with the width of the box, having a number of upright tongues or tines ſomewhat ſimilar to thoſe of the prongs of the hay-fork. Theſe tongues are paſſed through the materials to be cut, and by means of a rope or thong of leather, faſtened thereto, and extending below the box, the preſſer is forced down by the left foot of the perſon employed in cutting, and the bundle, of courſe, kept light. By this means the materials are cut into chaff with great eaſe and facility, the operator raiſing his left foot after every cut, puſhes his ſheaf or bundle forward, with his left hand, then preſſes it dow again with his foot, and makes another cut, continuing to work in this manner, till the whole of the bundle is finiſhed.

Since this, more ſimple contrivances have been introduced for effecting theſe different purpoſes; and lately a *lever-handle* has been added, with ſome other alterations, by which it is ſuppoſed that the materials are cut with greater convenience and facility.

In the midland counties, according to Mr. Marſhall, a "chaff box" is made uſe of, which is ſomewhat peculiar in its conſtruction, uniting in ſome meaſure "the old ſingle-handed machine and the more modern one with a wheel of blades." It has a long upright knife, but feeds itſelf, in conſequence of which the cutter is left with both hands at liberty for the knife. It is ſuggeſted as being however ſomewhat complex, and more ſuited for a perſon who makes "ſtraw-cutting" his employment, than for the ſervant of the farmer. See CHAFF-*Cutter*.

CUTTING-*Knife*, a tool uſed by the patten-makers and borne in their armorial enſign.

CUTTING-*Over*, in *Gardening*, the operation of thinning and ſhortening the branches of different ſorts of fruit trees, as the currant, gooſeberry, &c. It is neceſſary to the proper bearing of ſuch ſhrubby fruit trees, that this ſort of cutting *in* or *over* ſhould be annually performed.

CUTTING-*Teeth*, in *Anatomy*. See CRANIUM.

CUTTLE-*fiſh*, *Sepia*, in *Zoology*, a genus of the *Vermes Molluſca*. (See SEPIA.) The *Sepia officinalis*, or common cuttle-fiſh, when it is in danger of being taken, is ſaid to emit a black liquor like ink, contained in a bag near the cœcum, in conſiderable quantities, whereby the water being obſcured, it finds an opportunity of eſcaping; and from this property it has got the name of the *ink-fiſh*. It is not wholly a ſtranger to our ſeas, as appears from its bone being found on our ſhores. It is occaſionally caught on the ſouthern coaſts of England, but more frequently on thoſe of Italy.

CUTTLE-*fiſh bone, Sepiæ os*, or *teſta*, is a white, ſpongy, teſtaceous ſubſtance, growing on the back of the cuttle-fiſh, and ſeeming almoſt to be calcined by the ſun.

From ſome experiments lately made by the ingenious Mr. Hatchett upon the cuttle-bone of the ſhops, he infers, that the term bone is here miſapplied, if the preſence of phoſphate of lime is to be regarded as the characteriſtic of bone (ſee BONE): for this ſubſtance, in compoſition, is exactly ſimilar to *ſhell* (which ſee), and conſiſts of various membranes, hardened by carbonate of lime, without the ſmalleſt mixture of phoſphate. This ſubſtance is rough and abſterſive, and chiefly uſed in medicine as a dentrifice. It is hard on one ſide, but ſoft on the other, ſo as to receive neat impreſſions from medals, and to ſerve as a mould for the caſting of metals, which thus take the figure of the original. It is likewiſe uſed for poliſhing or cleanſing ſilver. (Lewis's Com. P. T. p. 333, & ſeq.)

M. Chaptal ſays (Elem. Chem. vol. iii.) that the eggs, the ſcales, and the black fluid of the cuttle-fiſh, are ſtill uſed in medicine. The eggs deterge the kidneys, and excite urine and the courſes. The ſcales and bones are applied to nearly the ſame uſes; they are likewiſe uſed as an aſtringent, and enter into the compoſition of dentrifice powders, collyria, &c.; the goldſmiths likewiſe uſe them to make their moulds for caſting ſpoons, forks, toys, &c., becauſe their ſpongy part eaſily receives the impreſſion of metals. The black humour of the cuttle-fiſh may be uſed inſtead of ink. We read in the ſatires of Perſius that the Romans uſed it as an ink; and Cicero calls it "atramentum." It ſeems that the Chineſe uſe it as the baſis of their famous ink. "Sepia piſcis eſt qui habet ſuccum nigerrimum inſtar atramenti, quem Chinenſes cum brodio orizæ, vel alterius leguminis, inſpiſſant et formant, et in univerſum orbem tranſmittant, ſub nomine atramenti Chinenſis," (Pauli Hermani Cynoſura, t. i. p. 17, par. 2.). Pliny was of opinion that the black humour of the cuttle-fiſh was its blood. Rondelet has proved that it is the bile. This liquor is dried in the bladders, then ſeparated from the membrane, and ground with gum-water. It is uſed by the Italian artiſts for tinted drawings, and is in many reſpects preferable to China-ink. Sonnini informs us, (Travels in Greece, &c. p. 416.) that the Greek women uſe the back-bone as a pin-cuſhion; and that, in the iſle of Scio, they calcine it, and reduce it to a fine powder, with which they blacken their eyebrows. The ſolid and almoſt oſſeous part is the bait with which the Greek fiſhermen uſually garniſh their lines, in order to take the eight-armed cuttle-fiſh (*ſepia octopus*).

CUTTOFOE, in *Botany*, a name given by the people of Guinea to a plant which they eſteem greatly for its medicinal virtues. They boil it in water, and give the decoction in all caſes of the colic, in which it proves a cure. It is the *Hedyſarum hamatum* of Linnæus, but was formerly ſuppoſed to be a ſpecies of ononis or anonis; and is well figured and deſcribed by ſir Hans Sloane, under the name of anonis non ſpinoſa minor glabra procumbens flore luteo, the yellow-flowered, ſmall, procumbent, ſmooth anonis, without thorns.

It is found in vaſt abundance on the banks of the Rio Cobre, near the city of St. Jago de la Vega, or Spaniſh Town. Phil. Tranſ. N° 232.

CUTTS, flat-bottomed boats, built low and commodiouſly, uſed in the channel for tranſporting horſes. Stow, Annal. p. 412.

CUTT's-*Iſland*, in *Geography*, a ſmall iſland of America, on the coaſt of York county, in the ſtate of Maine.

CUTTUPDEA, an iſland in the N.E. part of the bay of Bengal, N. lat. 21° 53'. E. long. 92°.

CUVAGNA, a town of Italy, in the territory of Friuli, belonging to the ſtate of Venice; five miles N. of Udina.

CUVES, a ſmall town of France, in the department of La Manche, 12 miles N.E. of Horanches.

CUVETTE. See CUNETTE.

CUVIERA, in *Botany*, Rocl. See ELYMUS *Europæus*.

CUVILLER, FRANÇOIS, in *Biography*, an architect, who was born in 1698 at Soiſſons in France. He was educated at Paris, and afterwards went to Munich, whither he was invited by the then elector, who ſucceeded to the imperial crown by the name of Charles VII. Cuviller was employed by the elector in many public buildings. He continued in the ſervice of the court until his death, which happened in the year 1760; leaving behind him many plans and deſigns, which were afterwards engraved by different artiſts, and publiſhed by his ſon, François Cuviller, who was born at Munich in 1734, and ſucceeded his father as architect to the court. Heinecken.

CUVILLY, in *Geography*, a ſmall town of France, in the department of the Somme, nine miles S.E. of Mont Didier.

CUXHAVEN, a ſmall town of Germany, in the diſtrict of Ritzebuttel, to which it is ſo contiguous that it appears the ſame place, is ſituated on the mouth of the river Elbe, and belonged formerly to the city of Hamburgh, but is at preſent in the poſſeſſion of the French. It has a ſmall but convenient harbour, and affords a ſafe retreat, or a good anchorage in the roads, to veſſels outward-bound detained by contrary winds. After the conqueſt of Holland by the French, regular Engliſh packets uſed to ſail betwixt Harwich or Yarmouth and Cuxhaven, until the latter place fell likewiſe into their hands at the renewal of the war in 1803.

CUYABA, a mining ſtation in the interior of Brazil, ſeated on a river of the ſame name, which joins the river Paraguay beneath the marſh of Xaracs.

CUYCK, a town of Brabant, in a ſmall territory of the ſame name, of which Grave is the capital; four miles E.S.E. of Grave, and twelve W. of Cleves.

CUYLENBURG, in *Biography*, a painter of the 17th century, who is ſaid by ſome to have been a diſciple of Cornelius Poelemburg, whom he appears to have imitated as well in the choice of his ſubjects as in the manner of executing them. He is, however, inferior to his model. A brown tint too generally pervades his pictures, which are upon a larger ſcale than thoſe of Poelemburg, and are deficient in that correctneſs of deſign, and delicacy of finiſh, which characterize the genuine productions of that eſteemed artiſt. Pilkington.

CUYO, in *Geography*, a province of South America, in the viceroyalty of La Plata, or Buenos Ayres, ſituated amidſt the mountains which extend from the great chain towards Cordova, but having many fertile vallies; as it is ſeparated from Chili on the weſt by the Andes, the adminiſtration is annexed to that of Cordova. Its chief town is St. Juan de la Frontera. This province produces in great abundance grapes, figs, pears, apples, and moſt kinds of European fruits, which form the chief articles of its trade. Wines, brandy, and dried fruits, are alſo carried to Buenos Ayres, Cordova, and other parts of the four intendancies.

The mountains of Cuyo and Rioja abound in metals; but the paſſes are difficult, ſo that there is no inducement to work them. In the northern part of the ſame chain are many flocks of vicunas, whoſe wool is ſometimes wrought in the country, but chiefly ſent to Europe, where it is celebrated as the firſt of all in broad cloths, uniting the gloſs of ſilk, with the firmneſs and warmth of woollen, while the native fawn-colour can ſcarcely be exceeded in beauty.

CUYP, in *Biography*. See Kuyp.

CUZCATLAN, in *Geography*, a river of New Spain. See St. Sebastian *River*.

CUZCO. See Cusco.

CUZEAU, a ſmall town of France, in the department of Saône and Loire; 15 miles S.E. of Louhans, and 36 of Châlons.

CUZUMEL, an iſland of America, in the province of Yucatan, and audience of Mexico, ſituated in the bay of Honduras; 15 leagues long and five broad: its principal town is *Santa* Cruz, which ſee. N. lat. 19°. W. long. 87°.

CYALOS, in *Ancient Geography*, a town of Aſia Minor, in Lydia. Steph. Byz.

CYAMEA, in *Natural Hiſtory*, the name by which the ancients call the black flinty eagle-ſtone. Pliny deſcribes its blackiſh colour, and ſays, that when broken, there was found within it another ſtone of the bigneſs of a horſe-bean. This is what rattles in it when ſhaken.

CYAMON, in *Ancient Geography*, a promontory of Crete, according to Ptolemy, thought to be the preſent *Capo Spada*.

CYAMOSORUS, a river of Sicily, in the environs of the town of Centuripa, according to Polybius; ſuppoſed to be the preſent *Traina*.

CYAMUS, in *Botany*, (κυαμος, originally the Greek name of a plant, which appears to be not ſpecifically different from our common cultivated bean, afterwards extended by Theophraſtus and other writers to the plant now before us, on account of a fancied reſemblance in the ſeeds.) Smith Exot. Bot. p. 59. Saliſbury in Annals of Botany, vol. ii. p. 75. (Nelumbo; Gært. 85. Nelumbium; Juſſ. 68. Vent. ii. 216. and iv. 32. Poir. in Encyc. Willd. 1075.) Claſs and order, *polyandria polyandria*; Nat. Ord. *Succulentæ;* Linn. *Hydrocharides;* Juſſ. *Nympheæ;* Saliſb.

Gen. Ch. *Recep.* inverſely conical or top-ſhaped, truncated, honey-combed or hollowed into numerous cells, which are open at the top. *Cal.* Perianth four or five-leaved, inſerted into the receptacle, permanent. *Cor.* Petals generally numerous, inſerted into the receptacle. *Stam.* Filaments very numerous, inſerted into the receptacle, much ſhorter than the corolla, curved. *Piſt.* Germs ſolitary in each cell of the receptacle; ſtyles ſingle, very ſhort; ſtigmas ſimple. *Seeds* ſolitary, attached by a ſhort umbilical cord to the bottom of each cell, and appearing above the top, globular or oblong, reſembling nuts, fleſhy within, terminated by the permanent ſtyle.

Eſſ. Ch. *Calyx* of four or five leaves. *Seeds* half immerſed in a cellular receptacle, each crowned by its own ſtyle.

Sp. 1. C. *Nelumbo*. Smith Exot. Bot. tab. 31. 22. (C. myſticus; Saliſb. Ann. Bot. i. Nelumbo nucifera; Gært. tab. 19. fig. 2. N. javonica; Poir. Enc. Nelumbium ſpecioſum; Willd. 1. Bot. Mag. pl. 903. A.B. Nymphæa nelumbo; Linn. Sp. Pl. 1, α. Mart. Mill. Dict. 6. Hort. Kew. 227. N. fabifera; Pluk. alm. 267. tab. 322, fig. 1. N. indica faba ægyptiaca dicta; Herm. par. 205. tab. 205. Taratti, ſive N. indica major; Rumph. amb. 6. 168. tab. 73). "Leaves peltate, orbicular, undulated; petioles and peduncles prickly." Dr. Smith. "Anthers riſing above the cells, club-ſhaped." Mr. Saliſbury. "Leaves peltate, orbicular, quite entire; peduncles and petioles muricate; corolla polypetalous." Willd. "Leaves lobed, undulated, plaited, nerves underneath umbellate." Poir. β. Nelumbo indica; Poir. Lam. Ill. Pl. 453. Tamara; Rheed. Mal. 11. 59. tab. 30, and Bern. Tamara, 11. 61. tab. 31. "Leaves flat, quite entire, with two oppoſite indentures, each of which has a mucronate projection in the middle." Poir. *Root* perennial, large, tuberous, black without, white within, throwing out numerous long fibres. *Stem* none. *Leaves* radical, ſmooth, rather glaucous, with many concentric radiating ribs; when young, floating on the water; when full grown, riſing three or four feet above it, and becoming two or three feet in diameter, concave, variouſly waved, twiſted or torn by the wind; petioles long, cylindrical, prickly, upright. *Flowers* on ſimple naked peduncles, reſembling the petioles, but rather taller; ſolitary, upright, very handſome and fragrant, eight or ten inches wide when fully expanded, laſting for ſeveral days; calyx-leaves four or five, green, egg-ſhaped, concave; petals numerous, in ſeveral ranks, differing in ſize, ſometimes white, but moſt commonly of a delicate pale roſe-colour, white, marked with many crimſon longitudinal ribs, which drawing nearer together as they approach the point, render that part of a deeper hue; ſtamens numerous, yellow, filiform, knobbed; anthers oblong, lateral, germ protruding through the orifice of the cell; ſtigma oblong, obtuſe, perforated, yellow. *Receptacle* finally coriaceous, ſeparating from the ſtalk, and floating down the water, laden with ripe oval nuts or ſeeds, which vegetating, render it a cornucopia of young ſprouting plants, till at length breaking looſe from their confinement, they take root in the mud. The petioles are divided internally into ſeveral longitudinal tubes, containing a thick, whitiſh, gummy fluid, which condenſes when expoſed to the air, and draws out into long threads, like thoſe which are ſpun by a ſpider. The variety β is conſidered by Poiret as a diſtinct ſpecies; but appears to differ chiefly, if not entirely, in the ſhape of the leaves. A native of the Eaſt Indies, Cochinchina, China, Java, &c.; in many parts of which it is eſteemed a ſacred plant, and makes a conſpicuous figure in their mythology as the ſymbol of fertility. It was known to the Greeks; and is ſaid by Herodotus, Theophraſtus, and others, to be a native of Egypt: but no modern traveller has obſerved it in that country. There can, however, be no doubt of its having actually exiſted there, ſince the terms in which it is deſcribed by thoſe authors, are too clear and deciſive to be miſtaken; and their accounts are confirmed by ancient Egyptian ſculptures and moſaics which are ſtill preſerved, and teſtify that from the earlieſt times, it, as well as the proper lotus, has obtained a religious reverence. It is remarkable that neither Herodotus nor Theophraſtus, the moſt ancient Greek writers, by which it is deſcribed, have attributed to it a ſacred character; but only ſpeak of it as uſed by the Egyptians for food. The former diſtinguiſhes it by no particular name, but gives both to it and the lotus the common denomination of lily, a term which appears to have been applied by the Greeks to various plants with large ſpecious flowers. Having obſerved that a paſte is made of the pith of the lotus, and baked into bread, he adds, there are alſo in the river other lilies, reſembling a roſe and bearing a fruit very like a waſp's neſt, which contains numerous eſculent ſeeds about the ſize of the ſtone of an olive, that are eaten both raw and roaſted. A total want of botanical knowledge has cauſed both our Engliſh tranſlators, Littlebury and Beloe, to miſtake the meaning of the original with reſpect to the ſituation of the fruit. Littlebury places it at the foot of the ſtem: Beloe, by a ſtill greater blunder, ſays, it grows from the bottom of the root, where we believe no proper fruit ever grew. The words of Herodotus are, ὁ καρπος εν αλλη· καλυκι παραφυομενη· εκ της ριζης γινεται; meaning, no doubt, that the *ſtalk* of the flower, as well as of the leaves, ſprings directly from the root, without the intervention of a *ſtem*; though it is expreſſed too conciſely to be eaſily underſtood, by thoſe who are not acquainted with the plant. Theophraſtus deſcribes the plant more fully in the beginning of the tenth chapter of his fourth book, and calls it ſimply κυαμος without any diſcriminating epithet; but he could not have confounded it with the well known κυαμος or bean of his own country, which he mentions in various parts of his work, and particularly deſcribes in his eighth book; and which appears by unequivocal characters to be of the leguminous kind, and not eſſentially different from our common cultivated bean. To prevent confuſion the exotic plant was generally called by ſubſequent authors κυαμος αιγυπτιος, the Egyptian bean, and is expreſsly ſaid by Strabo to be ſo called, becauſe in its fruit it reſembles the Grecian bean, differing only in ſize and taſte; και καρπον ομοιον τω παρ' ημιν κυαμω, μεγεθει μονω και γευσει διαλαττοντα. According to Dioſcorides it was ſometimes called the Pontic bean, and is ſaid to be a native not only of Egypt, but alſo of Aſia Proper and Cilicia. Theophraſtus had ſaid before him that it grew, though it did not attain to its proper perfection, in Syria and Cilicia; and had even added, that it completely ripened its fruit in a lake near Torone in Chalcis. But in all theſe ſituations ſome ſpecies of nymphæa muſt certainly have been taken for it.

Dr. Smith has ſtarted an ingenious, and we believe, perfectly original, conjecture, that the plant before us is the real myſtical bean of Pythagoras, concerning the prohibition of which to his followers ſo much has been written and ſo little determined. He ſuppoſes that this celebrated philoſopher imbibed the notion of its ſacred character during his travels in India, if he actually went thither, or elſe in Egypt at ſecond hand from India, and that afterwards, when he propagated his acquired philoſophy in Samos, Greece, and Italy, he took as a ſubſtitute for it, ſince it did not grow in his own country, a common ſeed reſembling it, which the common horſe bean does very nearly. He conſequently underſtands the famous prohibition in a literal, not in a figurative ſenſe. The total diſappearance of the plant from modern Egypt favours the idea that it was not indigenous there, but brought from India. And we ſhould find but little difficulty in acceding to the opinion of our learned friend, if we had not very ſtrong doubts concerning the truth of the modern doctrine which derives the mythology of Egypt from that of India: but after all we have read on the ſubject, we do not ſcruple to confeſs that this doctrine appears to us to be in all its parts unfounded.

However that may be, we entirely agree with him in preferring the claſſical cyamus to the barbarous nelumbo or nelumbium; as the former name has not hitherto been appropriated in modern botany, and as it is certainly applied to our plant, by the Greek writers, though not in an excluſive, or as a primary ſenſe. The root and the ſeeds are now uſed in the Eaſt Indies as articles of food, in the ſame manner as they formerly were in ancient Egypt. The root, having been called colocaſia by ſome Greek writers, has ſometimes been miſtaken for the modern colocaſia of the ſhops, which is the root of arum colocaſia. 2. C. *luteum.* Saliſb. Ann. bot. 2. (Nelumbium luteum; Willd. 2. Nymphæa Nelumbo. β. Linn. Sp. Pl. N. glandulifera virginiana; Moris. hiſt. 3. 514. Pluk. Alm. 567.) "Anthers riſing above the cells, linear." Saliſb. "Leaves peltate, orbicular, quite entire; peduncles and petioles ſmooth; corolla polypetalous." Willd. *Flowers* pale yellow. Mr. Saliſbury aſſerts that the petioles are prickly and not ſmooth, as Willdenow deſcribes them. A native of the rivers in Virginia, Carolina, and Florida. 3. C. *pentapetalum.* (Nelumbium; Willd. 3. Nymphæa; Walt. Car. 155.) "Leaves peltate orbicular, quite entire; calyx five-leaved; corolla with five petals." A native of Carolina. Mr. Saliſbury thinks that the genus of the laſt two ſpecies is not ſufficiently aſcertained.

Propagation and Culture.—The firſt ſpecies has flowered lately in ſeveral of our collections, but though it bears the ſevere cold of Pekin, it has not hitherto been ſucceſsfully cultivated with us out of the ſtove. It requires a deep ciſtern with a conſiderable depth of mud for its roots. The ſeeds preſerve their vegetative life for many years.

CYANA, Reneal. See GENTIANA *pneumonanthe.*

CYANA, in *Ancient Geography*, a town of Aſia Minor, in Lycia, according to Pliny. It has been epiſcopal.

CYANEÆ, or CYANEAN *Iſlands*, iſlands or rather iſlets of the Euxine ſea, at the mouth of the Boſphorus of Thrace, one lying on the coaſt of Europe, another on the coaſt of Aſia, at the diſtance of about 20 ſtadia. At preſent they are very ſmall rocks, ſo that their ſize has probably been diminiſhed by the attrition of the waters. Theſe rocks were alſo called "Symplegades," becauſe they appeared to be united or joined, according to the place from which they were viewed. Being more or leſs viſible, as the north or ſouth wind raiſes or lowers the waters in this part, the Greeks, always inclined to the marvellous, have ſuppoſed that theſe iſlands were floating, and very dangerous to imprudent or inattentive mariners. On one of theſe rocks, that near the coaſt of Thrace, the Romans erected an altar to Apollo; which, at Conſtantinople, is improperly called "Pompey's pillar."

CYANECULA, in *Ornithology*, a name given by Briſſon to the blue-throated warbler, or MOTACILLA *Suecica*; which ſee.

CYANELLA, in *Botany*, (diminutive of κυανος, *blue*, alluding to the colour of the flowers.) Linn. Gen. 420. Schreb. 568. Willd. 641. Gært. 79. Juſſ. 53. Vent. 2. 164. Claſs and order, *hexandria monogynia.* Nat. Ord. *Coronariæ*, Linn. *Aſphodeli*, Juſſ. *Liliaceæ*, Vent.

Gen. Ch. *Cal.* none. *Cor.* Petals ſix, cohering by their claws, oblong, concave, ſpreading; the three lower ones hanging forwards. *Stam.* Filaments ſix, contiguous at the baſe, very ſhort, ſomewhat ſpreading; the lower one declined, and twice the length of the others; anthers oblong, erect, dehiſcent at the tip, with four obtuſe teeth. *Piſt.* Germ trigonous, obtuſe; ſtyle filiform, declined, the length of the loweſt ſtamen; ſtigma rather acute. *Peric.* Capſule roundiſh, three-furrowed, three-celled, three-valved. *Seeds* ſeveral, oblong.

Eſſ. Ch. Corolla with ſix petals, three lower petals hanging forward; loweſt ſtamen declined, longer than the others.

Sp. 1. C. *capenſis.* Linn. Sp. Pl. Mart. 2. Lam. 1. Willd. 1. Jacq. Hort. 3. 21. tab. 35. Gært. tab. 17. fig. 7. Lam. Ill. Pl. 239. Bot. Mag. 568. Bot. Rep. tab. 141. (Phalangium; Pluk. tab. 434. fig. 2.) "Stem leafy, panicled; racemes divaricated; leaves lanceolate, undulated." *Root* a bulb. *Leaves* chiefly from the root, acute, ſmooth, ſheathing the ſtem. *Stem* ſix or ſeven inches high, almoſt naked, branched, with a ſhort lanceolate acute leaf at the foot of each branch. *Flowers* purple, with a tinge of violet, in ſhort lax racemes; pedicels rather long, almoſt horizontal; anthers yellow, five very ſhort, erect, incurved, the ſixth longer, grooved; ſtyle incumbent on the longer anther. The bulbs, which are about the ſize of thoſe of crocus verna, are ſaid to be eſculent when roaſted. A native of the Cape of Good Hope, at the foot of the Table mountain. 2. C. *orchidiformis.* Willd. 2. Jacq. Ic. Rar. 2. tab. 447. "Stem branched; racemes erect; ſtem-leaves ſword-ſhaped, ſtiff and ſtraight; root ones egg-ſhaped." Leaves glaucous, cartilaginous, and finely toothed at the edges. *Flowers* violet-purple; three of the petals and three of the ſtamens erect, the three others of each deflexed. A native of the Cape of Good Hope. 3. C. *lutea.* Linn. jun. Supp. 201. Mart. 1. Lam. 2. Willd. 3. Thunb. Act. Holm. 1794. tab. 7. fig. 1. "Scape ſomewhat branched; racemes erect; leaves linear-lanceolate, flat." *Flowers* yellow, larger than thoſe of C. capenſis, with longer peduncles; filaments united at the baſe, as in that ſpecies, but three of them erect, and three, one of which is longer, deflexed. A native of gravelly inundated fields at the Cape of Good Hope. 4. C. *alba.* Linn. jun. Supp. Mart. 3. Willd. 4. Thunb. Act. Holm. 1794. tab. 7. fig. 2. "Scape one-flowered; leaves filiform." A filiform bracte at the middle of the ſcape. All the ſtamens erect, except the larger one. A native of the Cape of Good Hope.

Cyanella, in *Entomology*, a ſpecies of Cryptocephalus.

Cyanella, in *Ornithology*, a ſpecies of Emberiza.

CYANEUS, in *Ancient Geography*, a river of Aſia, in the territory of Colchis, now called *Clanis.*

Cyaneus, in *Zoology*. See Coluber.

CYANOIDES, in *Botany*, Dod. See Centaurea *muricata*, *n.* 125.

CYANOMETER, (from κυανὸς, *cæruleus*, *azure*, and μετρον, *menſura*, *a meaſure*,) is the name given by M. de Sauſſure to an inſtrument which he contrived, for the purpoſe of eſtimating the intenſeneſs of the blue colour of the ſky. This inſtrument is nothing more than a circular band of paper, or paſteboard, divided into 51 parts, each of which is painted with a different ſhade of blue; beginning with the deepeſt, which is mixed with black, and gradually proceeding to lighter and lighter ſhades, as far as the lighteſt, which is mixed with white. By alternately looking at the ſky and at the different ſhades of blue on this inſtrument, one may eaſily determine which ſhade of the latter agrees with the actual colour of the ſky; and thus the various intenſeneſs of the aerial blue, as it appears at different times, or from different altitudes above the ſurface of the earth, may be aſcertained, compared, &c.

That the blue colour, which we obſerve in the heavens, belongs to the atmoſphere of the globe we inhabit, is eaſily proved from evident facts; the principal of which are, that the higher the obſerver is ſituated, the darker does the colour of the ſky appear to be. M. de Sauſſure finding that it correſponded with a deeper ſhade of blue on his cyanometer, the higher he aſcended above the ſurface of the earth; hence concludes, that, at a certain height, the blue will diſappear altogether, and the ſky will appear black, *viz.* it will reflect no colour whatever.

Another proof of the blue colour being reflected by ſomething below the moon, (and that ſomething can be nothing elſe beſides the air of our atmoſphere,) is that when the moon is in her quadratures, or nearer to the ſun, that part of it which is not illuminated by the ſun will appear blue like the reſt of the ſky, to an obſerver who directs his eye to it in the day-time; whereas, if the blue was reflected by ſomething beyond the moon, the above-mentioned part of the moon would not appear of that colour.

This blue colour of the ſky is ſuppoſed to be produced by the blue, indigo, and violet rays being more eaſily reflected than the other component rays of white or ſolar light. And it has been obſerved, that the colour of the ſky becomes always lighter, in proportion to the quantity of aqueous vapour that happens to be mixed with the air: whence it evidently appears, that the colour of the ſky is owing to the reflection from thoſe vapours. And it alſo appears, that, by the uſe of the cyanometer, an attentive obſerver may be enabled to gueſs pretty nearly at the quantity of water actually diſſolved in the air; on which account, the cyanometer ought to be added to the barometer, thermometer, and other inſtruments of a meteorological obſervatory.

CYANUS, in *Botany*, Tourn. Juſſ. Vent. Gært. See Centaurea.

Cyanus *æthiopicus*; Pluk. See Protea *cyanoides*.

Cyanus *alpinus*; Bocc. See Centaurea *uniflora*.

Cyanus *arboreſcens altera*; Alp. See Stæhelina *arboreſcens*.

Cyanus *arboreſcens minor*; Breyn. See Eupatorium *divaricatum*.

Cyanus *caule uniflora*; Hall. See Centaurea *montana*, *n.* 47.

Cyanus *centauroides fruteſcens*; Breyn. See Pteronia *oppoſitifolia*.

Cyanus *erucæ folio*; Barr. See Centaurea *romana*, *n.* 84.

Cyanus *foliis ellipticis dentatis*; Hall. See Centaurea *tingitana*, *n.* 131.

Cyanus *foliis imis ellipticis*; Hall. See Centaurea *cyanus*, *n.* 48.

Cyanus *foliis pinnatis*; Hall. See Centaurea *ſcabioſa*, *n.* 62.

Cyanus *foliis ſubhirſutis*; Hall. See Centaurea *phrygia*, *n.* 68.

Cyanus *hortenſis*; C. Bauh. See Centaurea *cyanus*, *n.* 48.

Cyanus *montanus caule folioſo*; Bocc. See Centaurea *montana*, *n.* 47.

Cyanus *montanus latifolius*; C. Bauh. See Centaurea *montana*, *n.* 47.

Cyanus *major*; Lob. Blackw. See Centaurea *montana*, *n.* 47.

Cyanus *orientalis major*; Moriſ. See Centaurea *moſchata*, *n.* 5.

Cyanus *repens*; Lob. See Centaurea *amara*, *n.* 19.

Cyanus *repens anguſtifolia*; C. Bauh. See Stæhelina *fruteſcens*.

Cyanus *repens latifolius*; C. Bauh. See Centaurea *amara*, *n.* 19.

Cyanus *ſegetum*; C. Bauh. See Centaurea *cyamus*, *n.* 48.

Cyanus *ſpinoſus*; Alp. See Centaurea *ſpinoſa*, *n.* 53.

Cyanus *vulgaris*; Lob. Blackw. See Centaurea *cyanus*, *n.* 48.

Cyanus, in the *Natural Hiſtory of the Ancients*, is uſed to expreſs two different ſubſtances. The one, the *lapis lazuli*; the other, the *lapis armenus*, a ſubſtance uſed by the painters in its native ſtate, and very improperly called a ſtone, being a mere earth, and being truly to copper, what yellow ochre is to iron.

Cyanus, in *Ornithology*, a name given by Bell., Geſn., Aldr., Ray, and Will., to the ſolitary ſparrow of Edwards, and blue thruſh of Latham; the Turdus *cyanus* of Gmelin; which ſee.—Alſo, a ſpecies of Parus; which ſee.

Cyanus, in *Zoology*. See Mus.

CYARDA, in *Ancient Geography*, a town of Aſia Minor, in Caria. Steph. Byz.

CYATHEA, in *Botany*, (from κυαθος, *a cup*,) Smith Act. Taurin. 1793, vol. 5. 414. Tracts, 251. Claſs and order, *cryptogamia filices*. Nat. Ord. *Filices*, Linn. Juſſ.

Gen. Ch. Fructification ſcattered, roundiſh, ſtanding in an hemiſpherical calyx, which burſts at the top without an operculum.

Eſſ. Ch. Involucrum going under the receptacle of the capſules, either entirely like a cup, or partially on one ſide.

Sp. 1. C. *horrida*. (Polypodium horridum; Linn. Sp. Pl. 57. Filix ramoſa; Pet. Fil. 50. tab. 5. fig. 1. F. latifolia ramoſa; Plum. Amer. 3. tab. 4.) "Trunk thorny; frond bipinnated and pinnatifid; ſegments acuminated, ſerrated at the tip, flowering near the margin, furniſhed with interramifying veins at their baſe. A native of Hiſpaniola and Jamaica. 2. C. *multiflora*. "Trunk unknown; frond bipinnated and pinnatifid; ſegments obtuſe, ſerrated; ſtalk winged; flowers ſcattered; calyx torn." A native of Jamaica, communicated by ſir Joſeph Banks. 3. C. *arborea*. (Polypodium arboreum; Linn. Sp. Pl. 55. Filix arboreſcens; Plum. Fil. 1. tab. 1. Am. 1. tab. 1, 2. Pet. Fil. 41. tab. 1. fig. 1, 2.) "Trunk arboreſcent, ſcaly; frond bipinnated; leaflets ſeſſile, ſerrated, with many flowers at their baſe; calyx entire." A native of Jamaica. 4. C. *capenſis*. (Polypodium capenſe; Linn. jun. Supp. 445.) "Frond tripinnated; leaflets ſeſſile, acute, ſerrated, bearing a ſolitary flower at their baſe; calyx torn." A native of the Cape of Good Hope. 5. C. *fragilis*. Smith Flor. Brit. 1. Eng. Bot. 1587. (Polypodium fragile; Linn. Sp. Pl. 51. Bolt. Fil. 50. tab. 27. and 46.) "Frond bipinnated; leaflets pinnatifid, ſharply and deeply ſerrated; fructifications a little diſtant; calyx torn; common ſtalks winged." *Root* perennial, tufted, crowned with brown ſcales. *Fronds* from four inches to a foot high, delicate and tender, lanceolate, acute, ſmooth, bright green; ſtalk blackiſh, ſmooth, brittle; leaflets alternate, cut, moſt frequently pinnatifid, ſometimes inverſely egg-ſhaped, more generally lanceolate, pointed, with more or leſs zig-zag nerves; dots of fructification numerous, alternate, brown or black, not confluent except when old. Involucrum cup-ſhaped, burſting laterally, jagged, at length reflexed and obliterated. No fern varies more in the number, form, and breadth of its ſubdiviſions. When large, moſt compound and finely cut, it is the polypodium rhæticum of Britiſh writers, but not of Linnæus. When ſmaller and leſs compound, it is the P. ilvenſe of Ray's Synopſis. Dr. Smith. A native of rocky places and buildings in the mountainous parts of Britain, and the continent of Europe. 6. C. *regia*. Smith Flor. Brit. 2. (C. inciſa; Eng. Bot. 163. Polypodium regium; Linn. Sp. Pl. 52. Adiantum nigrum, pinnulis cicutariæ diviſura; Rai. Syn. 126.) "Frond bipinnated; leaflets lobed, obtuſe, without a briſtly point, quite entire at the edges; calyx torn; ſtalk ſlightly winged." *Root* perennial, ſcaly. *Fronds* four or five inches long, lanceolate, ſmooth, fine green; dots of fructification nearly as in the preceding ſpecies, but ſmaller. A native of France and Britain, on walls and alpine rocks, but rare. 7. C. *dentata*. Smith Flor. Brit. 3. Eng. Bot. 1588. (Polypodium; Dickſ. Crypt. Faſc. 3. 1. tab. 7. fig. 1.) "Frond generally bipinnated; leaflets egg-ſhaped, obtuſe, deeply and bluntly toothed, pointleſs." About the ſize of the preceding. *Fronds* lanceolate, acute, ſmooth; leaflets with zig-zag nerves; common ſtalk winged only towards the top; dots of fructification numerous, approximate, ſome becoming confluent; involucrum half way round, fringed. Rocks in Wales, and the Highlands of Scotland. 8. C. *montana*. (Polypodium; Allion. Ped. 2410.) "Frond in three diviſions, each bipinnated and pinnatifid; ſegments ſlightly creſcent-ſhaped, toothed at the tip; ſtalk winged; flowers ſcattered; calyx torn." A native of the Alps of Europe.

Obſ. We are authoriſed by Dr. Smith to ſtate, that his idea of this genus has not been underſtood by ſome German botaniſts, who have taken the leſs certain ſpecies (fragilis, regia, &c.) as examples of the genus, and thence made a new genus of the primary cyatheæ (arborea, &c.). We are happy to add, that Dr. Smith has in contemplation a full inveſtigation of the ſubject, which will be preſented to the Linnæan Society, and doubtleſs in due time be publiſhed in their Tranſactions.

CYATHODES, Rudge, Linn. Tranſ. 8. 293. See Styphelia.

CYATHUS, from χωειν, *to pour out*, in *Antiquity*, a liquid meaſure among the Romans, being the twelfth part of the ſextarius. It only held as much as a man could eaſily drink at one draught, and was divided into twelve parts, called unciæ.

Cyathus, in *Botany*, Hall. Juſſ. See Nidularia.

Cyathus, in *Ancient Geography*, a river of Greece, in Ætolia, near the town of Arſinoë.

CYAXARES I., in *Biography*, king of the Medes, who ſucceeded his father, Phraortes, B. C. 635, was a prince of great courage, extraordinary abilities, and devoted to the military profeſſion. In the preceding reigns, much of the kingdom had been conquered by the Aſſyrians; but, by the proweſs and ſkill of Cyaxares, it was retaken. He not only defeated his enemies in a battle, on which almoſt every thing depended, but laid ſiege to Nineveh their capital. Scarcely, however, had he attained this object, when the Scythians ſucceſsfully invaded his country, and made themſelves maſters of Media, and a great part of Upper Aſia, which they held for nearly 30 years. Wearied of their oppreſſion, Cyaxares reſolved to free himſelf from them by ſtratagem. He accordingly invited them to a general feaſt, which was given in every family; and when they were off their guard by intoxication, he cauſed a maſſacre to take place, and thus freed himſelf from his enemies. He then attacked the Lydians for having aided or ſuccoured the fugitive Scythians. Theſe, however, were not eaſily ſubdued; and after five years' war, which was carried on with various ſucceſs, a moſt obſtinate engagement took place: but a total eclipſe of the ſun, which happened during the heat of battle, had ſo powerful an effect on the ſuperſtition of both parties, that with one accord they retreated: peace was concluded, and a marriage was brought about between the daughter of the Lydian king and Aſtyages, the eldeſt ſon of Cyaxares. This buſineſs being ſettled, Cyaxares entered into a ſtrict alliance with Nebuchadnezzar, king of Babylon; and, in conjunction with his new friends, he reſumed the ſiege of Nineveh, ſlew Sarac the king, and levelled that proud metropolis with the earth. This important circumſtance gave riſe to the great ſucceſſes of the allied monarchs, and laid the foundation of the collateral empires of the Medes and Babylonians. Enriched with the plunder of very many ſubjugated nations, they divided their forces, Nebuchadnezzar purſuing his conqueſts in the weſt, and Cyaxares falling upon the provinces of Armenia, Pontus, and Cappadocia, which he ſubdued with great ſlaughter of the inhabitants. After theſe achievements, the armies united again, and completed the conqueſt of the Aſſyrian empire. Cyaxares died in the 40th year of his reign, and was ſucceeded by Aſtyages; upon whoſe death, in 560 B.C.,

Cyaxares II., ſon of Aſtyages, and uncle to Cyrus, ſucceeded to the throne. This prince is ſuppoſed to be the ſame with "Darius the Mede," mentioned in the Old Teſtament. In concert with his nephew, Cyaxares, after the reduction of Babylon, arranged the affairs of the new empire, and divided it into 120 provinces, which were entruſted to the care of thoſe perſons who had diſtinguiſhed themſelves during the war, over whom three preſidents were appointed; the prophet Daniel, on account of his age, experience, and great wiſdom, being the chief. Cyaxares reigned in conjunction with Cyrus till the year 536 B.C., when he died. Univerſ. Hiſt. Xenoph.

CYBÆA, in *Antiquity*, a kind of ſhip uſed in commerce, of a roundiſh form.

CYBASSUS, in *Ancient Geography*, a town of Aſia Minor, in Caria. Steph. Byz.

CYBATE, Waſith, a town of Aſia, upon the right bank of the Tigris, S.E. of Seleucia, and N.W. of Apamea.

CYBELE, in *Mythology*, a heathen goddeſs; who, according to the Roman mythology, was the daughter of Cœlus and Terra, or heaven and earth, wife of Saturn, and mother of the gods.

The Greek mythologiſts pretend that ſhe ſprang from one of the ſtones uſed by Deucalion and Pyrrha for repeopling the earth after the deluge. The Phrygians affirm that ſhe was daughter of their firſt king Meon, debauched by Attys, whom her father cauſed to be put to death; and that ſhe afterwards wandered with Apollo to the country of the Hyperboreans. Cybele, as the Phrygian fable reports, on occaſion of the death of Attys, was ſeized with phrenzy, and filled the woods and mountains, wherever ſhe went, with her lamentations. A plague ſoon after laying waſte the country, the oracle, which was conſulted, adviſed to bury Attys with great pomp, and worſhip Cybele as a goddeſs; but his body, which had been thrown to wild beaſts, not being found, they made a ſtatue of him, which they attended with howlings and funeral ceremonies. A magnificent temple was erected to Cybele in the city of Peſſinus; and lions were placed at her feet, in commemoration of her having been nurſed by theſe animals, when expoſed in her infancy on mount Cybelus. The worſhip of the earth was very ancient, and the origin of it has been ſought in Phrygia; for it was not received in Europe till the time of Cadmus, who transferred it from Aſia; and Dardanus, it is ſaid, who was contemporary with Cadmus, repaired with Cybele, repreſented as his ſiſter-in-law, and Corybas his nephew, into Phrygia, where they introduced the myſteries of the goddeſs Earth, or great mother goddeſs, to whom was given the name of Cybele, as was that of Corybas to the Corybantes, her prieſts. In Italy this deity was unknown till the time of Hannibal; when the Romans, conſulting the Sibylline oracles, found that this formidable enemy could not be expelled unleſs they brought the Idæan mother, or Cybele, to Rome. The ſenate, therefore, diſpatched ambaſſadors to Attalus, king of Phrygia, and obtained from him the ſtatute of this goddeſs, which was of ſtone, at the city of Peſſinus, in Galatia. Accordingly ſhe was brought to Rome, with ſingular ceremonies, and introduced, according to the Sibylline order, by the beſt man of the city, whom the ſenate adjudged to be Publius Scipio.

Cybele, beſides other appellations by which ſhe was diſtinguiſhed, was named Cubebe, becauſe her prieſts, when ſeized with their frantic fits, uſed to throw themſelves on their heads; from the Greek verb κυβηβειν, in caput provolvi.

She was alſo adored under the names of Ops, Rhea, Veſta, the Good Goddeſs, Dyndimene, Berecynthia, &c. and was called Cybele from mount Cybelus in Phrygia. She is repreſented in a chariot drawn by four lions, her garments flowered, a key in her hand, and a turret on her head.

Allegoriſts by Cybele mean the earth, and her crown of towers they conſider as an emblem of the towns and cities built upon it; the key held in her hand denotes that the earth, which the winter, as it were, locks up, begins to open in the ſpring; and her garment, variegated with different flowers, is a ſymbol of the earth beautifully enamelled with theſe productions; the lions that draw her chariot ſignify her empire over all ſorts of animals which ſhe produces and cheriſhes; ſhe rides in a chariot, becauſe, as it is fancifully ſaid, the earth is ſuſpended in the air; and the chariot is ſupported by wheels, becauſe the earth is a revolving body. Under the character of Veſta, ſhe is generally repreſented upon ancient coins in a ſitting poſture, with a lighted torch in one hand, and a ſphere or drum in the other. Varro, cited by St. Auſtin, (De Civ. Dei,) gives the following explanation of the appellation and attributes of Cybele: ſhe is called the mother of the gods; the drum, which is aſcribed to her, repreſents the globe of the earth; the turrets, its towns and cities; the ſeats that ſurround her ſhew, that ſhe only ſtands ſtill when all things are in motion around her; her eunuch prieſts denote, that the earth muſt be manured in order to produce corn; their agitations before the goddeſs teach huſbandmen, that they muſt not lie ſtill; the ſound of cymbals denotes the noiſe of the inſtruments of huſbandry; and the tame lions intimate, that there is no ſoil ſo wild and barren, that may not be manured. Euſebius and ſome others are of opinion, that Cybele was a woman famous for her ſkill in remedies againſt diſtempers to which young children are ſubject, and that all the ſtories relating to her are grounded on this faculty which ſhe poſſeſſed.

Cybele had her peculiar prieſts, ceremonies, and ſacrifices. Her prieſts were called, in the Phrygian language, Cubeboi; the Greeks and Latins named them Cabiri, Curetes, Corybantes, and Galli, from the river Gallus, which flowed through Peſſinus above mentioned. They were alſo ſtyled Idæi Dactyli. The ceremonies performed by theſe prieſts in honour of the goddeſs were theſe: at ſtated times they carried her ſtatue about the ſtreets, dancing and ſkipping round it; and after having by violent geſticulations worked themſelves into a kind of phrenzy, they began to cut and ſlaſh their bodies with knives and lancets, in commemoration of the grief of Cybele at the loſs of her beloved Attys. The victims immolated in honour of the Phrygian goddeſs were bulls, or ſhe-goats, whence the ſacrifice was called "Taurobolium," or "Criobolium." At Rome a ſow was annually ſacrificed to her; and the ceremony was performed by a prieſt and prieſteſs ſent for out of Phrygia on that occaſion. Her prieſts (at leaſt thoſe deſignated by the name of Galli) were all eunuchs, in memory of Attys, who was ſaid to have deprived himſelf of his virility; and the waters of the river Gallus were ſuppoſed to inſpire them with ſuch frantic enthuſiaſm, that they unreluctantly performed the neceſſary operation on themſelves. They were forbidden wine, becauſe Attys, overcome with it, diſcloſed his amours with Acdeſtis, which he had before carefully concealed,

concealed. They abſtained from bread, in commemoration of the long faſt which Cybele kept after the death of Attys. They held all oaths to be unlawful; and after their death, theſe prieſts were placed on a ſtone 10 cubits high. The rites of Cybele were not leſs infamous for their lewdneſs than for their cruelty. Her feſtivals were celebrated with a confuſed noiſe of timbrels, pipes, and cymbals; and accompanied with howlings, and obſcenity both of language and geſture. The animals ſacrificed to her were the bull, goat, and ſow, as ſymbols of fecundity; and the box and pine were ſacred to her:—the former, becauſe the pipes uſed at her feſtival were made of that wood; and the latter, for the ſake of Attys, or Atys, the Phrygian youth, already mentioned, who was beloved by her, and made preſident of her rites, but who, having violated a vow of chaſtity, was turned by her into the pine-tree.

Cybele was one of the chief goddeſſes among the ancient Gauls, and particularly venerated in the city of Autun, where her prieſts were caſtrated in honour of her, and hence called Galli. However, if the worſhip of Cybele was introduced into Gaul, it was either by force, or in ſervile imitation of that of the Greeks and Romans. Such was the abhorrence with which the Gauls regarded all mutilations, that they would never voluntarily have adopted a kind of worſhip, which required every prieſt, and encouraged every votary of the goddeſs, to become an eunuch. Beſides, the Galli were held in ſuch abhorrence, that no other people would maintain any intercourſe with them; and they were placed on a level with ſorcerers, gladiators, and executioners; ſo that they ſubſiſted merely by carrying about their goddeſs, and begging charity for her ſake:—a diſcipline which was entirely oppoſite to the genius of the Gallic nation. Indeed, St. Jerome intimates, that the Romans forced this emaſculated prieſthood upon the Gauls, and called theſe eunuchs Galli, in order to fix a perpetual ignominy upon that nation, for having taken their metropolis, and beſieged their capitol.

CYBELE, *Mons*, in *Ancient Geography*, a mountain of Phrygia, which gave name to Cybele, the mother of the gods. We may infer that this mountain was not far from Celœnæ, towards the ſource of the Meander, from a verſe of Ovid:

> “——Viridem Cybelan altaſque Celœnas.”

CYBELEIA, a town of Aſia Minor, in Ionia; probably the ſame with *Cybellia* of Strabo.

CYBELICUM MARMOR, a name given by the ancients to a ſpecies of marble, dug in a mountain of that name in Phrygia. It was of an extremely bright white, with broad veins of a blueiſh black.

CYBISTRA, in *Ancient Geography*, a town of Aſia, in Leſſer Armenia, reckoned by Hierocles in the number of epiſcopal cities in the ſecond Cappadocia. It was ſituated ſouth of mount Argæus.

CYBOMANTIA, a ſpecies of divination performed by lots.

CYBRASA, in *Ancient Geography*, a town of Aſia Minor, in Caria. Steph. Byz.

CYBUS, a town of the Phœnician Libya, belonging to the Ionians. Steph. Byz.

CYCAS, in *Botany*, (κυκας; Theoph. the name of a palm, ſaid to grow in Ethiopia.) Linn. Gen. 1222. Schreb. 1699. Juſſ. 16. Vent. 2. 68. Claſs and order, *palmæ pinnatifoliæ*, Linn.; but afterwards removed by him to filices. *Diœcia polyandria*, Jacq. Nat. Ord. *Filices*, Juſſ. Vent. *Palmæ*, Lam.

Gen. Ch. *Male flowers* in a terminal oval-oblong catkin, reſembling a ſtrobile. *Cal.* Scales imbricated, fleſhy, ſpatulate or oval, ending in a weak point. *Cor.* none. *Stam.* Filaments none; anthers numerous in each ſcale. *Female flowers* on a ſeparate plant. *Fronds* numerous, terminal, ſomewhat compreſſed below, dilated above, cluſtered. *Piſt.* Germs ſeſſile, on the edges of the frond; ſtyle ſhort; ſtigma ſimple, permanent. *Peric.* Drupe egg-ſhaped; outer coat fleſhy; nut woody, one-celled; kernel rounded, firm.

Eſſ. Ch. Male catkin reſembling a ſtrobile. Anthers numerous, ſeſſile. Females. Fronds numerous, terminal, ſomewhat compreſſed below, dilated above. Drupes ſeſſile, on the edges of the frond.

Obſ. This genus and zamia ſeem to conſtitute an intermediate order between the ferns and the palms. They reſemble the former in the mode of their foliation; but, in other reſpects, have all the proper characters of a palm. Linnæus erroneouſly deſcribes the pollen of cycas as naked, *i. e.* not encloſed in an anther.

Sp. 1. C. *circinalis.* Linn. Sp. Pl. Mart. 1. Lam. 1. Ill. Pl. 891. (Todda-pana; Rheed. Mal. *3*. 9. tab. 13—21. Rai Hiſt. 1360. Olus calappoides; Rumph. Amb. 1. 86. tab. 22, 23. Arbor zagoe amboinenſis; Seb. Theſ. 1. 39. tab. 25. fig. 1.) “Leaves pinnated; leaflets linear, flat, not pungent at the tip, ſlightly curved outwards; common petioles prickly beneath the leaflets.” *Trunk* thick, generally ſhort, ſcaly; ſometimes from fifteen to twenty feet high, with numerous annular protuberances, and divided at the ſummit into a very few ſhort branches. *Leaves* crowning the trunk, three feet long or more; leaflets numerous, very near together. *Male catkins* terminal, within the leaves, ſolitary, ſometimes very large, fleſhy, having ſome reſemblance to a large pine-apple. *Fronds* bearing the *females* numerous, terminal, within the leaves, coriaceous, woolly, ſword-ſhaped, expanded upwards, indented at the edges about the middle, jagged near the ſummit, and ending in a long ſharp point. *Fruit* about the ſize of a ſmall orange, reddiſh-yellow, ſlightly compreſſed. A native of the Eaſt Indies, and of the iſlands in the South Sea. 2. C. *revoluta.* Mur. Syſt. Veg. 2. Mart. 2. Lam. 2. Thunb. Flor. Jap. 229. Smith. Linn. Tranſ. 6. 312. tab. 29, 30. (Teſſio; Kœmpf. Amæn. 897. Arbor calappoides titſjiu dicta; Rumph. Amb. 1. 92. tab. 24.) “Leaves pinnated; leaflets narrow, revolute at the edges, ſlightly curved inwards, pungent at the tip; common petioles prickly underneath the leaflets.” *Trunk* cylindrical, branched, five feet high or more, nine or ten inches in diameter, brown, very ſcaly with the remains of old petioles. *Leaves* four or five feet long, crowning the trunk, and forming a magnificent baſon ten or twelve feet broad at the top. *Fruit-bearing fronds* numerous, terminal, within the leaves, forming a kind of ſtrobile or cone, at firſt hollow like a bird's-neſt, finally rather convex; from ſix to eight inches long, fleſhy, entirely covered with a pale brown woolly down; flattiſh and ſtalk-like towards the bottom; bearing on each edge about the middle a row of three or four ſeſſile drupes; dilated at the extremity into a pinnatifid, or rather palmate many-fingered leaf, whoſe lobes are generally turned inwards, and tipped with a ſpine. *Fruit* nearly as large as an apricot, of a rich orange hue, and clothed with a woolly down which eaſily rubs off, ſomewhat obovate or elliptical, a little compreſſed, tipped with a minute rigid point formed of the permanent ſtigma; outer coat coriaceous; nut elliptical, hard, whitiſh, tipped with a point connected with the ſtigma, and internally lined with a looſe brown membranous integument, cloſely enfolding a white, firm, uniform kernel, which completely occupies the ſhell, and conſiſts entirely of albumen. A native of Japan. This ſpecies produced fruit, for the firſt time in England, in the autumn of 1799, at Farnham-caſtle in Surrey, the ſeat of the honourable and right reverend Dr. North, biſhop of Wincheſter, where it was ſeen by Dr. Smith, from whoſe accurate deſcription the preceding one is abridged. The kernels of both theſe ſpecies are eaten in their native countries; and from the pith of both a kind of ſago is made, which is ſaid to be very nutritive, but not equal to that which is produced by the tree ſagoe palm, metroxylon of Rottböll, and ſagus of Gærtner, La Marck, and Ventenat. Linnæus confounded the two plants. 3. C. *inermis.* Lour. Cochin. p. 632. "Leaves pinnated; common petioles without prickles." *Trunk* five feet high, the thickneſs of the human thigh, quite ſimple, brown, rugged. *Leaves* five feet long, aſcending; leaflets linear-lanceolate, ſix inches long, ſmooth, dull green, flattiſh, ſeſſile. *Male catkin* ſtrobile-ſhaped, four inches in diameter, terminal, ſolitary, erect, oval-oblong, browniſh-yellow, imbricated, rather cloſe; ſcales oblong-top-ſhaped, thick, fungous; anthers more than a hundred in each ſcale, the ſize of rape-ſeed, globular, dehiſcent at the tip. *Fronds of the female flowers* various, linear, reflexed, few-flowered, nearly terminal, ſimple, dilated and jagged near the top. *Fruit* an inch and half long, egg-ſhaped, ſomewhat compreſſed, ſmooth and even, red. Found wild and cultivated for its beauty in Cochinchina and China, but no part of it uſed for food. In Tonquin a tolerable ſago is ſaid to be obtained from the pith.

CYCEON, from κυκαειν, *to mix;* a name given by the *Ancient Poets* and *Phyſicians* to a mixture of meal and water, and ſometimes of other ingredients. Theſe conſtituted the two kinds of *cyceon;* the coarſer being of the water and meal alone; the richer and more delicate compoſed of wine, honey, flour, water, and cheeſe. Homer, in the eleventh Iliad, talks of *cyceon* made with cheeſe and the meal of barley, mixed with wine, but without any mention either of honey or water; and Ovid, deſcribing the draught of *cyceon* given by the old women of Athens to Ceres, mentions only flour and water. Dioſcorides underſtood the word in both theſe ſenſes; but extolled it moſt in the coarſe and ſimple kind: he ſays, when prepared with water alone, it refrigerates and nouriſhes greatly.

CYCESIUM, in *Ancient Geography*, a town of Greece, in the Peloponneſus, placed by Strabo near the fountain Biſa.

CYCINNIS, a Grecian dance, ſo called from the name of its inventor, one of the ſatyrs belonging to Bacchus. It conſiſted of a combination of grave and gay movements.

CYCLADES, from the Greek word κυκλος, a *circle*, in *Ancient Geography*, a cluſter of iſlands in the Ægean ſea, forming a kind of circle round Delos, though this is not ſtrictly the caſe, as moſt of them lie S. of Delos: called *Minoides* by Apollonius. The number and order of theſe iſlands, according to Strabo, are as follow: Helena, Ceos, Cythnus, Seryphus, Melos, Siphnus, Cimolis, Prepeſinthus, Olearus, Naxus, Parus, Syrus, Myconus, Tenus, Andrus, Gyarus, which ſee reſpectively.

CYCLAMEN, in *Botany*, (Κυκλαμινος: Dioſc. From κυκλας, *circular*; referring to the round form either of the leaves or of the roots.) Sowbread. Linn. gen. 201. Schreb. 262. Willd. 298. Lam. Ill. 281. Juſſ. 97. Vent. 2. 290. Claſs and order, *pentandria monogynia*. Nat. Ord. *Preciæ*, Linn. *Lyſimachiæ*, Juſſ. *Primulaceæ*, Vent.

Gen. Ch. *Cal.* half five-cleft; ſegments egg-ſhaped. *Cor.* monopetalous, wheel-ſhaped; tube very ſhort, ſomewhat globular, border very large, bent backwards, five-parted, ſegments linear-lanceolate; orifice of the tube prominent. *Stam.* Filaments five, very ſmall, within the tube of the corolla; anthers ſtraight, acute, converging. *Piſt.* Germ ſuperior, roundiſh; ſtyle filiform, ſtraight, longer than the ſtamens; ſtigma acute. *Peric.* Berry capſular, globular, one-celled, dehiſcing at the top in five directions. *Seeds* numerous, ſomewhat egg-ſhaped, angular, attached to an egg-ſhaped free receptacle.

Eſſ. Ch. Corolla wheel-ſhaped; tube very ſhort, with a prominent orifice; border reflexed. Stamens within the tube. Berry covered with a capſule.

Sp. 1. C. *coum.* Hort. Kew. 1. Mart. 1. Bot. Mag. 4. "Leaves orbicular, heart-ſhaped, quite entire." *Leaves* flat, ſmooth and of a lucid green above, very red underneath in the beginning of winter, but the colour goes off gradually in the ſpring; petioles ſhort, weak. A native of the South of Europe. 2. C. *Europæum.* Hort Kew. 2. Mart. 2. Willd. 2. Jacq. Auſt. 5. 1. tab. 401. Scop. Carn. 2. 211. Smith. Prod. Flor. Græcæ. 442. (C. orbiculato folio inferne purpuraſcente; Bauh. pin. 308. Tourn. 154.) "Leaves orbicular, heart-ſhaped, crenate." *Root* tuberous. *Stem* very ſhort, within the ground. *Leaves* deep green and ſpotted above, commonly reddiſh purple underneath, ſmooth, on very long red petioles. *Flowers* drooping, purple, ſweet-ſcented; peduncles reſembling the petioles, erect with the flower, ſpiral with the fruit. *Capſular berry* coriaceous, purple, opening firſt at the top, and then entirely. *Seeds* large, rufous, kidney-ſhaped. A native of Auſtria. 3. C. *perſicum.* Hort. Kew. 3. Mart. 3. Willd. 3. Prod. Fl. Græc. 443. Bot. Mag. 44. "Leaves oblong-ovate, heart-ſhaped, crenate." *Leaves* ſtiff, with purple veins underneath; petioles near ſix inches long, purple, ſtrong, fleſhy. *Flowers* pure white, with a bright purple bottom; ſometimes entirely white and very fragrant. A native of Greece, frequent about Athens. 4. C. *hederifolium.* Hort. Kew. 4. Mart. 4. Willd. 4. Bot. Mag. 1001. Bauh. pin. 308. Flor. Græc. tab. 185. (C. Europæum; Mill. Dict. Smith Eng. bot. 548. Flor. Brit. 1. 224.) "Leaves heart-ſhaped, angular, finely toothed." *Root* a large roundiſh knob, throwing out ſeveral branched fibres. *Leaves* veined, ſmooth, ſtained above with white ſinuated ſpots, purpliſh underneath; petioles long, cylindrical, zig-zag, ſlender at the baſe. *Flowers* drooping, either white or purpliſh; ſegments upright, twiſted; peduncles longer than the petioles. After impregnation the peduncles curl in a cloſe ſpiral manner, and bury the ripening fruit in the ground, or lay it cloſe to the ſurface among the leaves. A native of Italy and Greece. It has been found growing, apparently wild, on a bank in the pariſh of Bramfield, Suffolk, and has been admitted by Dr. Smith into the Britiſh Flora, but, as he himſelf obſerves, it can ſcarcely be thought really indigenous. 5. C. *repandum.* Smith Prod. 445. Flor. Græc. tab. 186. (C. radice caſtaneæ magnitudinis; Bauh. pin. 308. Tourn. 155.) "Leaves heart-ſhaped, repand." A native of the country about Conſtantinople. 6. C. *indicum.* Linn. Sp. Pl. 2. Mart. 5. Lam. Enc. 2. Ill. 1561. Willd. 5. "Border of the corolla drooping." Border of the corolla not completely reflexed, but only inclined outwards. A native of the iſle of Ceylon.

Propagation and Culture.—The plants of this genus admit of but little increaſe by the roots; the beſt method of propagating them is by ſeeds, which ſhould be ſown ſoon after they are ripe, in boxes or pots, and covered about half an inch deep, placing them where they may have only the morning ſun, till the beginning of September, when they may be removed to a warmer expoſure. The firſt, ſecond, and fourth ſpecies may be plunged into the earth cloſe to a ſouth wall in a mixture of bog-earth and loam, and will ſtand common winters without covering, but in very ſevere froſts ſhould be ſheltered by mats or ſtraw. If the ſeaſon be mild the firſt ſpecies will flower as early as February, or much earlier by artificial heat. The third ſpecies is more tender, and requires to be treated rather as a green-houſe plant. None of the ſpecies ſhould have much water after the leaves have died down.

Cyclamen, in *Gardening*, contains plants of the low, herbaceous, flowery, perennial tuberous-rooted kind; of which the ſpecies cultivated are: the common cyclamen (C. *Europæum*), the round-leaved cyclamen, (C. *coum*), the Perſian cyclamen, (C. *Perſicum*), and the fig-leaved cyclamen, (C. *hederifolium*).

Method of Culture.—All theſe plants may be increaſed by ſowing the ſeeds in large wide pots, tubs, or boxes filled with good light mould mixed with a little ſand, in the latter end of ſummer or the beginning of autumn, covering them to the depth of about half an inch, expoſing them at firſt in ſituations that have only the morning ſun, but afterwards removing them into more warm and ſunny expoſures; and as the winter approaches, placing them under the protection of frames and glaſſes, or ſome other contrivance, freſh air being admitted when the weather is mild and ſuitable. In this way ſome plants of the hardy ſorts will appear about the beginning of the following year, and of all the kinds in the ſpring. During the beginning of ſummer, when the weather is hot and dry, ſlight waterings ſhould be given occaſionally; but when their leaves begin to decline in the latter end of it, they ſhould be removed to an eaſtern aſpect, with only the morning ſun; and as their roots are then in an inactive ſtate, have little or no water. They ſhould be kept free from weeds in the autumn, and have ſome freſh mould applied over the ſurfaces of the pots or tubs in which they grow, protecting them again in the winter as before, continuing the ſame management as in the preceding year, till the decline of the leaves in the latter part of the ſummer, when they ſhould be carefully taken up, and the more hardy ſorts planted out in the ſituations where they are to remain, as thoſe of a warm, dry border; and the tender kinds removed into pots to have protection from froſts in winter.

As the Perſian ſort is the moſt impatient of cold and moiſture, it ſhould conſtantly be kept in pots filled with light ſandy earth, or a compoſt of loam and lime-rubbiſh, and be placed in ſuch ſituations in the frame or green-houſe, as to have as much free air as poſſible in mild weather in winter. Some of the ſorts will generally begin to flower in the courſe of one or two years after being thus planted out; the firſt kind often about Chriſtmas, which is ſucceeded by thoſe of the Perſian ſort.

The plants in the borders ſhould have the protection of mats, or other contrivances, in ſevere winters, as by ſuch means they produce a greater abundance of flowers, and theſe more fair and beautiful.

The varieties of the different ſorts are beſt preſerved and continued by planting pieces of the divided roots, immediately after they have been ſeparated in the ſummer ſeaſon, in pots, tubs, or other places, as above: but in this mode they do not increaſe in an expeditious manner.

Theſe plants are very ornamental though of ſmall growth, in their variegated large foliage, as well as their elegant flowers, which in ſome of the ſorts are fragrant, as thoſe of the ſpring kinds.

The hardy ſorts produce a fine effect in the fronts of borders, or clumps in pleaſure-grounds, and thoſe of the tender kinds among other potted plants in the green-houſe.

The moſt proper period for removing theſe plants for any purpoſe is about the beginning of June, when the leaves decline, but they ſhould not be often removed, as the roots do not loſe their fibres, as in ſome others of the tuberous and bulbous rooted kinds of flowers.

CYCLAMINUS Sinus, in *Ancient Geography*, a gulf of Aſia Minor, in the Thracian Boſphorus, N. of the gulf *Caſtacius*.

CYCLAS, in *Botany*, Schreb. Mart. See Crudia.

Cyclas, in our *Old Writers*, a long garment, cloſe upwards, and open, or large below. Matt. Paris, ſpeaking of the citizens of London, tells us they were *cericis veſtimentis ornati*, cycladibus *auri textis circundati*. Anno 1226.

CYCLE, (κυκλος, a circle of time) a periodical portion of time, conſtantly renewed after the expiration of the proper interval, in which certain phenomena, or events, complete their courſes.

We ſhall here recite ſome of the principal cycles, with their defects and improvements. The firſt we ſhall mention is the

Cycle, *Calippic*. See Calippic *Period*; and *Metonic* Cycle.

Cycle, *Canicular*. See Canicular *Year*.

Cycle, *Chineſe*, a period of 60 years, or of 720 revolutions of the moon, which, with the ſettled intercalation of 22 lunations, were at firſt ſuppoſed to bring a perfect coincidence of the relative poſitions of the ſun and moon:—however, even according to this period, every new year was made conſtantly to recede, in a very ſmall degree, which the Chineſe afterwards, from time to time, corrected. This cycle anſwered a double purpoſe; one as an era for chronological reckoning, and the other as a regulating period for a luni-ſolar year. Each year of the cycle is diſtinguiſhed by the union of two characters, taken from ſuch an arrangement of an unequal number of words placed in oppoſite columns, that the ſame two characters cannot be found again together for 60 years. The firſt column contains a ſeries of ten words; as, *kia*, *y*, *ping*, *ting*, *ou*, *ki*, *kong*, *ſin*, *yen*, *koui*; the other of twelve words, *viz* *tſée*, *tcheou*, *yn*, *mao*, *tchen*, *ſée*, *ou*, *ouei*, *chen*, *yeou*, *hiu*, *hai*; which laſt are, in reality, the ſame that denote the twelve hours or diviſions of the day; each being double the European hour. The firſt word or character of the firſt ſeries or column of ten words, joined to the firſt word of the ſecond ſeries or column of twelve, marks the firſt year of the cycle; and ſo on until the firſt ſeries is exhauſted; when the eleventh word of the ſecond ſeries combined with the firſt of the firſt ſeries marks the eleventh year of the cycle; and the twelfth or laſt of the ſecond ſeries joined with the ſecond of the firſt ſeries, ſerves for denoting the twelfth year. The third of the firſt ſeries becomes united in regular progreſſion with the firſt of the ſecond ſeries to mark the thirteenth year; and proceeding in this order, the firſt character in the firſt and ſecond ſeries cannot come again together for ſixty years, or until the firſt year of the ſecond cycle. Guabil ſays, that the year 1723 was reckoned the 40th year, or the year *koui-mao*, of the 74th ſexagenary cycle, ſo that it is eaſy to aſcend backwards to the commencement of the Chineſe era. For 73 cycles of 60 years and the odd 39 years of the 74th cycle, amount to 4419 years, which will bring us to the year 2695 before the Chriſtian æra, or 347 years before the deluge, according to the chronology of the Hebrew text. But if, with ſir George Staunton, in his "Embaſſy to China," (vol. ii. p. 555.) we reckon the year 1797

1797 the 54th year of the 68th Chineſe cycle, its commencement muſt have been 2277 years B. C., or about 71 years after the deluge. The inſtitution of this Chineſe cycle is commonly aſcribed to Hoang-ti, who lived above 300 years before Yao, the commencement of whoſe reign is dated by Du Halde, in the year 2357 B. C.

Cycle of *Cleoſtratus*, a period of eight years, or 2292 days, diſtributed into 99 lunations, *viz.* 96 of 29 and 30 days alternately, and three complete intercalary months. (Herod. l. 1. c. 32. Gemin. Elem. Aſtr. c. 6.) This cycle was formed by Cleoſtratus, an aſtronomer of Tenedos, who flouriſhed after Thales about the year 532 B. C. He obſerved, that one revolution of the ſun being completed in 365 days 6 hours, was $11\frac{1}{4}$ days greater than 12 lunations of $29\frac{1}{2}$ days. Theſe $11\frac{1}{4}$ days multiplied by 8, amount to 90 days, which are equal to three months of 30 days each. Hence he formed his cycle. This cycle, by which the Olympic games were regulated, would have been very exact, if a lunar year had conſiſted of $354^{d}\ 4^{h}\ 18'$; but, in reality, it conſiſts of $354^{d}\ 8^{h}\ 48'\ 34''.7052$. The difference, *viz.* $4^{h}\ 30'\ 34''.7052$, in the ſpace of eight years, would amount to $36^{h}\ 4'\ 37''.6416$; ſo that 99 lunations contain $2923^{d}\ 11^{h}\ 40'\ 45''.3179$. The moon, which ſhould have been renewed at the concluſion of this cycle, was obſerved to be $1^{d}\ 13^{h}\ 10'\ 41''.3179$ diſtant from the time of conjunction. This error muſt have exceeded three days in 16 years, and 30 days in 160 years. The correction of it was attempted by ſucceeding aſtronomers. The addition of three days, which was made at the concluſion of two periods, correſponded nearly to the courſe of the moon, but not to that of the ſun. Hence aroſe a confuſion and perplexity, which excited the raillery of Ariſtophanes, in his comedy of the "Clouds." The partiality which many of the Greeks retained in favour of the cycle of Cleoſtratus induced Eudoxus to attempt the correction of it. He obſerved, that eight ſolar years of 365 days contained 2922 days, and that 99 lunations contained $2923\frac{1}{2}$ days. In the courſe of every period, therefore, the moon varied from the ſun a day and a half, which amounted to a month of 30 days, in 20 periods, or in 160 years. The ſubtraction of this month from every 160 years conſtitutes the cycle attributed by Scaliger to Eudoxus. (De Emend. Temp. l. ii. p. 69.)

Cycle, *Metonic*, or lunar cycle of Meton, is a period of 6940 days, in which are very nearly completed 19 tropical revolutions of the ſun, or ſolar years, and 235 lunations, or revolutions of the moon, with regard to the ſun. After the completion of this cycle, the conjunctions of the ſun and moon take place in the ſame degrees of the ecliptic, and conſequently the new moons fall on the ſame days of the year as they did 19 years before.

Livy ſeems to aſcribe the invention of this cycle to Numa Pompilius, and Geminus to Euctemon and Philippus; but the honour of it has been generally attributed to Meton, an Athenian aſtronomer, about 432 years before our era, for the purpoſe of regulating the feſtivals of the Greeks, which, on account of the imperfection of the calendar of that people, had gone into great confuſion. The Greeks denominated it Εννεαδεκαετηρις, *enneadekaeteris*. It was publiſhed at the general meeting of the Greeks, aſſembled for the celebration of the Olympic games; and it was received with ſo much applauſe, that a ſtatue was decreed to the inventor, and he was declared victor in the firſt department. The ſcheme of the feſtivals, arranged according to the new cycle, was publicly propoſed, inſcribed on a marble pillar in letters of gold; and hence the number which expreſſes the order of the current year in this cycle is uſually called the golden number. This cycle was adopted on July 16th, B. C. 433; and the new moon which happened P. M. $7^{h}\ 43'$, was the preciſe era of its commencement. The firſt day was reckoned from ſun ſet.

The year of the Greeks conſiſted of 12 months of 29 and 30 days alternately; making in all a period of 354 days, which compriſes very nearly 12 lunations, or full moons. This year correſponds to the mean conjunctions of the ſun and moon within ſomething leſs than nine hours. The great difficulty was to connect this lunar year with the revolution of the ſun, ſo as to make the ſeveral months fall nearly in the ſame ſeaſons. The Olympic games were celebrated every fourth year, during the full moon next after the ſummer ſolſtice; and the year of the Greeks was ſo regulated as to make this the full moon of the firſt month. This purpoſe was effected by intercalations; but theſe were managed ſo injudiciouſly, that, in the time of Meton, the calendar and the celebration of the ſacred feſtivals had fallen into great confuſion. In the "Clouds" of Ariſtophanes, Diana, the goddeſs of the moon, is introduced greatly diſpleaſed that her courſe was no longer the ſtandard by which the diſpoſition of the feſtivals and the ſacrifices to the gods was regulated: ſhe complains bitterly that the deities were often diſappointed of the repaſts, which, on the return of the due times, they expected to receive from the devotion of their worſhippers. This clearly ſhews the height to which the evil had reached, and proves that the neceſſity of mending the calendar was generally perceived; a circumſtance which, while it would ſtimulate the exertions of ingenious men to find a remedy, would, at the ſame time, ſecure a favourable reception to a proper plan of reformation.

The Metonic cycle is recommended by its great ſimplicity: in this reſpect it is much to be preferred to any other period hitherto propoſed for reconciling the motions of the ſun and moon. Although it is poſſeſſed of conſiderable accuracy, it is yet far from being perfectly exact. An interval of 6940 days is neither preciſely equal to 19 tropical years, nor to 235 lunations; it exceeds the former about $9\frac{1}{2}$ hours, and the latter about $7\frac{1}{2}$ hours. In four cycles theſe errors would accumulate to more than a day; and the ſeveral phaſes of the moon, which are very remarkable appearances, would be really obſerved to happen a day ſooner than the times computed by the calendar. To remedy this defect, Calippus, who lived about a century poſterior to Meton, propoſed to cut off a day in four periods of 6940 days; and for this purpoſe he contrived a new cycle of 27,759 days, in which were contained 76 ſolar years, and 940 months or lunations. This new cycle is, in a conſiderable degree, more accurate than that of Meton; for it ſuppoſes the tropical year to conſiſt of $365\frac{1}{4}$ days, and it is anticipated by the full moons only $5^{h}\ 53'$ in 76 years.

It is in the manner we have juſt been deſcribing, that the primitive aſtronomy was firſt improved, and that a tolerably exact knowledge of the mean motions was firſt acquired. When the ſolſtice, or the full moons, actually obſerved in the heavens, had ſeparated from the calculated times by an interval too great to eſcape notice, the errors were cut off ſo as to bring the computations to correſpond more nearly with the phenomena. And it is not difficult to conceive that, by repeated corrections of this kind, the mean motions might at length be determined with very great accuracy, without the help of nice and delicate obſervations, and even although aſtronomy, in other reſpects, ſhould ſtill continue in a rude ſtate. This ſeems to be exemplified in the aſtronomy of the Hindoos, in which the mean motions are aſcertained with great preciſion; at leaſt the nature

ture of the methods employed in the aſtronomy of that people, favours this opinion.

The civil year, according to the calendars now in uſe, is entirely regulated by the motion of the ſun; but certain feſtivals of the Chriſtian church, ſuch as that of Eaſter, do ſtill depend upon the full moons that happen at determinate ſeaſons of the year. The celebration of Eaſter, as laid down by the council of Nice in 325, is fixed for the firſt Sunday after the next full moon following the 21ſt of March; and thus our calendars, as well as that of ancient Greece, require a method of reconciling the motions of the ſun and moon.

At the time this rule was eſtabliſhed, the vernal equinox really happened on the 21ſt of March, and the framers of it ſeem to have imagined that this would always continue to be the caſe. The intention certainly was to make the Paſchal moon depend on the vernal equinox: and if the Nicene decree mentions the day on which the equinox then happened, and not the equinox itſelf, without making any proviſion for the ſeparation of theſe two events, this can only be accounted for from its not being adverted to that ſuch a ſeparation might poſſibly take place. The fathers of the council of Nice made no change in the civil year, which continued to be regulated by the Julian calendar as before. All that was then thought to be neceſſary for introducing into the church an uniform practice in regard to the times for celebrating the feſtivals was, to lay down a general rule for determining the Paſchal full moon, and of courſe Eaſter Sunday. For this purpoſe the ancient cycle of Meton was adopted. If it be ſuppoſed that 235 lunations are preciſely equal to 19 Julian years, it is plain that the Paſchal full moons would happen on the ſame days of the month in the correſponding years of every cycle. For inſtance, if the Paſchal full moon ſhould fall on the 17th day of April of the fourth year of the current cycle, the ſame event would take place on the ſame day of the ſame month of the fourth year of all the following cycles. According to this ſuppoſition, it was only neceſſary to determine the Eaſter Sundays for one complete cycle, in order to have a perpetual table for all ſucceeding ages. Such was the ſimple ſcheme adopted by the church after the council of Nice; and this practice continued to be univerſally followed till the reformation of the calendar in 1582, and, by ſome of the Proteſtant churches, for a long time after.

But in proceſs of time two things happened, which had not been provided for by the council of Nice, and which introduced confuſion into the calendar, and a departure from the rule laid down for the celebration of Eaſter. The firſt of theſe was the ſeparation of the vernal equinox from the 21ſt of March. In the 16th century the firſt full moon after the 21ſt of March was frequently not the firſt full moon after the vernal equinox, which it ought to be, according to the intention and ſpirit of the Nicene decree. In fact the vernal equinox, which in 325 fell on the 21ſt of March, in the 16th century actually happened on the 10th of the ſame month. This anticipation was owing to the exceſs of the Julian year, of 365 days 6 hours, above the actual time of a tropical revolution of the ſun, which is only $365^{d}\ 5^{h}\ 48'\ 48''$. In an interval of 1300 years the ſun had anticipated the Julian calendar 10 complete days.

The ſecond thing that happened was owing to the inaccuracy of the ſuppoſition on which the ſcheme for determining the Paſchal full moons was founded; namely, that 235 lunations are exactly equal to 19 Julian years. The error of this ſuppoſition was preciſely the ſame as that of the ancient period of Calippus, introduced to correct the cycle of Meton; and it amounted to ſomething leſs than a day in 304 years. In 1300 years, that elapſed between the council of Nice and the end of the 16th century, the full moons calculated by the rules of the church were later than the true full moons by nearly four days: and hence aroſe a diſtinction between the eccleſiaſtical full moons and the true ones.

The defects of the calendar, both in regard to the ſeaſons and to the full moons, had been frequently the ſubject of diſcuſſion before the 16th century, and many plans of reformation had been propoſed at different times. At laſt pope Gregory XIII., in 1582, accompliſhed the great work of reforming the calendar. As far as regarded the civil year the undertaking was neither very difficult nor very complicated. In order to bring the 21ſt of March to the equinox, as it was at the time of the council of Nice, 10 days were cut off, by calling the 5th day of October, 1582, the 15th of that month; and, in order to fix the equinox for the 21ſt of March in all time coming, three days were directed to be left out in every period of 400 Julian years, by making three conſecutive centurial years common years, and the fourth a biſſextile year; whereas, according to the old calendar, every centurial year was a biſſextile year. This is equivalent to the ſuppoſition that 400 tropical revolutions of the ſun are performed in 146,097 days; which, although it is not perfectly exact, is very near the truth. The error is in exceſs, and it amounts to a day in 36 centuries: and, on this account, a day extraordinary muſt be left out in that period of years. The firſt correction for this error will fall in the year 5200, which muſt be made a common year, although, in the general tenor of the calendar, it ſhould be a biſſextile year.

A more difficult part of the reformation of the calendar, was to connect the motions of the moon with the ſolar year, ſo as to lay down a rule ſufficiently ſimple for determining the Paſchal full moons. The ſcheme to which the preference was given is ſtill founded on the Metonic cycle of 19 years, although a new ſet of numbers, called epacts, was introduced. By the epact of any year is underſtood the age of the moon on the firſt day of January of that year; or, it is the number of days elapſed ſince the laſt new moon. The epacts, it is evident, will be regulated by the exceſs of the ſolar year above 12 lunations, which are completed in it. Suppoſing a full moon to fall on the firſt day of January, the epact for that year would be 0; but next year it would be 11, which is the number of days that the ſolar year exceeds 12 lunations: the third year it would be 22: the fourth year it would be 3, namely, the exceſs of 33 above 30, the number of days that ſuffice for a lunation. In this manner the epacts for a complete cycle of 19 years are continued, by conſtantly adding 11 and dropping 30, when the ſum exceeds that number: after which the ſeries of numbers again recommences with a new cycle.

If 235 lunations had correſponded exactly to 19 Julian years, the ſeries of epacts would have been pepetual, or conſtantly the ſame for every cycle: and the new calendar would have been in ſubſtance the ſame as the old method by the golden numbers. But this regularity of the epacts is diſturbed by two cauſes; by the omiſſion of the intercalary days in the ſecular years; and by the error of the cycle of 19 years, which amounts to a day nearly in three centuries. On the former account a day muſt be ſubducted from the ſeries of epacts at the commencement of every century, whoſe firſt year is a common year; and on the latter account a day muſt be added to the ſame numbers after every interval of 300 years. In the language of the calendar, the firſt correction is called the ſolar equation, and the latter the lunar equation. It thus happens that every century, for the moſt part, requires a new ſet of epacts; at the ſame time it is not difficult to infer from what has juſt been ſaid that the ſame ſet will ſometimes continue in uſe for two, and even for three centuries together. If we conſider further that every ſet of epacts is derived from the epact of the firſt year of the cycle, and that this is neceſſarily a number leſs than 30, it will plainly appear that all the poſſible ſets are limited to 30. In the ſcheme of the Gregorian calendar, the 30 ſets of epacts are arranged in a table, and they are diſtinguiſhed by as many letters of the alphabet, which ſerve as indexes: in another table the ſeveral ſecular years are contained, each having the letter annexed to it, which is the index of the ſet of epacts to be uſed for the following 100 years.

According to the Gregorian calendar, the ſeries of epacts for 1800, which is to continue in uſe for the 19th century, is

1, 2, 3, 4, 5, 6, 7, 8,
*, XI, XXII, III, XIV, XXV, VI, XVII,

9, 10, 11, 12, 13, 14, 15, 16, 17,
XXVIII, IX, XX, I, XII, XXIII, IV, XV, XXVI,

18, 19.
VII, XVIII.

The figures denote the golden numbers, or the rank in the cycle of 19 years, and the Roman characters the epacts: the aſteriſk denotes either 0 or 30. In the year 1900, which is a common year, the epacts muſt be all carried back a day; thus,

1, 2, 3, 4, 5, 6, 7, 8,
XXIX, X, XXI, II, XIII, XXIV, V, XVI,

9, 10, 11, 12, 13, 14, 15, 16,
XXVII, VIII, XIX, *, XI, XXII, III, XIV,

17, 18, 19.
XXV, VI, XVII.

And this ſet of epacts will remain in uſe for the next 300 years: for the year 2000 being a biſſextile year, there is no ſolar equation; and the year 2100 being a common year, and at an interval of 300 years from 1800, the ſolar and lunar equations both take place, and, being contrary to one another, they produce no change in the epacts.

It is to be remarked that the new moons do not anticipate the cycle of 19 years quite ſo much as a day in 300 years. The anticipation is very nearly only 8 days in 2500 years: and hence, after having applied the lunar equation of the epacts ſeven times ſucceſſively, at intervals of 300 years each time, it muſt be applied the eighth time at an interval of 400 years.

At the time of the council of Nice, when the lunar cycle of 19 years was adopted for computing the church feſtivals, it would have been moſt convenient to have made the ſeries of cycles to commence with the era of Chriſt. Had this been done, the golden number of any propoſed year, or its rank in the current cycle, would have been the remainder of the diviſion when that year was divided by 19. But this conſideration was neglected in preparing the table of the Paſchal full moons, which was accommodated to the ſtate of the heavens at its formation: and, on reckoning back, it was found that the firſt year of our era correſponded not to the firſt, but to the ſecond year of the cycle of 19 years. Hence the golden number for any propoſed year will be found by this rule: "Add 1 to the year and divide by 19; the remainder of the diviſion is the golden number ſought; if there be no remainder, the golden number is 19." The only uſe of the golden number, in the new or reformed calendar, is to find the epact.

If it be propoſed to find the golden number for the year 1808: then 1809 being divided by 19, the remainder of the diviſion comes out to be 4, the golden number for that year. In the ſet of epacts in uſe for the 19th century, it will be found that III correſponds to the golden number 4; this then is the epact for 1808, or the age of the moon on the firſt of January 1808, according to the calendar: whence all the full moons for that year may readily be found.

The calendar is entirely founded on the mean motions of the ſun and moon, and the new moons computed by it would have coincided with the mean conjunctions of the ſun and moon, if its epoch had coincided with the aſtronomical epoch. This, however, is not the caſe: the aſtronomical epoch is earlier than the epoch of the calendar, and the mean conjunctions of the ſun and moon precede the new moons of the calendar.

As the lunar cycle of 19 years ſometimes includes five leap-years, and ſometimes four, it is impoſſible to have a correct table of all the numbers, unleſs it be extended to four times 19, or 76 years, in which there are 19 leap-years without a remainder. In this caſe, however, it muſt be adapted to the old ſtyle, becauſe, in every cuſtomary year not diviſible by 4, the regular courſe of leap-years, is interrupted in the new ſtyle, as was the caſe in the year 1800. Mr. Ferguſon, in his "Aſtronomy," (p. 264—5.) has given a table, computed upon the regular old ſtyle plan, of the mean times of all the new moons to the neareſt hour for 76 years, from the year of Chriſt, 1724, to the year 1800, incluſive: and he has alſo ſhewn how to make this table perpetual. The table is here ſubjoined.

A Table, ſhewing the Times of all the Mean Changes of the Moon, to the neareſt Hour, through four Lunar Periods, or 76 Years. M ſignifies Morning, A, Afternoon.

Years of the Cyc.	A.D	January.		Feb.		March.		April.		May.		June.		July.		Auguſt.		Sept.		October.		Novemb.		Decemb.	
		D.	H.	D.	H.	D.	H.	D.	H.	D.	H.	D.	H.	D.	H.	D.	H.	D.	H.	D.	H.	D.	H.	D.	H.
1	1724	14	5A	13	5M	13	6A	12	7M	11	8A	10	8M	9	9A	8	10M	6	10A	6	11M	4	12A	4	1A
2	1725	3	2M	1	2A	3	3M	1	4A	1 30	4M 5A	29	6M	28	7A	27	8M	25	8A	25	9M	23	10A	23	11M
3	1726	21	11A	20	11M	21	12A	20	1A	20	1M	18	2A	18	3M	16	4A	15	5M	14	5A	13	6M	12	7A
4	1727	11	8M	9	9A	11	9M	9	10A	9	11M	7	12A	7	0A	6	1M	4	1A	4	2M	2	3A	2 31	4M 5A
5	1728	30	6M	28	7A	29	7M	27	8A	27	8M	25	9A	25	10M	23	11A	22	11M	21	12A	20	1A	20	2M
6	1729	18	2A	17	3M	18	4A	17	4M	16	5A	15	6M	14	7A	12	7M	11	8A	11	9M	9	10A	9	11M
7	1730	7	11A	6	0A	8	1M	6	1A	6	2M	4	3A	4	3M	2	4A	2 30	5M 6A	30	7M	28	8A	28	9M
8	1731	26	9A	25	10M	26	10A	25	11M	24	11A	23	0M	23	1M	21	2A	20	2M	19	3A	18	4M	17	5A
9	1732	16	5M	14	6A	15	7M	13	8A	13	8M	11	9A	11	10M	9	11A	8	11M	7	12A	6	1A	6	2M
10	1733	4	2A	3	3M	4	4A	3	4M	2	5A	1 30	6M 7A	30	8M	28	8A	27	9M	26	10A	25	11M	24	11A
11	1734	23	0A	22	1M	23	1A	22	2M	21	2A	20	3M	19	4A	18	5M	16	5A	16	6M	14	7A	14	8M
12	1735	12	9A	11	9M	12	10A	11	11M	10	11A	9	0A	9	1M	7	2A	6	2M	5	3A	4	4M	3	5A
13	1736	2 31	5M 6A			1 30	7M 8A	29	9M	28	9A	27	10M	26	11A	25	0A	23	12A	23	1A	22	2M	21	3A
14	1737	20	3M	18	4A	20	4M	18	5A	18	5M	16	6A	16	7M	14	8A	13	8M	12	9A	11	10M	10	11A
15	1738	9	11M	7	12A	9	1A	8	1M	7	2A	6	3A	5	4A	4	5M	2	5A	2 31	6M 7A	30	8M	29	8A
16	1739	28	9M	26	10A	28	11M	26	12A	26	0A	25	1M	24	2A	23	3M	21	3A	21	4M	19	5A	19	6M
17	1740	17	6A	16	7M	16	8A	15	9M	14	9A	13	10M	12	11A	11	0A	9	12A	9	1A	8	2M	7	3A
18	1741	6	3M	4	4A	6	4M	4	5A	4	5M	2	6A	2 31	7M 7A	30	8M	28	9A	28	10M	26	11A	26	11M
19	1742	24	12A	23	1A	25	2M	23	3A	23	3M	21	4A	21	5M	19	6A	18	6M	17	7A	16	8M	15	9A
20	1743	14	9M	12	10A	14	11M	12	12A	12	0A	11	1M	10	2A	9	3M	7	3A	7	4M	5	5A	5	6M
21	1744	3	6A	2	7M	2	8A	1 30	9M 9A	30	10M	28	11A	28	0A	26	12A	25	1A	25	2M	23	3A	23	3M
22	1745	21	4A	20	5M	21	5A	20	6M	19	6A	18	7M	17	8A	16	8M	14	9A	14	10M	12	11A	12	0A
23	1746	10	12A	9	1A	11	2M	9	3A	9	3M	7	4A	7	5M	5	6A	4	6M	3	7A	2	8M	1 31	9A 10M
24	1747	29	10A	28	11M	29	11A	28	0A	27	12A	26	1A	26	2M	24	3A	23	3M	22	4A	21	5M	20	6A
25	1748	19	6M	17	7A	18	8M	16	9A	16	9M	14	10A	14	11M	12	12A	11	0A	11	1M	9	2A	9	3M
26	1749	7	3A	6	4M	7	5A	6	6M	5	6A	4	7M	3	8A	2 31	9M 9A	30	10M	29	11A	28	0A	27	12A
27	1750	26	1A	25	2M	26	3A	25	4M	24	4A	23	5M	22	6A	21	7M	19	7A	19	8M	17	9A	17	10M
28	1751	15	10A	14	11M	15	11A	14	0A	13	12A	12	1A	12	2M	10	3A	9	3M	8	4A	7	5M	6	6A
29	1752	5	6M	3	7A	4	8M	2	9A	2 31	9M 10A	30	11M	29	12A	28	0A	27	1M	26	2A	25	3M	24	3A
30	1753	23	4M	21	5A	23	6M	21	7A	21	7M	19	8A	19	9M	17	10A	16	10M	15	11A	14	0A	14	1M
31	1754	12	1A	11	2M	12	3A	11	4M	10	4A	9	5M	8	6A	7	7M	5	7A	5	8M	3	9A	3	10M
32	1755	1 31	10A 11M			1 31	11A 0A	29	12A	29	1A	28	2M	27	3A	25	3M	24	4A	24	5M	22	6A	22	6M
33	1756	20	7A	19	8M	19	9A	18	9M	17	10A	16	11M	15	12A	14	1A	13	1M	12	2A	11	3M	10	4A
34	1757	9	4M	7	5A	9	6M	7	7A	7	7M	5	8A	5	9M	3	10A	2	10M	1 31	11A 0A	30	1M	29	1A
35	1758	28	2M	26	3A	28	3M	26	4A	26	4M	24	5A	24	6M	22	7A	21	7M	20	8A	19	9M	18	10A
36	1759	17	10M	15	11A	17	0A	16	1M	15	1A	14	2M	13	3A	12	2M	10	4A	10	5M	8	6A	8	7M
37	1760	6	7A	5	8M	5	9A	4	10M	3	10A	2	11M	1 31	12A 1A	30	1M	28	2A	28	3M	26	4A	26	4M
38	1761	24	5A	23	6M	24	7A	23	8M	22	9A	21	10M	20	10A	19	11M	17	11A	17	0A	16	1M	15	2A
39	1762	14	2M	12	3A	14		12	4A	12	4M	10	5A	10	6M	8	7A	7	7M	6	8A	5	9M	4	10A

Table of the Mean New Moons concluded.

Years of the Cyc.	A.D	January.		Feb.		March.		April.		May.		June.		July.		August.		Sept.		October.		Novemb.		Decemb.	
		D.	H.	D.	H.	D.	H.	D.	H.	D.	H.	D.	H.	D.	H.	D.	H.	D.	H.	D.	H.	D.	H.	D.	H.
40	1763	3	11M	1	12A	3	0A	2	1M	1 31	1A 2M	29	3A	29	4M	27	4A	26	5M	25	6A	24	7M	23	7A
41	1764	22	8M	20	9A	21	10M	19	11A	19	11M	17	12A	17	1A	16	2M	14	2A	14	3M	12	4A	12	5M
42	1765	10	5A	9	6M	10	6A	9	7M	8	7A	7	8M	6	9A	5	10M	3	10A	3	11M	1	12A	1 31	1A 1M
43	1766	29	2A	28	3M	29	4A	28	5M	27	5A	26	6M	25	7A	24	8M	22	8A	22	9M	20	10A	20	11M
44	1767	18	11A	17	0A	19	1M	17	2A	17	2M	15	3A	15	4M	13	5A	12	6M	11	6A	10	7M	9	8A
45	1768	8	8M	6	9A	7	10M	5	11A	5	11M	3	12A	3	1A	2 31	2M 2A	30	3M	29	4A	28	5M	27	5A
46	1769	26	6M	24	7A	26	7M	24	8A	24	8M	22	9A	22	10M	20	11A	19	11M	18	12A	17	1A	17	2M
47	1770	15	2A	14	3M	15	4A	14	5M	13	5A	12	4M	11	7A	10	8M	8	8A	8	9M	6	10A	6	11M
48	1771	4	11M	3	0A	5	1M	3	2A	3	2M	1	3A	1 30	4M 5A	29	5M	27	6A	27	7M	25	8A	25	9M
49	1772	23	9A	22	10M	22	10A	21	11M	20	11A	19	0A	19	1M	17	2A	16	2M	15	3A	14	4M	13	5A
50	1773	12	5M	10	6A	12	7M	10	8A	10	8M	8	9A	8	9M	6	10A	5	11M	4	12A	3	1A	3	2M
51	1774	1 31	2A 3M			1 31	4A 5M	29	5A	29	6M	27	7A	27	8M	25	8A	24	9M	23	10A	22	11M	21	11A
52	1775	20	0A	19	1M	20	2A	19	3M	18	3A	17	4M	16	5A	15	6M	13	6A	13	7M	11	8A	11	9M
53	1776	9	9A	8	10M	8	10A	7	11M	6	12A	5	0A	5	1M	3	2A	2	2M	1 31	3A 4M	29	5A	29	5M
54	1777	27	6A	26	7M	27	8A	26	9M	25	9A	24	10M	23	11A	22	0A	20	12A	20	1A	19	2M	18	3A
55	1778	17	3M	15	4A	17	5M	15	6A	15	6M	13	7A	13	8M	11	9A	10	9M	9	10A	8	11M	7	12A
56	1779	6	0A	5	1M	6	2A	5	3M	4	3A	3	4M	2	5A	1 30	6M 6A	29	7M	28	8A	27	9M	26	9A
57	1780	25	10M	23	11A	24	11M	22	12A	22	0A	21	1M	20	2A	19	3M	17	3A	17	4M	15	5A	15	6M
58	1781	13	6A	12	7M	13	8A	12	9M	11	9A	10	10M	9	11A	8	0A	6	12A	6	1A	5	2M	4	3A
59	1782	3	3M	1	4A	3	5M	1	6A	1 30	6M 7A	29	8M	28	9A	27	9M	25	10A	25	11M	23	12A	23	0A
60	1783	22	1M	20	2A	22	2M	20	3A	20	3M	18	4A	18	5M	16	6A	15	6M	14	7A	13	8M	12	9A
61	1784	11	9M	9	10A	10	11M	8	12A	8	0A	7	1M	6	2A	5	3M	3	3A	3	4M	1	5A	1 30	6M 6A
62	1785	29	7M	27	8A	29	9M	27	10A	27	10M	25	11A	25	0A	24	1M	22	1A	22	2M	20	3A	20	3M
63	1786	18	4A	17	5M	18	5A	17	6M	16	6A	15	7M	14	8A	13	9M	11	9A	11	10M	9	11A	9	0A
64	1787	7	12A	6	1A	8	2M	6	3A	6	3M	4	4A	4	5M	2	6A	1 30	6M 7A	30	8M	28	9A	28	9M
65	1788	26	10A	25	11M	25	12A	24	1A	24	1M	22	2A	22	3M	20	4A	19	4M	18	5A	17	6M	16	7A
66	1789	15	7M	13	8A	15	9M	13	10A	13	10M	11	11A	11	0A	10	1M	8	1A	8	2M	6	3A	6	4M
67	1790	4	4A	3	5M	4	5A	3	6M	2	6A	1 30	7M 8A	30	9M	28	9A	27	10M	26	11A	25	0A	24	12A
68	1791	23	1A	22	2M	23	3A	22	4M	21	4A	20	5M	19	6A	18	7M	16	7A	16	8M	14	9A	14	10M
69	1792	12	10A	11	11M	11	12A	10	1A	10	1M	8	2A	8	3M	6	4A	5	4A	4	5A	3	6M	2	7A
70	1793	1 30	7M 8A			1 30	9M 10A	29	10M	28	11A	27	0A	27	1M	25	1A	24	2M	23	3A	22	4M	21	4A
71	1794	20	5M	18	6A	20	6M	18	7A	18	7M	16	8A	16	9M	14	10A	13	10M	12	11A	11	0A	11	1M
72	1795	9	1A	8	2M	9	3A	8	4M	7	4A	6	5M	5	6A	4	7M	2	7A	2 31	8M 9A	30	10M	29	10A
73	1796	28	11M	26	12A	27	0A	26	1M	25	1A	24	2M	23	3A	22	4M	20	4A	20	5M	18	6A	18	7M
74	1797	16	7A	15	8M	16	9A	15	10M	14	10A	13	11M	22	12A	11	1A	10	1M	9	2A	8	3M	7	4A
75	1798	6	4M	4	5A	6	6M	4	7A	4	7M	2	8A	2 31	9M 10A	30	10M	28	11A	28	0A	27	1M	26	1A
76	1799	25	2M	23	3A	25	4M	23	5A	23	5M	21	6A	21	6M	19	8A	18	8M	17	9A	16	10M	15	11A
1	1800	14	11M	12	12A	13	0A	12	1M	11	1A	10	2M	9	3A	8	4M	6	4A	6	5M	4	6A	4	7M

The year 1800 begins a new Cycle.

This table may be made perpetual, by deducting ſix hours from the time of new moon in any given year and month from 1724 to 1800, in order to have the time of new moon in any year and month 76 years afterward; or, deducting 12 hours for 152 years, 18 hours for 228 years, and 24 hours for 304 years; becauſe, in that time the changes of the moon anticipate almoſt a complete natural day. And if the like number of hours be added for ſo many years paſt, we ſhall have the mean time of any new moon already elapſed. This table may be eaſily adapted to the new ſtyle, for any time to come. Thus, becauſe the year 1724 in this table is the firſt year of the cycle for which it is made; if, from any year of Chriſt after 1800, you ſubtract 1723, and divide the exceſs by 76, the quotient will ſhew how many entire cycles of 76 years are elapſed ſince the beginning of the cycle here provided for; and the remainder will ſhew the year of the current cycle anſwering to the given year of Chriſt. Hence, if the remainder be 0, you muſt inſtead of it put 76, and leſſen the quotient by unity. Then, look in the left-hand column of the table for the number in your remainder, and againſt it you will find the times of all the mean new moons in that year of the preſent cycle. And whereas, in 76 Julian years, the moon anticipates 5 hours 52 minutes, if theſe hours and minutes be multiplied by the quotient above found; the product ſubtracted from the times in the table will leave the corrected times of the new moons to the old ſtyle; which may be reduced to the new ſtyle, thus:—

Divide the number of entire hundreds in the given year of Chriſt by 4, multiply this quotient by 3, to the product add the remainder, and from their ſum ſubtract two:—this laſt remainder denotes the number of days to be added to the times above corrected, in order to reduce them to the new ſtyle. The reaſon is this; becauſe every 400 years of the new ſtyle gains 3 days upon the old ſtyle, one of which it gains in each of the centenary years ſucceeding that which is exactly diviſible by 4 without a remainder: but then, when you have found the days ſo gained, 2 muſt be ſubtracted from this number, on account of the rectifications made in the calendar by the council of Nice, and ſince by pope Gregory. It muſt alſo be obſerved, that the additional days found, as above directed, do not take place in the centenary years, which are not multiples of 4 till February 29th, Old Style, for on that begins the difference between the ſtyles; till which day, therefore, thoſe that were added in the preceding years muſt be uſed. *E. G. Required the mean time of new moon in* April, A. D. 1808, *N. S.*

From 1808 take 1723, and the remainder 85, divided by 76, gives a quotient 1 and remainder 9; againſt which, in the table, is April $13^d\ 8^h$ A: and ſubtracting from it $5^h\ 52'$ × 1, the above quotient, the remainder will be $13^d\ 2^h\ 8'$, the mean time, according to the old ſtyle; then the quotient of the entire hundreds in 1808 divided by 4 being 4, and the remainder 2, multiply 4 by 3; add the product 12 to the remainder 2, the ſum will be 14, from which ſubtract 2, and the remainder 12, added to the above time, old ſtyle, *viz.* $13^d\ 2^h\ 8'$ gives $25^d\ 2^h\ 8'$ A. Hence, it appears, that the mean time of new moon in April, 1808, New Style, is the 25th day at 8 minutes paſt 2 in the afternoon.

If 11 days be added to the time of any new moon in this table, it will give the time, according to the new ſtyle, till the year 1800. And if 14 days, 18 hours, 22 minutes, be added to the mean time of new moon, in either ſtyle, it will give the mean time of next full moon according to that ſtyle.

Table I. Shewing the Golden Number (which is the ſame both in the Old and New Style) from the Chriſtian Æra to A. D. 4000.

			Years leſs than an hundred.																		
Hundreds of Years.			0 19 38 57 76 95	1 20 39 58 77 96	2 21 40 59 78 97	3 22 41 60 79 98	4 23 42 61 80 99	5 24 43 62 81	6 25 44 63 82	7 26 45 64 83	8 27 46 65 84	9 28 47 66 85	10 29 48 67 86	11 30 49 68 87	12 31 50 69 88	13 32 51 70 89	14 33 52 71 90	15 34 53 72 91	16 35 54 73 92	17 36 55 74 93	18 37 56 75 94
0	1900	3800	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
100	2000	3900	6	7	8	9	10	11	12	13	14	15	16	17	18	19	1	2	3	4	5
200	2100	4000	11	12	13	14	15	16	17	18	19	1	2	3	4	5	6	7	8	9	10
300	2200	&c.	16	17	18	19	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
400	2300	—	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	1
500	2400	—	7	8	9	10	11	12	13	14	15	16	17	18	19	1	2	3	4	5	6
600	2500	—	12	13	14	15	16	17	18	19	1	2	3	4	5	6	7	8	9	10	11
700	2600	—	17	18	19	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
800	2700	—	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	1	2
900	2800	—	8	9	10	11	12	13	14	15	16	17	18	19	1	2	3	4	5	6	7
1000	2900	—	13	14	15	16	17	18	19	1	2	3	4	5	6	7	1	9	10	11	12
1100	3000	—	18	19	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1200	3100	—	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	1	2	3
1300	3200	—	9	10	11	12	13	14	15	16	17	18	19	1	2	3	4	5	6	7	8
1400	3300	—	14	15	16	17	18	19	1	2	3	4	5	6	7	8	9	10	11	12	13
1500	3400	—	19	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1600	3500	—	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19		2	3	4
1700	3600	—	10	11	12	13	14	15	16	17	18	19	1	2	3	4	5	6	7	8	9
1800	3700	—	15	16	13	18	19	1	2	3	4	5	6	7	8	9	10	11	12	13	14

TABLE II. Shewing the number of Direction, for finding Eaſter Sunday by the Golden Number and Dominical Letter.

G. N.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
A	26	19	5	26	12	33	19	12	26	19	5	26	12	5	26	12	33	19	12
B	27	13	6	27	13	34	20	13	27	20	6	27	13	6	20	13	34	20	6
C	28	14	7	21	14	35	21	7	28	21	7	28	14	7	21	14	28	21	7
D	29	15	8	22	15	29	22	8	29	15	8	29	15	1	22	15	29	22	8
E	30	16	2	23	16	30	23	9	30	16	9	23	16	2	23	9	30	23	9
F	24	17	3	24	10	31	24	10	31	17	10	24	17	3	24	10	31	17	10
G	25	18	4	25	11	32	18	11	32	18	4	25	18	4	25	11	32	18	11

This Table is adapted to the New Style.

Uſe of Table I. Find the even hundreds of any given year at the left hand, and take the odd years in the columns at the head of the table; and where the horizontal and vertical columns meet, you will have the golden number (which is the ſame both in old and new ſtyle) for the given year. *E. G.* Let the year be 1808; and having found 1800 at the left hand of the table, look for 8 at the top; under this number, and even with 1800, we find 4, which is the golden number for that year. See GOLDEN NUMBER, and preceding part of this article.

To find the *Epact;* ſee EPACT, and the preceding part of this article.

CYCLE *of the Moon*, or *Lunar* CYCLE, a period of 19 ſolar years; equivalent to 19 lunar years, and 7 intercalary months, which was thought to contain exactly 6940 days, or 235 ſynodical months; in which time the new and full moons and her other aſpects, are ſuppoſed to return to the ſame day of the Julian year.

This is alſo called the *Metonic period.* (See the preceding article.)

CYCLE *of the Sun*, or *Solar* CYCLE, is a period of 28 years, after which the days of the month return to the ſame days of the week.

In order to connect the days of the week with the days of the year, the firſt ſeven letters of the alphabet are choſen to mark the ſeveral days of the week: and they are diſpoſed in ſuch a manner for every year, that the letter A ſhall ſtand for the 1ſt day of January; the letter B for the ſecond day; the letter C for the third; and ſo on; the ſeven letters being conſtantly repeated in their order through all the days of the year. It is plain, from this diſpoſition, that the ſame letter will anſwer to Sunday, or any other day of the week, throughout the whole year. The letter which ſtands for Sunday, in any year, is called the dominical letter for that year.

This cycle has no reference to the motion of the ſun, as its name would ſeem to import. It has derived its appellation from the Latin name of Sunday, *Dies Solis;* the chief uſe of this cycle being to find the dominical letters, or the days of the year that anſwer to Sunday.

A common year of 365 days contains 52 weeks and 1 day: hence it follows, that the firſt and laſt days of a common year fall on the ſame day of the week, and anſwer to the ſame letter. Becauſe the firſt day of every year is repreſented by the letter A, it is plain that if the firſt day of a common year be Monday, the ſeventh day will be Sunday, and the dominical letter for that year will be G: the following year will begin with Tueſday, and the ſixth day of the year will be Sunday, to which the letter F correſponds: if this ſecond year be a common one, the third year will begin with Wedneſday, and the fifth day of the year will be Sunday, and the dominical letter will now be E. Thus, if all the years were common ones, the ſeveral letters, taken in a retrograde order, would ſucceſſively ſtand for Sunday, and the cycle of the dominical letters would be completed in ſeven years, after which the letters would return again in the ſame order. But this ſimple arrangement is diſturbed by the biſſextile, or leap years, each of which contains 52 weeks and two days. In order to correct the effect of the intercalation, and to cauſe the ſame letters to fall on the ſame days of the month, after the 29th of February, that they would have done if no intercalation had taken place, the whole ſeries of letters muſt be ſhifted forward a day after the 29th of February: and thus every leap year has two dominical letters; the one to be uſed before the intercalary day, and the other, which always ſtands before the firſt in the order of the letters, to be uſed for the reſt of the year. It now appears that there are five different dominical letters, all ſtanding next one another in a retrograde order, required for every period of four years: and as it is eaſy to prove that no more than ſeven ſuch combinations of five letters can poſſibly be formed, it follows that, in 28 years, all theſe combinations will be exhauſted, the dominical letters will be again renewed in the ſame order as before, and the days of the month will return to the ſame days of the week.

If the contrivers of this cycle had conſulted ſimplicity and convenience, they would have made the ſeries of cycles to commence with the Chriſtian era. This conſideration has been neglected, and the firſt year of our era is found to correſpond to the 10th of the ſolar cycle. Hence is derived this rule for finding the rank of any propoſed year in the current cycle of 28 years. "Add 9 to the propoſed year, divide the ſum by 28, and the remainder of the diviſion is the year of the ſolar cycle; if there be no remainder, the propoſed year is the 28th year of the cycle." It will readily be obſerved that the firſt year of every cycle is a leap year, unleſs in the caſe of a centurial year, when the intercalary day is omitted.

The following table ſhews the diſpoſition of the letters in the ſolar cycle for 100 years, beginning with 1800.

1	E D	5	G F	9	B A	13	D C	17	F E	21	A G	25	C B
2	C	6	E	10	G	14	B	18	D	22	F	26	A
3	B	7	D	11	F	15	A	19	C	23	E	27	G
4	A	8	C	12	E	16	G	20	B	24	D	28	F

The year of the cycle for 1808, found by the preceding rule, is 25; to which the dominical letters C B correſpond. Hence, this year, which is a leap year, began on Friday, and will end on Saturday.

There is a peculiarity in the uſe of this table for the year 1800, which it may be proper to remark: the year of the cycle for 1800 is 17, to which the letters F and E correſpond; but 1800 being a common year, the letter E is the dominical letter throughout the whole year.

In the year 1900, the order of the letters will be interrupted by the omiſſion of the intercalary day, and a new table muſt be conſtructed. For this purpoſe, it is only neceſſary to move the letters in the preceding table one place forward; ſo that the letters for the four firſt years of the cycle will be F E, D, C, B: and, becauſe the year 2000 is a biſſextile year, the order of the letters will not be again interrupted till 2100, and ſo long will the new table continue in force.

The dominical letter may be eaſily found for any year either before or after the Chriſtian era, by the following tables:

TABLE III. Shewing the Dominical Letters, Old Style, for 4200 Years before the Chriſtian Æra.

Bef. Chriſt.				Hundreds of Years.						
Years leſs than an Hundred.				0 700 1400 2100 2800 3500	100 800 1500 2200 2900 3600	200 900 1600 2300 3000 3700	300 1000 1700 2400 3100 3800	400 1100 1800 2500 3200 3900	500 1200 1900 2600 3300 4000	600 1300 2000 2700 3400 4100
0	28	56	84	D C	C B	B A	A G	G F	F E	E D
1	29	57	85	E	D	C	B	A	G	F
2	30	58	86	F	E	D	C	B	A	G
3	31	59	87	G	F	E	D	C	B	A
4	32	60	88	B A	A G	G F	F E	E D	D C	C B
5	33	61	89	C	B	A	G	F	E	D
6	34	62	90	D	C	B	A	G	F	E
7	35	63	91	E	D	C	B	A	G	F
8	36	64	92	G F	F E	E D	D C	C B	B A	A G
9	37	65	93	A	G	F	E	D	C	B
10	38	66	94	B	A	G	F	E	D	C
11	39	67	95	C	B	A	G	F	E	D
12	40	68	96	E D	D C	C B	B A	A G	G F	F E
13	41	69	97	F	E	D	C	B	A	G
14	42	70	98	G	F	E	D	C	B	A
15	43	71	99	A	G	F	E	D	C	B
16	44	72		C B	B A	A G	G F	F E	E D	D C
17	45	73		D	C	B	A	G	F	E
18	46	74		E	D	C	B	A	G	F
19	47	75		F	E	D	C	B	A	G
20	48	76		A G	G F	F E	E D	D C	C B	B A
21	49	77		B	A	G	F	E	D	C
22	50	78		C	B	A	G	F	E	D
23	51	79		D	C	B	A	G	F	E
24	52	80		F E	E D	D C	C B	B A	A G	G F
25	53	81		G	F	E	D	C	B	A
26	54	82		A	G	F	E	D	C	B
27	55	83		B	A	G	F	E	D	C

TABLE IV. Shewing the Dominical Letters, Old Style, for 4200 Years after the Chriſtian Æra.

After Chriſt.				Hundreds of Years.						
Years leſs than an Hundred.				0 700 1400 2100 2800 3500	100 800 1500 2200 2900 3600	200 900 1600 2300 3000 3700	300 1000 1700 2400 3100 3800	400 1100 1800 2500 3200 3900	500 1200 1900 2600 3300 4000	600 1300 2000 2700 3400 4100
0	28	56	84	D C	E D	F E	G F	A G	B A	C B
1	29	57	85	B	C	D	E	F	G	A
2	30	58	86	A	B	C	D	E	F	G
3	31	59	87	G	A	B	C	D	E	F
4	32	60	88	F E	G F	A G	B A	C B	D C	E D
5	33	61	89	D	E	F	G	A	B	C
6	34	62	90	C	D	E	F	G	A	B
7	35	63	91	B	C	D	E	F	G	A
8	36	64	92	A G	B A	C B	C D	E D	F E	G F
9	37	65	93	F	G	A	B	C	D	E
10	38	66	94	E	F	G	A	B	C	D
11	39	67	95	D	E	F	G	A	B	C
12	40	68	96	C B	D C	E D	F E	G F	A G	B A
13	41	69	97	A	B	C	D	E	F	G
14	42	70	98	G	A	B	C	D	E	F
15	43	71	99	F	G	A	B	C	D	E
16	44	72		E D	F F	G F	A G	B A	C B	D C
17	45	73		C	D	E	F	G	A	B
18	46	74		B	C	D	E	F	G	A
19	47	75		A	B	C	D	E	F	G
20	48	76		G F	A G	B A	C B	D C	E D	F E
21	49	77		E	F	G	A	B	C	D
22	50	78		D	E	F	G	A	B	C
23	51	79		C	D	E	F	G	A	B
24	52	80		B A	C B	D C	E D	F E	G F	A G
25	53	81		G	A	B	C	D	E	F
26	54	82		F	G	A	B	C	D	E
27	55	83		E	F	G	A	B	C	D

Table V. The Dominical Letter, New Style, for 4000 Years after the Chriſtian Æra.

After Chriſt.				Hundreds of Years.			
Years leſs than an Hundred.				100 500 900 1300 1700 2100 2500 2900 3300 3700	200 600 1000 1400 1800 2200 2600 3000 3400 3800	300 700 1100 1500 1900 2300 2700 3100 3500 3900	400 800 1200 1600 2000 2400 2800 3200 3600 4000
				C	E	G	B A
1	29	57	85	B	D	F	G
2	30	58	86	A	C	E	F
3	31	59	87	G	B	D	E
4	32	60	88	F E	A G	C B	D C
5	33	61	89	D	F	A	B
6	34	62	90	C	E	G	A
7	35	63	91	B	D	F	G
8	36	64	92	A G	C B	E D	F E
9	37	65	93	F	A	C	D
10	38	66	94	E	G	B	C
11	39	67	95	D	F	A	B
12	40	68	96	C B	E D	G F	A G
13	41	69	97	A	C	E	F
14	42	70	98	G	B	D	E
15	43	71	99	F	A	C	D
16	44	72		E D	G F	B A	C B
17	45	73		C	E	G	A
18	46	74		B	D	F	G
19	47	75		A	C	E	F
20	48	76		G F	B A	D C	E D
21	49	77		E	G	B	C
22	50	78		D	F	A	B
23	51	79		C	E	G	A
24	52	80		B A	D C	F E	G F
25	53	81		G	B	D	E
26	54	82		F	A	C	D
27	55	83		E	G	B	C
28	56	84		D C	F E	A G	B A

Uſe of the Tables. In Table III. or IV. for Old Style or Table V. for New Style, look for the hundreds of years at the head of the table, and for the odd years, neceſſary for completing the given year, at the left hand; and where the columns meet, you have the dominical letter deſired. Suppoſe it were required to find the dominical letter for the year of our Lord, 1808, New Style, look for 1800 at the head of Table V. and for 8 at the left hand of the ſame table; and in the angle formed by the lines of the two columns, we find C B, which are the dominical letters for that year, and ſhew that it is leap-year; becauſe leap-year has always two dominical letters, the change taking place at the end of February. If the dominical letters were wanted for the ſame year, old ſtyle, they will be found by Table IV. to be E D. But to find the dominical letter for any year before Chriſt, ſubtract 1 from that year, and proceed to find it, as before, by Table III. *E. G.* Let it be required to find the dominical letter for the 585th year before the firſt year of Chriſt, look for 500 at the head of Table III. and for 84 at the left hand; and in the meeting of the columns you find F E the dominical letter, indicating that year to have been leap-year.

The following table ſerves for finding the day of the month anſwering to any day of the week; or the day of the week anſwering to any day of the month, for any year paſt or to come.

Table VI. Shewing the Days of the Months for both Styles by the Dominical Letters.

Week Day.	A	B	C	D	E	F	G
January 31 October 31	1 8 15 22 29	2 9 16 23 30	3 10 17 24 31	4 11 18 25	5 12 19 26	6 13 20 27	7 14 21 28
Feb. 28-29 March 31 November 30	5 12 19 26	6 13 20 27	7 14 21 28	1 8 15 22 29	2 9 16 23 30	3 10 17 24 31	4 11 18 25
April 30 July 31	2 9 16 23 30	3 10 17 24 31	4 11 18 25	5 12 19 26	6 13 20 27	7 14 21 28	1 8 15 22 29
Auguſt 31	6 13 20 27	7 14 21 28	1 8 15 22 29	2 9 16 23 30	3 10 17 24 31	4 11 18 25	5 12 19 26
September 30 December 31	3 10 17 24 31	4 11 18 25	5 12 19 26	6 13 20 27	7 14 21 28	1 8 15 22 29	2 9 16 23 30
May 31	7 14 21 28	1 8 15 22 29	2 9 16 23 30	3 10 17 24 31	4 11 18 25	5 12 19 26	6 13 20 27
June 30	4 11 18 25	5 12 19 26	6 13 20 27	7 14 21 28	1 8 15 22 29	2 9 16 23 30	3 10 17 24

Uſe of the Table. Having found the dominical letter for the given year, enter Table VI. with the dominical letter at the head; and under it, all the days in that column are Sundays, in the diviſions of the months; thoſe in the next column to the right hand are Mondays; thoſe of the next are Tueſdays, and ſo on to the laſt column under G; from which go back to the column under A, and proceed as before. Thus, in the year 1808, the dominical letters in new ſtyle are C B; then all the days under C are Sundays, thoſe under D are Mondays, &c. to that year as far as Feb. 28; and thoſe under B are Sundays for the reſt of the year, and thoſe under C are Mondays, &c. If it be required to find the day of the week anſwering to any day of the month, it may be eaſily had from the ſame table by the letter that ſtands at the top of the column in which the given day of the months is found. Thus, the letter that ſtands over the 28th of May is A, and in the year 585, B. C. the dominical letters were found to be F E, which, being a leap-year, and E taking place from the 24th of February to the end of that year, (ſee BISSEXTILE), ſhews by the table that the 25th of May was Sunday; and, therefore, the 28th muſt have been Wedneſday. Hence, as it is ſaid that the famous eclipſe of the ſun, foretold by Thales, by which a peace was brought about between the Medes and Lydians, happened on the 28th of May, in the 585th year B. C., it fell on a Wedneſday. See DOMINICAL *Letter.*

CYCLE *of Indiction*, or *The Indiction*, is a period of 15 years, continually renewed like the other cycles.

This cycle is merely chronological, and has no reference to aſtronomy. It was introduced at Rome under the emperors, and it began in the year 312 of our era. Authors are very much divided in regard to the purpoſe which this cycle was intended to ſerve, and even in regard to the time it was firſt introduced. The times for the payment of certain taxes, or tributes, ſeem to have been regulated by it.

We may ſuppoſe the ſeries of indictions to have commenced three years before our era, and then the rank of any propoſed year in the current circle will be found by this rule: "add 3 to the given year, and divide by 15; the remainder of the diviſion is the year of the indiction: if there be no remainder, 15 is the year of the indiction."

Thus, if the year 1808 be propoſed, it will be found that the year of the indiction is 11.

The Julian period is a ſpace of 7980 years, obtained by multiplying together the numbers 28, 19, and 15, which are the years in the lunar and ſolar cycles, and the indiction. This period was firſt propoſed by Joſeph Scaliger in 1583, with the view of introducing into chronology a language at once uniform and free from uncertainty. The principle by which theſe advantages are obtained is ſimple and not difficult to prove; namely, that there is only one number, leſs than 7980, which, being ſeparately divided by 28, 19, and 15, will leave three propoſed remainders. Hence, it follows, that when the ranks of any propoſed year in the three cycles are known, the place of that year, in the Julian period, will be thence determined. Thus, every year in this long period is marked by peculiar characters, that diſtinguiſh it from all other years. The chronology of events, prior to the Chriſtian era, is often not a little perplexed; both becauſe authors make uſe of the Julian years now employed, and becauſe the epochs from which they reckon are, in many inſtances, arbitrary and hypothetical. On this account, there is much advantage derived from reducing the principal epochs made uſe of in ancient hiſtory to the correſpondent years of the Julian period, by which means their relative places are clearly fixed, without danger of ambiguity.

The Julian period has given occaſion to the propoſing of an arithmetical queſtion, for the purpoſe of finding the rank which any given year holds in it. To do this, it is neceſſary to determine a number, which, when ſeparately divided by 28, 19, and 15, ſhall leave three given remainders: a problem which, in general, is indeterminate, but admits of only one anſwer, when the reſtrictions ariſing from the nature of the caſe are taken into view. This problem has been often reſolved, and is attended with no difficulty: on this account, we ſhall be content with inſerting a rule, without ſtopping to give the inveſtigation of it. Let l denote the rank of the propoſed year in the lunar cycle, S its rank in the ſolar cycle, and i its rank in that of the indictions; then, having found the value of the expreſſion $4200 \times l + 4845 \times S + 6916 \times i$, let it be divided by 7980, and the remainder of the diviſion will be the year of the Julian period required.

For the firſt year of our era, $l = 2$, $S = 10$, and $i = 4$; and hence that year is found to correſpond to the 4714th of the Julian period.

This period commenced 710 years before the ſuppoſed year of the creation, or, as Uſher ſtates it, 4004 years B.C. At no later period than this could all the cycles begin together, and it is not yet completed; and therefore it includes all other cycles, periods, and eras. At the cloſe of the 4713th year of this period was the Dionyſian or vulgar era of Chriſt's birth; and conſequently the firſt year of his age, according to that account, coincided with the 4714th year of the ſaid period. Therefore, if to the current year of Chriſt we add 4713, the ſum will be the year of the Julian period. And to find the year of the Julian period, correſponding to any given year before the firſt year of Chriſt, ſubtract the number of that given year from 4714, and the remainder will be the year of the Julian period.

CYCLE *of Eaſter*, *Great Paſchal Cycle*, called alſo the *Victorian* or *Dionyſian Period*, is the product of the ſolar and lunar cycles, or of 28 and 19, comprehending 532 years. If the new moons did not anticipate upon this cycle, Eaſter-day would be always the Sunday next after the full moon which follows the 21ſt of March. But on account of this anticipation, which was not duly regarded before the alteration of the ſtyle, the eccleſiaſtical Eaſter has been ſeveral times, within the laſt century, a week different from the *true Eaſter:* an inconvenience which is now remedied by making the table which was uſed for finding Eaſter *for ever*, in the Common Prayer Book, of no longer uſe than the lunar difference from the new ſtyle will allow. The earlieſt Eaſter poſſible is the 22d of March, and the lateſt the 25th of April. Within theſe limits are 35 days, and the number belonging to each of them is called the NUMBER *of Direction;* becauſe it ſerves to find the time of Eaſter for any given year. In order to find this number of direction, according to the new ſtyle, firſt find the dominical letter, and then the golden number for the given year; then enter TABLE II. with the dominical letter at the left hand, and the golden number at the top; and where the horizontal and vertical columns meet is the number of direction for that year: which number, added to the 21ſt day of March, ſhews on what day either of March or April Eaſter Sunday falls in that year. *E. G.* The dominical letters for the year 1808 are C B, and the golden number is 4, and the number of direction, correſponding to theſe, is 27; which, reckoned from the 21ſt of March, gives the 17th of April for Eaſter Sunday.

CYCLES, in *Harmonics*, are certain determinate periods or ſeries of pulſes or vibrations, excited in the air by the conſonance of two muſical ſounds.

Dr. Smith (Harmonics, p. 56.) diſtinguiſhes theſe, 1ſt, into *ſimple* cycles, when the leaſt terms of the ratio expreſſing a ſmall interval differ but by 1; 2d, *complex* cycles, when the leaſt terms of ſuch a conſonance differ by more than unity; 3d, *ſhort* cycles, formed by the pulſes of perfect conſonances, or ſuch whoſe ratios are expreſſed in ſmall numbers; and, 4th, *long* cycles, of the pulſes of imperfect uniſons, or other conſonances, which are not expreſſible but by high or ſurd numbers.

In his ſeventh propoſition, Dr. Smith demonſtrates, “that in going from either end to the middle of any ſimple cycle, or period of the pulſes of imperfect uniſons, the alternate leſſer intervals between the ſucceſſive pulſes increaſe uniformly, and are proportional to their diſtances from that end; and at any diſtances from it leſs than half the ſimple cycle or period, are leſs than half the leſſer of the two vibrations of the imperfect uniſons:” from whence he deduces as corollaries, 1. “That any ſimple cycle or period of the pulſes of imperfect uniſons contains one more of the quicker than of the ſlower vibrations.” 2. “The leſſer intervals that lie neareſt to the periodical points, and the points of coincidence, are leſs than any of the reſt.” 3. “Some of the alternate leſſer intervals of the pulſes of imperfect uniſons are the differences of equal numbers of their vibrations, counted from the neareſt coincident pulſes; and others are the differences of equal numbers of the ſame part or parts of their ſingle vibrations, counted from the neareſt periodical point.” 4. “If the vibrations of two couples of imperfect uniſons, or of any two conſonances, be proportional, the periods and cycles of their pulſes, whether ſimple or complex, will be in the ratio of the homologous vibrations.” 5. “The length of the period of the leaſt imperfections, in any conſonance of imperfect uniſons, is the ſame as that of the period of its pulſes.” At page 69, the following is deduced as one of the corollaries to his eighth propoſition; *viz.* “The imperfect ſhort cycle of any imperfect conſonance contains equal numbers of the ſlower and quicker vibrations of the imperfect uniſons, from whence it is derived.”

If R and r be the leaſt integers in the ratio of the interval between any two ſounds, and V and v repreſent the times of their ſingle vibrations, reſpectively; then will the length of the cycle of times between the ſucceſſive coincidences of the pulſes of V and v be $r\,V$ or $R\,v$: becauſe theſe multiples of V and v are the leaſt of any which can be equal; R and r being prime to each other.

Alſo, if S and s be the leaſt integers of another conſonance, whoſe vibrations are V and x; then the length of its cycle is $s\,V$ or $S\,x$.

Hence the length of the cycle of V and v, is to that of V and x, as r to s; that is, conſonances which have a common ſound or vibration, V, have the lengths of their cycles proportional to the numerators of the fractions $\frac{r}{R}V = v$, $\frac{s}{S}V = x$, expreſſing the times of the ſingle vibrations of the other ſounds. Harm. p. 22.

Suppoſing the vibrations, V and v, of imperfect uniſons to be incommenſurable, or $V : v :: \sqrt{p} : \sqrt{q}$; and x to be an indeterminate vibration, and $V : x : m : n$. Then if the ratios of the indeterminate numbers, m, n, be ſuppoſed to approach gradually to the given ratio of $\sqrt{p}$ to $\sqrt{q}$; though the length, $n\,V$ or $m\,x$, of the indeterminate cycle of the pulſes of V and x increaſe without limits, nevertheleſs the length $\frac{n}{m-n}V = \frac{m}{m-n}x$, of the indeterminate period of their pulſes tends gradually to a determinate limit, $\frac{\sqrt{q}}{\sqrt{p}-\sqrt{q}}V = \frac{\sqrt{p}}{\sqrt{p}-\sqrt{q}}v$. And this is the period of the pulſes of the incommenſurable vibrations, V, v, which excites the determinate ſenſation of this imperfect uniſon, be the complex cycle of their pulſes ever ſo long, infinite, or impoſſible. The doctor adds, at page 102, “I ſay, determinate ſenſation; for though the alternate leſſer intervals of the pulſes in the ſeveral ſucceſſive periods of V and v, even when commenſurate, are not preciſely equal, yet it is highly probable that the ear could not diſtinguiſh a repetition of any one period from the ſucceſſion of them all, and ſeems agreeable to experience, in obſerving the identity of the tone of imperfect uniſons held out upon an organ.”

CYCLIDIUM, in *Zoology*, a genus of vermes, inviſible to the naked eye, of a ſimple form, pellucid, flat, and orbicular or oval. They are found chiefly in vegetable infuſions.

Species.

Bulla. Orbicular and tranſparent. Müll. *Cyclidium corpore orbiculi ſub-fuſco*, Hill.

Found in infuſions of hay. Its colour is white and pellucid, with the margin rather dark; and its motion ſlow and circular.

Milium. Elliptical and cryſtalline. Müll.

Obſerved in vegetable infuſions; its texture appears membranaceous, and is marked with a line through the whole length.

Pediculus. Oval and convex, beneath flat. Müll. Goeze, &c.

Diſcovered by Trembley on the arms of the hydra fuſca; the colour is white and gelatinous; with both extremities depreſſed and truncated, or ſometimes one of them cleft.

Nucleus. Oval; poſterior part acuminated. Müll.

Reſembles a grape-ſeed; the inteſtines are viſible, and the fore and hind part at each ſide are dark. Found in vegetable infuſions.

Rostratum. Oval; the anterior part ending in a point. Müll. Spallanz.

This ſpecies is pellucid and ſmooth, with a blue canal within branching into two arms, and two tranſverſe blue lines juſt beneath the middle of the body.

Radians. Ovate, with diſtinctly viſible inteſtines. Hermann. *Cyclidium corpore elliptico*, Hill, Spallanzani, &c.

Pellucid, with a blackiſh margin, and tranſparent veſicular inteſtines encloſed in a blueiſh pellicle.

Glaucoma. Oval, with the inteſtines hardly viſible. Müll.

Found in water which had been kept in a ſtagnant ſtate for the ſpace of ſix months; it is pellucid, and membranaceous, with tranſparent greeniſh-blue inteſtines; the margin ſometimes blackiſh.

Cyclidium, a ſpecies of Trichoda and alſo of Cercaria; which ſee reſpectively.

CYCLISCUS, (from κυκλος, *circulus*,) an inſtrument in form of a half-moon; uſed by the ſurgeons to ſcrape the ſkull, in fractures of that part.

CYCLOGASTER, in *Ichthyology*, the Cyclopterus *Liparis* of Gmelin; which ſee.

CYCLOGRAPH, in *Practical Geometry*, an inſtrument contrived, as its name imports, for deſcribing the arcs of circles, and applicable to other uſeful purpoſes. This inſtrument (*Plate* IV. *Geometry*, *fig.* 1.) is compoſed of five rulers: four of them, D E, D F, G E, and G F, forming a trapezium, are moveable on the joints, D, E, F, and G; the fifth ruler, D I, paſſes under the joint D, and through a ſocket carrying the oppoſite joint G. The diſtances from the centre of the joint D, to that of the joints E and F, are exactly equal, as are the diſtances from G to the ſame joints. The rulers, D E and D F, paſs beyond the joints, E and F, where a roller is fixed to each; the rollers are fixed upon their axes, which move freely, but ſteadily on pivots, ſo as to admit of no ſhake by which the inclination of the axes can be varied. The ruler, I D, paſſing beyond the

the joint D, carries a third roller A, like the others, whoſe axis lies preciſely in the direction of that ruler; the axes of B and C extend to K and L.

A ſcale is put on the ruler D I, from H to G, ſhewing, by the poſition of the ſocket, G, thereon, the length of the radius of the arc in inches, that would be deſcribed by the end I, in that poſition of the trapezium. When the ſocket, G, is brought to the end of the ſcale near I, the axes of the two rollers B and C, the ruler D I, and the axis of the roller A, are preciſely parallel; and in this poſition, the end I, or any other point in D I, will deſcribe ſtraight lines at right angles to D I; but on ſliding the ſocket, G, towards H, an inclination is given to the axes of B and C, ſo as to tend to ſome point in the line I D, continued beyond D, whoſe diſtance from I is ſhewn by the ſcale.

A proper ſocket, for holding a pen or tracer, is made to put on the end I, for the purpoſe of deſcribing arcs; and another is made for fixing on any part of the ruler D I, for the more convenient deſcription of concentric arcs, where a number are wanted.

It is plain from this deſcription, that the middle ruler, D I, in this inſtrument, is a true *oblique* ruler, by which lines may be drawn tending to a point, whoſe diſtance from I is ſhewn by the poſition of the ſocket, G, on the ſcale; and the inſtrument is made ſufficiently large, ſo as to anſwer this purpoſe as well as the other.

In this inſtrument the part, intended to be uſed in drawing lines, lies within the trapezium, which on that account is made large; but this is not neceſſary. *Fig.* 2. exhibits another inſtrument of a ſimilar kind, in which the trapezium may be made much ſmaller, and conſequently leſs cumberſome.

D B E C repreſents ſuch a trapezium, rollers, ſocket, and ſcale as above deſcribed, but much ſmaller. Here the ruler, E D, is continued a ſufficient length beyond D, as to A, where the third roller is fixed; a pen or tracer may be fitted to the end E, or made to ſlide between D and A, for the purpoſe of drawing arcs. Adams's Geometrical and Graphical Eſſays, p. 151, &c.

CYCLOID. If a circle, E P F (*fig.* 1.), be made to roll along a right line, A B, in the ſame plane with the circle, until a fixed point, as P in the circumference, which at firſt touched the right line at A, comes to touch it again at B, after an entire revolution; then the curve, traced upon the plane by the point P, is called a cycloid. This geneſis is familiarly illuſtrated by the tract made in the air by a nail in a coach-wheel; a tract which would be a perfect cycloid, could we ſuppoſe ſuch a motion to be quite free from all the irregularities to which it is ſubject. The ſame curve is ſometimes called a trochoid; and, by the French mathematicians, a roulette.

The cycloid is not a curve of great antiquity. Cardinal Cuſa, about 1454, and a perſon whom Dr. Wallis names Carolus Bovillus, in 1500, in ſearching for the quadrature of the circle, both thought of rolling a circle along a right line, with the view of marking off a part equal to the periphery: but as they neither paid any particular attention to the curve traced by a fixed point in the circumference of the circle, nor gave a name to the line ſo deſcribed, their claim to the invention of the cycloid, although it is aſſerted by Dr. Wallis, ſeems to reſt on very ſlender foundations. It appears from a letter written by Galileo to Torricelli, that the former of theſe celebrated men is more juſtly to be conſidered as the inventor of this curve, which he began to contemplate about 1599, and to which he gave the name of a cycloid, that it ſtill bears. He informs us, that the ſhape of the cycloid ſeemed to him to be very proper for the arches of a bridge. He likewiſe made ſome attempts to diſcover the proportion of the area of the curve to the area of the generating circle. In theſe attempts he was not ſucceſsful; but the method which he employed, as related by Torricelli, if it reflect little credit on the geometrical invention of Galileo, deſerves at leaſt to be mentioned on account of its ſingularity. Having choſen ſome ſubſtance of an equable thickneſs and uniform texture, he cut it in the ſhape of a cycloid, and then, by weighing it, he tried to diſcover the proportion of the ſurface of the curve to the ſurface of the generating circle.

The invention of the cycloid is likewiſe aſcribed, by the French writers, to Merſenne, who, without knowing that the ſame curve had already been noticed by Galileo, is ſaid to have remarked it about 1615, when conſidering the motion of a wheel. It is certain that Merſenne firſt drew the attention of mathematicians to this curve. He propoſed the problem concerning the area of the cycloid to Roberval, who appears to have diſcovered, about 1634, that the whole area was equal to three times the area of the generating circle. The determining of the tangents of the ſame curve, at that time a problem of no little difficulty, was accompliſhed by Des Cartes and Fermat. Merſenne, who carried on a correſpondence with moſt of the learned men of his time, informed Galileo of the problems concerning the cycloid, which then occupied the attention of the French mathematicians: and, by this channel, the ſame curve came to be the ſubject of conſideration in Italy. Torricelli reſolved the problem concerning the area of the curve; and Viviani found the method of drawing tangents to it: and theſe diſcoveries were communicated to the public in an appendix to the works of Torricelli, printed in 1644. On this occaſion, a keen conteſtation aroſe between Roberval and Torricelli concerning the originality of the diſcoveries made in Italy. The inveſtigations of the French mathematicians were certainly prior in point of time; but, although they were handed about among the learned in France, they were not given to the public through the medium of the preſs: and there appears to be no good ground for the charge of plagiariſm made by Roberval, which the original term of the demonſtrations of Torricelli likewiſe helps to refute.

Paſcal, under the feigned name of Dettonville, in 1658, propoſed ſome problems concerning the cycloid to the contemporary mathematicians; and he engaged to give certain prizes to ſuch as ſhould reſolve them againſt a limited time. In theſe problems it was required to find the dimenſions of the ſegments of the cycloid, and of the ſolids generated by the rotation of theſe ſegments, and to determine the centres of gravity of the ſame ſpaces and ſolids: all matters of the greateſt difficulty, and within the reach of mathematicians of the firſt rank only. On this occaſion, many curious diſcoveries were made. Huyghens found out the exact quadrature of a definite portion of the cycloid; and Wren diſcovered the rectification of its arcs. But there were only two competitors, who, having conſidered all the problems of Dettonville, could have any pretenſions to the prize. Theſe were Dr. Wallis and La Louere, a Jeſuit of Toulouſe; and, on comparing the two performances given in, the ſuperiority of that of the former was undiſputed. The prize was not, however, awarded to Dr. Wallis: there were ſome miſtakes in his calculations, and ſome errors in his reſults, which, in the opinion of the judges, juſtified them for withholding it. Dr. Wallis, on the other hand, contended that he had reſolved all the propoſed problems; and, although he admitted that there were miſtakes in his original paper, ſome of which he had corrected by letters ſent ſubſequent to the delivery of it, he aſſerted that theſe miſtakes were neither very eſſential, nor of ſuch a nature as to ſet aſide his claim by the conditions of the propoſer. Thus this curve, like the apple of diſcord, was again the occaſion of diſpute and diſſenſion.

In proportion as mathematicians advanced in their reſearches concerning the cycloid, the more intereſting and remarkable did it appear for its curious and ſingular properties. Leibnitz found out another definite portion of the curve admitting an exact quadrature, different from that already diſcovered by Huyghens; and John Bernouilli ſhewed how innumerable ſpaces, all exactly quadrable, may be determined: a diſcovery that included in it, as particular caſes, the two portions of Huyghens and Leibnitz. A ſtill more curious and ſingular property is due to Huyghens, who demonſtrated that the curve produced by the evolution of a ſemi-cycloid is another ſemi-cycloid, preciſely equal to the firſt. Nor is the cycloid leſs remarkable for its mechanical than for its mathematical properties. Huyghens, by his reſearches concerning pendulum-clocks, was led to inveſtigate the nature of the curve, along the arcs of which, whether great or ſmall, the times of deſcent, or oſcillation, of a heavy body, ſhould be perfectly equal; and he found that the curve poſſeſſed of this curious property was no other than the cycloid. In 1697, John Bernouilli propoſed the following problem to all the mathematicians of Europe: Suppoſe a heavy body to fall through a given height, in a direction oblique to the horizon, what is the nature of the curve along which it muſt deſcend, that the time of falling may be the leaſt poſſible? It is extremely natural to ſuppoſe, that the time of deſcent would be leaſt along the right line, which is the ſhorteſt diſtance between the beginning and end of the fall: but a little reflection is ſufficient to correct this firſt ſuggeſtion of the kind; and it has been demonſtrated, that the cycloid is the curve which, in this inſtance, likewiſe anſwers the required conditions.

In treating of the cycloid, we ſhall firſt demonſtrate, as ſuccinctly as poſſible, the geometrical properties on which its mechanical properties depend; theſe will engage our attention in the ſecond place; and we ſhall, in the laſt place, notice the more remarkable propoſitions concerning the cycloidal ſpaces.

1. If we ſuppoſe the fixed point in the circumference of the circle (*fig.* 1.), or the generating point of the cycloid, to have touched the baſe-line, firſt of all at A, it readily follows, from the manner in which the curve is deſcribed, that when the circle has arrived at any other poſition, as F P E, the right line, A E, between A and the point of contact E, is exactly equal to P E, the arc of the circle between the fixed point, P, and the ſame point, E: and hence, A B, the whole baſe, is equal to the whole periphery of the generating circle. When the circle has made exactly half a revolution, as in the poſition C Q D, then the deſcribing point will be at C, diametrically oppoſite to the point D, in which the circle touches the baſe line; and conſequently C will be the point of the curve fartheſt removed from the baſe, A B. It is alſo ſufficiently plain, that the ſame curve will be deſcribed, whether the circle be rolled from A to B, or back again from B to A: whence it appears that the part of the cycloid between A and C is ſimilar to the part between B and C.

The line, A B, is called the baſe of the cycloid.

The point, C, its vertex; the line, C D, biſecting the curve, its axis; the circle, C Q D, upon the axis, the generating circle.

A line, as P R, parallel to the baſe, and bounded by the curve and the axis, is called an ordinate; and C R, the diſtance of the ordinate from the vertex, the correſponding abſciſſa.

2. That part of the ordinate of a cycloid, between the curve and the convexity of the generating circle, is equal to the arc of the generating circle between the ordinate and the vertex; that is, P Q = arc C Q. When the deſcribing point is at P, let the revolving circle touch the baſe at E; draw the diameter, E F, and join P E, Q D. Becauſe the diameters E F and C D, are both perpendicular to A B, it is plain that arcs, E P, and D Q, of equal circles, have equal verſed ſines; conſequently theſe arcs will be equal to one another, and their chords, which make equal angles with the diameters E F and C D, will be parallel to one another. Hence E P Q D is a parallelogram, and P Q = E D. Again, the ſemi periphery C Q D = the right line A D, and the arc Q D = arc P E = right line A E: therefore the arc C Q = the right line E D = P Q.

The whole ordinate P R is equal to the arc C Q, together with its right ſine Q R.

If the radius of the generating circle be ſuppoſed = 1, and the length of the arc C Q = x; then the ordinate of the cycloid P R = x + ſin. x, and the correſpondent abſciſſa C R = 1 − coſ. x. Thus it appears that the relation between the abſciſſa and the ordinate of this curve cannot be algebraically expreſſed by an equation of a finite number of terms; and therefore the cycloid belongs to the claſs of tranſcendent, or mechanical curves.

3. If an ordinate of a cycloid, as P R, cut the generating circle in Q, and Q C be drawn to the vertex; then a line drawn through P, (*fig.* 2.) parallel to Q C, is a tangent of the curve.

Let a and b be any two points of the curve on oppoſite ſides of P, and from theſe points draw two ordinates to meet the generating circle in m and n, C Q or the ſame line produced in H and K, and the line drawn through P in M and N: alſo let a line touching the circle at Q, meet the two ordinates at S and T, and C E parallel to P R in E. It is plain that C E is a tangent of the circle: therefore C E = Q E, and conſequently, Q S = S H, and K T = T Q. Therefore m H = H S − S m = Q S − S m, is leſs than the chord Q m, and much more is it leſs than the arc Q m. But, as has been ſhewn, P Q, or M H, = arc C Q; therefore M H − H m, or m M, is greater than arc Q C − arc m Q, that is, than arc m C, or the right line $m\,a$. Again, K n = K T + T n = Q T + T n, is greater than the arc Q n; for Q T + T n is greater than the ſum of two tangents, Q O + O n, drawn from the extremities of the arc Q n^2: (20. 1. E.) therefore K N + K n, or N n, is greater than arc C Q + arc Q n, that is, than the arc C n, or the right line $n\,b$. And becauſe m M is greater than $m\,a$, and N n likewiſe greater than $n\,b$, therefore the right line drawn through P parallel to C Q, will meet the cycloid only in the point P, and, every where elſe, will be without the curve; therefore it is a tangent.

This demonſtration, which is very elegant and geometrical, is due to Wren; it is publiſhed in an Appendix to Dr. Wallis's Treatiſe on the Cycloid. The ſame concluſion might have been derived from the common method for the tangents of curve lines. Let the tangent of the cycloid at P meet the axis produced in F; then, agreeably to the general method, $\frac{PR}{RF} = \frac{\text{fluxion of } PR}{\text{fluxion of } RF} = \frac{1 + \text{Coſ.}\,x}{\text{Sin.}\,x} = \frac{\text{Sin.}\,x}{1 - \text{Coſ.}\,x} = \frac{QR}{CR}$; therefore the tangent P F is parallel to C Q.

4. Let two equal ſemi-cycloids, A C D and F A E, (*fig.* 3.) be placed in ſuch a manner that their baſes may be parallel, and the extremity of the baſe of the firſt may be upon the vertex of the ſecond; then will the firſt be deſcribed by the evolution of the ſecond. Let N H, a tangent of the ſecond cycloid, meet the baſe of the firſt in H, and deſcribe a circle equal to the generating circles of the cycloids to touch the ſame baſe in H, and produce N H to cut this circle in P: draw the ordinate N M L, and the chord A M. Becauſe N H is a tangent of the cycloid, it is parallel to the chord A M. And becauſe A H is a common tangent of two equal circles, and the chords A M and P H are drawn from the points of contact to make equal angles with the common tangent, it is plain that theſe chords will divide the two equal circles into ſegments that are reſpectively equal to one another; therefore the arc A M is equal to the arc P H. But the arc A M is equal to M N, or to A H; therefore the arc P H is equal to A H. Therefore when the revolving circle, by which the cycloidal arc A C is generated, comes to touch the baſe at H, the deſcribing point will fall upon P, which is conſequently a point in the curve. Draw the ordinate P Q R, the chords C Q, E M, and S T, touching the cycloid at P: becauſe the arc P H is equal to the arc A M, the chords of theſe arcs are equal and parallel, and hence A L = D R, and C R = L E; therefore the chord C Q is equal and parallel to the chord M E: but S T is parallel to C Q, and therefore it is alſo parallel to M E. Therefore becauſe A M is perpendicular to M E, N P (parallel to A M) is perpendicular to S T (parallel to M E.) Thus all the tangents of the ſemi-cycloid A N F cut the ſemi-cycloid A P C at right angles; and conſequently, by what was proved of evolute and involute curves, under the head *Curvature*, the former ſemi-cycloid is the evolute of the latter.

5. An arc of a cycloid between the vertex and an ordinate, is double of the chord of the arc of the generating circle, between the vertex and the ordinate; that is, the arc A N is double of the chord A M. For if a thread be lapped up upon the ſemi-cycloid A N F, and, while the end that falls on F remains fixed, the other end, that falls on the vertex A, be moved ſo as to keep the thread always tight, and to unlap it from the curve; then, by what has been proved above, the moveable end of the thread will deſcribe the ſemi-cycloid A P C; and, in every poſition of the thread, it is plain that the part of it which is detached from the curve, as N P, is equal to the arc A N, from which it has been unlapped. Now it is manifeſt, from what has already been ſhewn, that P H = A M = H N; therefore the cycloidal arc A N is equal to the double of the chord A M.

Hence it appears that the whole arc of the ſemi-cycloid is double of the diameter of the generating circle.

This curious inſtance of the exact equality of the arc of a curve to a right line, is due to Wren; and it is the ſecond inſtance of the kind that was diſcovered, the rectification of the Neilian parabola having been the firſt. The demonſtration here given of it is taken from Mr. Huyghens's treatiſe, Horologium Oſcillatorium. Wren's own inveſtigation is to be found in the Appendix to Dr. Wallis's treatiſe, De Cycloide.

The ſame concluſion may readily be obtained by the method of fluxions. For, the ſquare of the fluxion of the arc P C = ſquare of the fluxion of P R + ſquare of the fluxion of C R $= \dot{x}^2\ (1 + \text{coſ.}\ x)^2 + \dot{x}^2\, \text{ſin.}^2\, x = 2\ \dot{x}^2 \times (1 + \text{cos.}\ x) = 4\, \dot{x}^2 \times \text{cos.}^2\, \frac{x}{2}$: therefore, the fluxion of the arc $\text{P}c = 2\, \dot{x} \times \text{cos.}\, \frac{x}{2}$; and, the arc $\text{P}c = 4\, \text{ſin.}\, \frac{x}{2}$: but $2\, \text{ſin.}\, \frac{x}{2}$ = chord C Q; therefore, the cycloidal arc $\text{P}c = 2$ chord C Q.

Having now noticed the moſt remarkable geometrical properties of the cycloid, as far as is conſiſtent with our plan, we are next to conſider its chief mechanical properties.

6. Let a cycloid be placed with its baſe horizontal, and its vertex downward, as A B C (*fig.* 4.) then, if a body deſcend along the cycloidal arc, the increment of the velocity produced by the accelerating power of gravity in ſome ſmall portion of time, as the 10th or 100dth part of a ſecond, at any part of the curve, as M, will be to the increment of the velocity, produced in the ſame ſmall portion of time, at any other part of the curve, as N, as C M, the arc of the curve between the vertex and the firſt point M, is to C N, the arc between the vertex and the ſecond point N. It is to be recollected that the force of gravity acts equally on all bodies in all circumſtances; that it produces the ſame augmentation of velocity in a given time in a body deſcending with the greateſt ſwiftneſs, as in one juſt beginning to obey its power. It is to be recollected too, that, when a body is made to deſcend along an inclined plane, part of the accelerating power of gravity is deſtroyed by the reſiſtance of the plane, and the remaining part only (which is leſs than the whole accelerating force of gravity in the ſame proportion that the length of the inclined plane is greater than its height) is employed in increaſing the velocity of the deſcending body. Theſe things being premiſed, draw M R and N S tangents of the cycloid; draw alſo the ordinates M P F and N Q G, and the chords of the generating circle C P and C Q. In a very ſmall portion of time, as the 10th or 100dth part of a ſecond, the increment of the velocity of a body deſcending along the cycloidal arc at M, may be conſidered as equal to the increment of the velocity along the inclined plane M R, which touches the cycloid at M: but M R is parallel to P C; and the increment of velocity produced by the whole accelerating power of gravity, is to the increment of velocity produced in the ſame time on the inclined planes M R or P C, as P C is to C F, or as D C is to P C; therefore, the increment of velocity produced by the whole accelerating power of gravity, is to the contemporaneous increment of the velocity of a body deſcending along the cycloid at M, as D C is to P C.

And in the very ſame manner is it ſhewn, that the increment of velocity produced by the whole accelerating power of gravity in a very ſmall portion of time is to the contemporaneous increment of the velocity of a body deſcending along the cycloid at N, as D C is to C Q. Therefore it follows (*ex æquo*) that the increment of velocity in the cycloid at M is to the increment of velocity at N, as the chord P C is to the chord C Q. Now the chord P C is the half of the arc C M, and the chord C Q the half of the arc C N; whence the propoſition is manifeſt.

7. Suppoſing a cycloid to be placed as before, the time, in which a heavy body deſcending along the curve will reach the vertex or loweſt point, is the ſame whatever be the length of the arc, through which the body has fallen. For the ſake of preſenting a more preciſe object to the mind we ſhall ſuppoſe that the arc C M is double of the arc C N, *fig.* 4.; and it is to be proved that the times of falling through theſe arcs are exactly of the ſame duration. The deſcending bodies being ſuppoſed to be let go from the

points M. and N at the ſame inſtant, let them arrive at the points m, m', m'', &c., n, n', n'', &c. at the end of any very ſmall equal moments of time, as 10th parts or 100dth parts of a ſecond. On the ſuppoſition that has been made it will follow, from what was proved (art. 6), that the velocity generated in the cycloid at M in one moment of time will be double of the velocity generated at N in the ſame time: therefore the velocity with which the one body arrives at m, will be double of the velocity with which the other body arrives at n. It is no leſs evident that the little arc Mm deſcribed by the firſt body is double of the little arc Nn, deſcribed by the ſecond body; conſequently the arcs Cm and Cn, that remain to be deſcribed, have the ſame proportion as the whole arcs CM and CN; therefore, in a ſecond moment of time, the increment of velocity at m will be double of the increment of velocity at n (art. 6). And becauſe the whole velocities, already acquired at m and n, are double one of another, and the new increments ſuperadded likewiſe follow the ſame proportion, therefore, at the end of the ſecond moment of time, the whole velocity acquired at m will be double of the whole velocity acquired at n, and the ſpace mm' will be double of the ſpace nn'. Again, becauſe mm' is double of nn', therefore the arcs Cm' and Cn', that remain to be deſcribed, will ſtill have the ſame proportion as the whole arcs CM and CN, and conſequently the increments of velocity generated in a third moment of time, as well as the ſpaces run through $m'm''$ and nn'', will be to one another in the ſame proportion as the arcs CM and CN; therefore, at the expiration of the third moment, the whole velocities acquired, and the arcs Cm'' and Cn'' that remain to be deſcribed, will both have the proportion of 2 to 1. And becauſe the ſame reaſoning may be continued indefinitely, it follows, that at the end of any propoſed time from the beginning of the falls, the whole velocities acquired, and the parts of the arcs that remain to be deſcribed, preſerve invariably the ſame proportion as the original arcs CM and CN, that is, in the preſent inſtance, the proportion of 2 to 1; hence it is manifeſt, that the falls through the whole arcs are accompliſhed in the ſame time.

Although, in this demonſtration, the arc CM is ſuppoſed to be double of the arc CN, yet the propoſition is to be held as proved generally for all proportions of the arcs; for the reaſonings do in no reſpect depend upon the particular proportion ſuppoſed, but are equally applicable for all proportions.

Not only are the falls through the whole arcs MC and CN performed in the ſame times, but the ſame thing is likewiſe true of the falls through any proportional parts of the ſame arcs. For the parts Mm, mm', $m'm''$, &c. Nn, nn', $n'n''$, &c. of the two arcs that are deſcribed in the ſame moments of time, have been ſhewn to be reſpectively in the ſame proportion as the whole arcs; and therefore any aggregates of thoſe parts will compoſe like parts of the whole arcs.

When a heavy body has deſcended through an arc of the cycloid, it will have acquired ſuch a degree of velocity as is ſufficient to make it aſcend through an arc in the oppoſite part of the curve equal to that it fell through; it will then be reduced to a ſtate of reſt, after which it will fall back to the loweſt point of the curve, and again mount up to the ſame height as at firſt. A body that thus deſcends and aſcends is ſaid to oſcillate or vibrate; and the time employed in one deſcent and aſcent is called the time of an oſcillation or vibration. When a body oſcillates in a cycloid, placed as has been ſuppoſed, all the oſcillations will be performed in equal times, whether they be wide or narrow; for the times of aſcent and deſcent being equal, the time of an oſcillation will be double of the time of deſcent.

Galileo firſt remarked that the vibrations of a pendulous body, ſuſpended by a ſtring, or chain, were iſochronous, or of equal duration; and this diſcovery had been applied in aſtronomical obſervations. Two things rendered the uſe of ſuch pendulums very imperfect even for the purpoſes of aſtronomy; they required the conſtant attention of the obſerver to number the vibrations, and to communicate new velocity as the motion was deſtroyed by the reſiſtance of the air. Galileo had turned his thoughts to remedy theſe imperfections; but in this reſearch he was not ſucceſsful. Huyghens firſt entertained the idea of applying a pendulum to regulate the motion of a piece of mechaniſm, whilſt at the ſame time the moving power of the machine ſhould act on the pendulum in ſuch a manner as to keep its motion from being ſpent; and he thus accompliſhed an invention of the greateſt utility in common life, and no leſs eſſential to the improvement of ſome of the ſciences, particularly aſtronomy. Galileo thought that all the vibrations of a pendulum ſwinging in a circle, whether great or ſmall, were of equal duration; but a little experience was ſufficient to correct this erroneous opinion. Huyghens, aware that the narrow vibrations in a circle were performed in ſhorter times than the wider ones, was led to inveſtigate the curve in which all the oſcillations, whether wide or narrow, would be perfectly iſochronous; and on this occaſion he diſcovered thoſe curious properties of the cycloid, which he has demonſtrated with all the elegance and rigour of the ancient geometry, in his Horologium Oſcillatorium.

But it was not ſufficient to have diſcovered the curve in which the oſcillations would be of equal duration; a method was likewiſe wanted for making the body oſcillate as required. A new reſearch was thus preſented to Huyghens, and from this ſprung his beautiful theory of evolute and involute curves.

Fig. 5. If two moulds, ſhaped like a ſemicycloid, be placed ſo as to have their baſes horizontal and to touch one another in F, from whence a pendulum is ſuſpended by a flexible thread equal in length to the whole ſemicycloid, or to twice the diameter of its generating circle; it is plain, from what is proved in art. 4., that ſuch a pendulous body will vibrate in a cycloid, and will perform all its vibrations in equal times: for the curve deſcribed by the vibrations is made up of the involutes of the ſemicycloids AF and FP, which taken together compoſe a cycloid equal to the evolutes, and ſo placed as to have its baſe horizontal, (Art. 6.). It is not a little mortifying that the fineſt inventions, which have coſt much pains and ingenuity, are often of little practical utility. This has been the fate of Huyghens's theory in the preſent inſtance. The perfect iſochroniſm of the cycloidal vibrations is more than counter-balanced by the unavoidable imperfections of the mechaniſm which they require, and they are univerſally rejected in practice for circular oſcillations in ſmall arcs.

8. A cycloid being ſuppoſed to be placed as before, the time in which a heavy body, that deſcends through any arc of the curve, will reach the loweſt point, is to the time in which a heavy body will fall through the diameter of the generating circle, as half the circumference of a circle is to its diameter.

As the times of deſcent in all arcs *(Fig. 6.)* of the cycloid are of equal duration, we ſhall conſider the fall through the half of the curve. Suppoſe then, that a heavy body, which has begun to fall at B, is come to M; draw the ordinate MQP, and the chords of the generating circles DQ, QC: let Mm be a part of the curve moved through in a very ſmall, but finite, portion of time, as the 10th or 100dth part of a ſecond, draw mrn parallel to MP, and QO to the centre of the generating circle. Becauſe the tangent of the cycloid at M is parallel to the chord QC, therefore $nQ = Mm$. There is no propoſition reſpecting motion more familiar than this; that the velocity acquired by a heavy body in deſcending from any height is the ſame, whether the fall be made directly in the perpendicular, or obliquely on an inclined plane, or along any arc of continued curvature; from this it follows, that the velocity acquired by deſcending through the arc BM is equal to the velocity acquired by falling directly through the height DP; therefore the velocity in the curve at M is to the velocity acquired by falling through the diameter DC (which velocity we ſhall denote by a) in the ſubduplicate proportion of DP to DC, or as DQ is to DC; therefore, taking the halves of the conſequents, the velocity in the curve at M is to the velocity $\frac{a}{2}$ as DQ is to DO. Becauſe the angles DQC and OQr are right angles, therefore the angle $DQO =$ angle nQr: Alſo the angle $ODQ = PQC = Qnr$: therefore the triangles ODQ and nQr are ſimilar; conſequently OD is to DQ as nQ or Mm is to Qr. Hence it is manifeſt that the velocity in the curve at M is to the velocity $\frac{a}{2}$ as Mm is to Qr: therefore a body moving with the velocity $\frac{a}{2}$ would deſcribe the little arc Qr in the ſame time that the deſcending body moves through the little arc Mm. The ſame thing may be demonſtrated of all the little arcs that compoſe the whole ſemi-cycloid BMC, and the correſponding parts that make up the whole ſemi-circle DQC; therefore the whole time of the fall through the ſemi-cycloid BMC, is equal to the time in which the ſemi-circumference DQC would be deſcribed with the velocity $\frac{a}{2}$. But the time of falling perpendicularly through the diameter DC, is equal to the time in which the ſame diameter DC would be deſcribed with the velocity $\frac{a}{2}$. Hence it follows that the whole time of deſcent along the ſemi-cycloid is to the time of falling perpendicularly through the diameter DC, as the ſemi-circle DQC is to the diameter DC.

The whole time of a complete oſcillation in any arc of a cycloid, is to the time of falling perpendicularly through the diameter of the generating circle as the circumference of a circle is to its diameter; for the time of an oſcillation is double of the time of deſcent through the arc.

If a circle be deſcribed from F, the point of ſuſpenſion of a pendulum that vibrates in a cycloid ſo as to touch the cycloid at its loweſt point, (*fig.* 5.) this circle will be the oſcillating circle of the curve (Art. 6.); and the time of a vibration in the cycloid will approach the nearer to an equality with the time of a vibration of the ſame pendulum in the circle, the leſs is the arc of the circle the pendulum moves through. The time of vibration in an arc of the circle, how ſmall ſoever, will indeed be always greater than the time of vibration in the cycloid; but, when the circular arc is very ſmall, the difference of the times is inſenſible.

Hence we learn the reaſon of the iſochroniſm of vibrations in ſmall circular arcs.

And hence too it is plain, that the time of a complete vibration in a ſmall arc of a circle, is to the time of falling perpendicularly through half the length of the pendulum, as the circumference of a circle is to its diameter: for the time of vibration in the ſmall circular arc, may be conſidered as equal in duration to the time of vibration of a pendulum of equal length in a cycloid.

By means of experiments made with pendulums, we can diſcover with great accuracy, the meaſure of the accelerating force of gravity, or the ſpace through which a falling body will move in a given time. Thus, ſuppoſe l to be the length of a pendulum which has been found by experiment to vibrate once in a ſecond, and let ϖ be $= 3.1416$ the periphery of a circle whoſe diameter is unit; then l will be the meaſure of the velocity acquired in falling through $\frac{l}{2}$ half the length of the pendulum, and $\frac{\varpi l}{2}$ will be the meaſure of the velocity acquired in the time of one vibration of the pendulum, that is, in a ſecond: let x be the ſpace fallen through in the ſame time, then, becauſe the ſpaces fallen through are proportional to the ſquares of the velocities acquired, $\frac{1}{2} l : x :: l^2 : \frac{\varpi^2 l^2}{4}$: therefore $x = \frac{\varpi^2 l}{2}$. In this manner it is found that a heavy body moves through $16\frac{1}{12}$ feet in the firſt ſecond of its fall, and acquires a velocity of $32\frac{1}{6}$ feet per ſecond.

We ſhould next ſhew that the cycloid is the curve of ſwifteſt deſcent: but this property cannot be clearly demonſtrated, without entering upon conſiderations which would take up too much of our room for a matter of ſpeculative curioſity. We proceed to finiſh what we have to ſay of this intereſting curve, by noticing the moſt remarkable things that have been diſcovered concerning the menſuration of the cycloidal ſpaces.

9. Let MP (*fig.* 7.) be an ordinate of the cycloid, and draw the tangents at the extremities of the arc, MF, to meet in N, and alſo the chord of the generating circle FQ: then is the mixtilineal ſpace bounded by the cycloidal arc MF, and its two tangents equal to the ſegment of the generating circle cut off by the chord FQ. Divide the circular arc, FQ, into an indefinitely great number of equal parts Qa, ab, &c., and draw the ordinates ac, bd, &c. as alſo the chords of the generating circle Fa, Fb, &c., and the lines ge, fh, &c., touching the cycloid at c, d, &c. Becauſe the ſeveral tangents of the cycloid are reſpectively parallel to the chords FQ, Fa Fb, &c., and FN, which touches the cycloid at the vertex, is parallel to MQ, ca, db, &c., therefore $FN = MQ =$ arc FQ; $Fe = ca =$ arc Fa; $Ff = db =$ arc Fb, &c. Therefore, $Ne =$ arc Qa, $ef =$ arc ab, &c. And becauſe what has been ſhewn is true, whatever be the number of the parts into which the arc FQ is divided, it will ſtill be true when the number of parts is ſo great that the little arcs Qa, ab, &c. may be regarded as right lines: but when this is the caſe, the little triangles aFQ, aFb, &c. are plainly equal to the little triangles Nge, ehf, &c. each to each: for the baſes of the triangles have been ſhewn to be equal; and the angles which the chords make with the periphery at Q, a, b, &c. are equal to the angles which the ſame chords make with the periphery, or with the tangent of the periphery, at F, that is, to the angles which the tangents MN, ge, hf, &c. make with the ſame tangent FN. Therefore the mixtilineal ſpace included by the cycloidal arc and its two tangents, which is the aggregate of one of

the ſets of triangles, is equal to the circular ſegment, which is the aggregate of the other ſet of triangles.

In the caſe of the ſemi-cycloid A F, the mixtilineal ſpace, A F T, is equal to the ſemicircle C Q D : and becauſe the whole rectangle, A T F D, contained by the diameter and the ſemi-periphery, is equal to four times the ſame ſemicircle ; therefore the ſemi-cycloidal ſpace, A F D, is triple of the ſemicircle, and the whole area of the cycloid is triple of the area of the generating circle.

If M K be drawn perpendicular to F N, then the external ſpace M K F, is equal to the circular ſpace F Q P : for the triangle, M N K, is equal to the triangle F Q P.

10. If the ordinates M P and N Q, (*fig.* 8.) cut off abſciſſas from the axis whoſe ſum is equal to the radius of the generating circle, and if the chord, M N, be drawn, the cycloidal ſegment, M C N, will be equal to the ſum of the rectilineal triangles D R Q, and D S P. Let O be the centre of the generating circle, and draw M K, N H, perpendicular to the tangent through the vertex. The trapezoid K M N H is $= KH \times \frac{MK + HN}{2} = \frac{1}{2} CO \times KH$ (hyp.) $= \frac{1}{2} CO \times MP + \frac{1}{2} CO \times QN$. Now, $\frac{1}{2} CO \times MP = \frac{1}{2} CO \times MS + \frac{1}{2} CO \times SP = \frac{1}{2} CO \times$ arc. $CS + \frac{1}{2} CO \times SP =$ mixtilineal area S D C : and in like manner is it ſhewn, that $\frac{1}{2} CO \times QN =$ mixtilineal area C D R. Therefore the trapezoid M K H N = mixtilineal area S D R. But the outward ſpaces M K C and N H C, are equal to the circular areas C S P, and C R Q : therefore the remainders are equal; that is, the ſegment, M C N, is equal to the ſum of the two triangles S P D, and R Q D. This property of the cycloid was diſcovered by John Bernouilli.

When the ordinates, M P, and N Q, coincide in one, as *m n*, the abſciſſas cut off will be half the radius C O : then the ſegment, *m* C *n*, will be equal to the triangle S D *r*, which is the equilateral triangle inſcribed in the generating circle. The quadrature of this ſegment of the cycloid was diſcovered by Huyghens.

On the other hand, when one of the abſciſſas vaniſhes, and the other becomes equal to the whole radius; then the cycloidal ſegment, C I, will be equal to the triangle D O E, that is, to half the ſquare of the radius. The quadrature of this ſegment was diſcovered by Leibnitz.

Protracted and Contracted Cycloid.—Suppoſing a circle, or wheel, to roll along a right line ; let a fixed point be aſſumed, not in the periphery, but within it ; then ſuch a point, in one entire revolution, will trace a curve line, the baſe of which is equal to the whole periphery of the rolling circle, and therefore greater than the periphery of the concentric circle drawn through the fixed point : the curve line, ſo deſcribed, is called a protracted cycloid.

And if a point be aſſumed without the rolling circle, then ſuch a point will trace a curve line, the baſe of which will be the ſame as before, and therefore leſs than the periphery of the concentric circle drawn through the fixed point ; the curve line, ſo deſcribed, is called a contracted cycloid.

Let *m* denote any number, or proportion, then if a curve line be conſtructed by making the abſciſſa $= 1 -$ Coſ. x, and the correſpondent ordinate $= m \times x +$ Sin. x : this curve will be a protracted cycloid when *m* is greater than 1 : it will be a common cycloid when $m = 1$: and a contracted cycloid when *m* is leſs than 1. What is here ſaid, is eaſily deduced from the definitions that have been laid down : and the nature of the curves being now defined by an equation, their properties may be inveſtigated by the common analytical proceſſes ſo well known.

It is aſſerted above, that the whole baſe of a protracted cycloid is equal to the periphery of the rolling circle ; and this cannot be doubted : but, becauſe every point of the periphery of the ſmaller concentric circle drawn through the fixed point, is ſucceſſively applied to the ſame baſe during the deſcription of the curve ; it has been contended that the ſame line is alſo equal to the periphery of the ſmaller circle.

By this reaſoning, it has been thought the circumference of the nave of a coach-wheel is proved to be equal to the periphery of the outer rim. How is the inconſiſtency to be explained ? This curious mechanical problem was firſt propoſed by Ariſtotle ; and that philoſopher himſelf, as well as many others, have given ſolutions of it which are not, in every inſtance, completely ſatisfactory.

The difficulty will be beſt unravelled, by ſeparating into its elementary parts the complex motion by which the cycloids are deſcribed. It is plain that two motions are combined together in the deſcription of theſe curves ; one of them, an angular motion round the centre of the rolling circle, or wheel ; the other, a progreſſive motion by which the centre is carried forward in a right line. Theſe two motions are perfectly diſtinct and independent on one another ; and the rolling of a circle or wheel along a right line, is to be conſidered as nothing more than the mechanical means of combining them in the requiſite proportion. Inſtead of a circle rolling on a right line, conceive a wheel turning upon an axle, while the axle itſelf is made to move in a rectilineal courſe ; it is manifeſt that the two caſes differ in no reſpect, and are to be conſidered as equivalent. The two motions being now conceived in a detached and ſeparate manner, the rectilineal ſpace through which the centre is carried, may be ſuppoſed to bear any required proportion to the circular arc, that the fixed point moves over in the ſame time : now if the rectilineal ſpace be exactly equal to the circular arc, we have the caſe of the common cycloid ; if the rectilineal ſpace be greater than the arc, we have the caſe of the protracted cycloid, where the line moved through by the progreſſive motion of the centre, by the very ſuppoſition made, is greater than the arc deſcribed in the ſame time ; and if the rectilineal ſpace be leſs than the arc, we have the caſe of the contracted cycloid, where the line moved through by the progreſſive motion is leſs than the arc deſcribed in the ſame time.

If a circle be made to roll upon the circumference of another circle, inſtead of a right line, a new ſet of curves, called epicycloids, will be generated by a fixed point in the plane of the rolling circle. Theſe curves, which are uſeful in determining the figure of the teeth of wheel-work, will engage our attention under another head.

CYCLOIDAL SPACE, the ſpace contained between the cycloid and its ſubtenſe.

CYCLOMETRY, from κυκλος, *circle*, and μετρεω, *I meaſure*, the art of meaſuring cycles, or circles.

CYCLOPÆDIA, from κυκλος and ϖαιδια, *inſtruction*, the circle, or compaſs of arts and ſciences ; more ordinarily called *encyclopædia*.

The word cyclopædia is not of claſſical authority, though frequent enough among modern writers, to have got into ſeveral of our dictionaries. Some have cenſured us for having called the preſent work by this name ; not conſidering that names and titles of books, engines, inſtruments, &c. are in a great meaſure arbitrary ; and that authors make no ſcruple even of coining new words on ſuch occaſions, when there are no old ones to their mind. Thus it is Dr. Hooke calls his fine book of microſcopical obſervations, Micrographia; Wolfius his book on the air, Aerometria; Drake his book of anatomy, Anthropologia, &c.; all of them words of modern, if not of their own fabric; and on no better authority ſtand the names of half our later inventions, as *microſcope*, *teleſcope*, *barometer*, *thermometer*, *micrometer*, &c. But it is ſuggeſted the word cyclopædia is ambiguous, and may denote the *ſcience of a circle*, as well as the *circle of ſciences:* we anſwer, that as cuſtom, the only ſovereign rule of language, has determined the word to the latter ſenſe, it is no more chargeable with ambiguity than a thouſand other words of received uſe; no more, for inſtance, than *micrometer*, which might either denote a *little meaſure*, or a *meaſure of little things*.

CYCLOPES, in *Entomology*, a claſs of the monoculus genus of inſects, according to Muller, with two or four antennæ. See MONOCULUS.

CYCLOPES, from κυκλος, and ωψ, *eye*, in *Mythology*, a people who were ſaid to inhabit the weſtern part of the iſland of Sicily, in the primitive times, together with the Læſtrigones. According to Juſtin, Pliny, Solinus, and Thucydides, they were the firſt inhabitants of this iſland; and they are ſaid to have ſettled in the territory of Leontium, and the diſtricts in the neighbourhood of mount Ætna. Their origin, however, was unknown; and Thucydides acknowledges, that he knew neither the country from which they came, nor that to which they afterwards removed. According to Heſiod they were the ſons of Ouranus and Tellus, or of heaven and earth; but of Neptune and Amphitrite, according to Euripides and Lucian. They were called Cyclopes from their being deſcribed with but one eye, placed in the middle of their forehead, and were of gigantic ſtature: they were ſaid to be the companions of Vulcan. They are repreſented as a people lawleſs, ſavage, and delighting in human fleſh; which character aroſe from the cruel cuſtom of ſacrificing ſtrangers whom fortune brought upon their coaſt. It is related that Apollo killed the principal among them, for having forged the thunder-bolts which Jupiter hurled againſt his ſon Æſculapius. The adventures of Polyphemus, the chief of theſe people, whoſe reſidence was near the foot of mount Ætna, with Ulyſſes and Galatea, are well known.

The explanation of this allegory has been repreſented to be man in a ſtate of uncultivated nature; unſkilled in the laws of civil ſociety, and living in a ſtate of brutal force, having but one ſenſe, which was ſight. Him Ulyſſes overcame by ſuperior knowledge and experience. Homer, in his "Odyſſey" (l. ix. v. 106, &c.), deſcribes the Cyclopes as having no laws. Each, he ſays, governs his family, and rules over his wife and children. They trouble not themſelves with their neighbours, and think not themſelves intereſted in them. Accordingly, they have no aſſemblies to deliberate on public affairs; they are governed by no general laws to regulate their manners and their actions. They neither plant nor ſow; they are fed with the fruits which the earth produces ſpontaneouſly. Their abode is in the ſummits of mountains, and caverns ſerve them for a retreat. Such is Homer's account of them. But though the Greek and Roman poets, and even Strabo, together with other reſpectable writers, have taken it for granted, that the Cyclopians of Homer were near Ætna in Sicily; the poet does not once mention the iſland in his whole account of the Cyclopes; nor does Ulyſſes arrive in Sicily till after many ſubſequent adventures. His Cyclopians were, therefore, inhabitants of the continent. There were probably people of the ſame family in many parts of Sicily, who ſeem to have been of the Anakim race, and worſhippers of the ſun; eſpecially about the city Camarina. The fable of their having only one eye, ſome have explained by obſerving, that they were the archers of their times, and that they uſually ſhut one eye to take their aim in ſhooting. (Shuckford's Connection, vol. iii. p. 52.)

The Cyclopes, according to Dr. Bryant, were a tribe of the ancient Amonians, of a ſize ſuperior to the common race of mankind, who ſettled in many parts of Greece. They were famous for architecture; and the idea of this people was borrowed from the lofty towers which they erected. As theſe buildings were often light-houſes, and had, in their upper ſtory, one round caſement, by which they afforded light in the night, the Greeks made this circumſtance a characteriſtic of the people. They ſuppoſed this aperture to have been an eye, which was fiery and glaring, and placed in the middle of their foreheads.

The Cyclopians, ſays Pauſanias (lib. ix. p. 785.), were truly wonderful for the temples which they erected to the gods, and for the ſtately edifices which they built for men. When the Sibyl in Virgil ſhews Æneas the place of torment in the ſhades below, and leads him through many melancholy receſſes, we find that the whole was ſeparated from the region of bliſs by a wall conſtructed by the Cyclopians. The Sibyl accordingly at their exit tells him:

> "Cyclopum educta Carminis
> Mœnia conſpicio." Æn. l. vi. v. 630.

From hence we find that they were the reputed builders of the infernal manſions: a notion which aroſe from the real buildings which they erected. For all the ideas of the ancients about the infernal regions, and the torments of hell, were taken from the temples in each country; and from the rites and inquiſition practiſed in them. The Cyclopians, however, were more than imaginary operators. They founded ſeveral cities in Greece; and conſtructed many temples to the gods, which were of old in high repute. The Scholiaſt upon Statius (Thebaid. l. i. p. 26.) obſerves concerning them, that every thing great and noble was regarded as Cyclopian. Theſe people are ſaid to have built the ancient city of Mycene, which Hercules in Seneca threatens to ruin.

> "Quid moror? majus mihi
> Bellum Mycenis reſtat, ut Cyclopea.
> Everſa manibus mœnia noſtris concidunt."
> Hercules Furens, act. iv. v. 996.

They likewiſe built Argos; which is mentioned by Thyeſtes in Seneca (Act. ii. v. 406.) as a wonderful performance.

> "Cyclopum Sacras
> Turres, labore majus humano decus."

They built alſo ſeveral other cities in Greece, as Hermione, an ancient city, which ſtood near a ſtagnant lake, called the pool of Acheruſia, and a deep cavern, which was ſuppoſed to be the moſt compendious paſſage to the ſhades below, near which yawning cavern the Cyclopians choſe to take up their habitation (Strabo, lib. viii. p. 573.):—Tiryns, the walls of which were eſteemed no leſs a wonder than the pyramids of Egypt (Pauſan. l. ii. p. 147. l. ix. p. 783. Strabo, l. viii. p. 572.):—and they reſided at Nauplia in Argolis, near which city were caverns in the earth, and ſubterraneous paſſages, conſiſting of labyrinths cut in the rock, like the Syringes in Upper Egypt, and the maze at the lake Moeris, which were reported to be the work of Cyclopians. Euripides (Herc. Furens, v. 944.) ſpeaking of the walls of ancient Mycene, as built after the

Phœnician rule and method, aſcertains the country from which the Cyclopians came: the Phœnicians alluded to being the Φοινικες of Egypt, to which country they are principally to be referred. The ſeven Cyclopes, who, according to Strabo (l. viii. p. 572.), built Tiryns, were, as Bryant ſuggeſts, ſeven Cyclopian towers built by theſe people; ſome of which were ſituated towards the harbour, to afford light to ſhips, when they approached in the night. Theſe towers were likewiſe erected for Purait, or Puratheia, where the rites of fire were performed. Mr. Bryant conceives, that not only the common idea of the Cyclopians was taken from towers and edifices; but that the term Κυκλωψ, and Κυκλωπις, Cuclops, and Cuclopis, ſignified a building or temple, and from thence the people had their name. They were of the ſame family as the Cadmians and Phœnices; and as the Hivites, or Ophites, who came from Egypt, and ſettled near Libanus and Baal-Hermon, upon the confines of Canaan. They worſhipped the ſun under the ſymbol of a ſerpent: and hence they were ſtyled, in different parts where they ſettled, Europians, Oropians, Inopians, Aſopians, Elopians; all which names relate to the worſhip of the Pytho Ops, or Opis. Our learned author does not determine the preciſe etymology of the term Κυκλωψ, Cuclops; but as a perſonage, he was ſaid to have been the ſon of Ouranus and the earth; which Ouranus, among the Amonians, was often ſtyled Coel, or Cœlus, and was worſhipped under the emblem of a ſerpent. Hence the temple of the deity might originally have been called Cu-Coel-Ops, domus Coeli Pythonis; and the prieſts and people Cucelopians. The Cyclopian deity was, therefore, Ouranus, and the Cyclopians were his prieſts and votaries. Some of the Cyclopian race ſettled in Thrace, where was a place called Cuclops; and many of the Amonians came hither; ſo that Thrace ſeems at one time to have been the ſeat of ſcience, and the Athenians acknowledged that they borrowed largely from them. The head of Meduſa in Argolis is ſaid to have been the work of Cyclopians (Pauſan. l. ii. p. 156.) This head ſeems to have been an ancient hieroglyphical repreſentation upon the temple of Cephiſus. The head of Meduſa, like other devices upon temples, was eſteemed a kind of taliſman, and ſuppoſed to have an hidden and ſalutary influence, by which the building was preſerved. It is probable that this opinion induced the Athenians to exhibit the head of Meduſa upon the walls of their acropolis. The notion of the Cyclopes forming the thunder and lightning for Jupiter, aroſe chiefly from their engraving hieroglyphics of this kind upon the temples of the deity. Hence they were repreſented as perſons,

> "'Οι Ζηνι βροντην τ' εδοσαν, τευξαν τε κεραυνον."
>
> Heſiod. Theogon. v. 141.

The poets conſidered them merely in the capacity of blackſmiths, and condemned them to the anvil. This, Mr. Bryant apprehends, aroſe from the chief Cyclopian deity being called Acmon, and Pyracmon; and under the former title he was worſhipped in Phrygia. As the Cyclopians were great artiſts, they were probably famous for works in braſs or iron; and this circumſtance in their hiſtory may have been founded in truth. The Idæi Dactyli were Cyclopians; and they are ſaid to have firſt forged metals, and to have reduced them to common uſe:—the knowledge of which they obtained from the fuſion of minerals at the burning of mount Ida. From this event the Curetes and Corybantes, who were the ſame as the Idæi Dactyli, are ſuppoſed to have learned the myſtery of fuſing and forging metals. From them it was propagated to many countries weſtward, particularly to the Pangæan mountains, and the region Curetis, where the Cyclopians dwelt in Thrace;—and alſo to the region Trinacia and Leontina near Ætna, which they occupied in Sicily.

After tracing very much in detail the true hiſtory and antiquity of the Cyclopians, Mr. Bryant infers from their works, that there was a time when they were held in high eſtimation. They were denominated from their worſhip; and their chief deity, among other titles, was ſtyled Acmon, and Pyracmon. They ſeem to have been great in many ſciences; but the term Acmon ſignifying among the Greeks an anvil, the poets have limited them to one baſe department, and conſidered them as ſo many blackſmiths. And as they reſided near Ætna, they have made the burning mountain their forge:

> "Ferrum exercebant vaſto Cyclopes in antro,
> Brонteſque, Steropeſque, et nudus membra Pyracmon."
>
> Æn. l. viii. v. 424.

Bryant's Analyſis of Anc. Mythol. vol. i.

CYCLOPIS INSULA, in *Ancient Geography*, an iſland of the Mediterranean ſea, upon the coaſt of Aſia Minor, and near the iſland of Rhodes. Pliny.

CYCLOPS, ROCKS OF, in *Geography*, three rocks of lava, which are termed iſlands becauſe they are ſurrounded by the ſea, ſituated about a ſtone-throw's diſtance from the ſhore of Sicily, on which the village of Trezza ſtands. Theſe rocks, which are mentioned by Pliny, might once have formed a part of the ſides of Ætna, and have been ſeparated from them by the ſea; or they may have been thrown up out of the water by partial eruptions. Some of theſe rocks appeared to Spallanzani, who examined them, to conſiſt externally only of priſmatic columns, that fall perpendicularly into the ſea, in ſome places one foot long, in others two, and in others more; but other parts of theſe rocks are only full of irregular fiſſures, which have divided them into pieces, as we ſee in common lavas. M. Dolomieu found on the ſurface of theſe rocks, and even in the middle of their ſubſtance, where are ſmall pores and cavities, various and numerous zeolites of great beauty. This ingenious naturaliſt thinks, that theſe ſtones, after the congelation of the lavas, derived their origin from the waters which filtrated through them, and held in ſolution the particles proper for the production of zeolites. See Spallanzani's Travels, vol. i.

CYCLOPTERUS, in *Ichthyology*, a genus of branchioſtegous fiſhes, diſtinguiſhed by having the head obtuſe; mouth in the anterior part; tongue ſhort and thick; and the jaws beſet with a number of ſmall acute teeth; gill-membrane four-rayed, the cover of one piece; body ſhort, thick, and deſtitute of ſcales; ventral fins united into an oval concavity, and forming an inſtrument of adheſion. The ſpecies of this genus are of the marine kind, and ſubſiſt on worms, inſects, and the fry of other fiſhes; and they are furniſhed beneath with an oval or roundiſh organ of adheſion, by means of which they have the power of faſtening themſelves to the rocks ſo firmly, as to require conſiderable force to remove them. The ſpecies of this genus are not very numerous.

Species.

LUMPUS. Body angulated by rows of ſharp bony tubercles. Linn. *Lumpus anglorum*, Geſner. Common lump-ſucker, Donov. Brit. Fiſhes, &c.

This fiſh inhabits the northern ſeas, and grows to the length of eighteen inches or two feet; the body thick and uncouthly formed; its colour variable; the prevailing hue on the upper part of the body is uſually blueiſh, tinged with purple, and rough with innumerable duſky papillous dots; the ſides pale, and the belly vivid ſcarlet; the pectoral fins are orange radiated with red, and the eyes bright red. Specimens ſometimes occur of a fine and tender green, gloſſed with ſilvery, the back blue, and the ſides pale roſy. This variety we have obtained more than once, (vide Donov. Tour South Wales,) and are ſatisfied it is only a variety of the common ſort. Dr. Shaw deſcribes it as a diſtinct ſpecies, under the title of pavonian ſucker. The pyramidal ſucker (*lumpus pyramidatus*) of the latter writer is not a different ſpecies, nor even a natural variety, but an example of the common kind capriciouſly diſtorted by art, as is ſufficiently demonſtrated by the ſpecimen from whence Dr. Shaw's deſcription was taken. The ſpecimen alluded to was formerly preſerved in the Leverian Muſeum, and is at preſent included in the London Muſeum. A third variety is deſcribed as having the dorſal fin very long, examples of which we have not ſeen.

The common lump-ſucker is found on the northern coaſts of Britain, during ſpring, in vaſt numbers, where they become the prey of ſeals, who lurk beneath the ſurface of the water. It is eaſy to diſtinguiſh the place where the ſeals are devouring theſe or any other unctuous fiſh, by the ſmoothneſs of the water immediately above the ſpot. Great numbers of theſe fiſhes are found on the coaſts of Greenland in April and May, when they reſort to the ſhores to ſpawn. The natives call them nipiſets or cat-fiſh, and admire them as an article of food, being of a very unctuous nature. In England it is alſo ſometimes eaten, ſtewed in the manner of carp, or broiled; in which latter caſe the head and ſkin are taken off, and the fleſh cut into ſlices.

Minutus. Body naked; ſnout above the mouth, with three tubercles. Linn.

A ſpecies of ſmall ſize, allied in its general aſpect to the former ſpecies. The colour is white; the body compreſſed, with two white unequal bony tubercles on each ſide. The head is thicker than the body, nearly ſquare, and obtuſe in front; the vent placed nearly in the middle of the body, and inſtead of a dorſal fin, a long and tapering recurvate ſpine. The pectoral fins are yellow; the tail entire and equal; the organ of adheſion oval, with dilated and ſeven lobate margin. This fiſh inhabits the Atlantic ſea.

Nudus. Body naked; head with a ſingle ſpine each ſide on the poſterior part. Linn.

A native of India, and of ſmall ſize.

Dentex. Body naked; head unarmed, very ſmooth; fins ſeparate. Pallas. Spicil. Zool. 7. t. 1. f. 1—4.

This ſpecies inhabits the American ſeas. The head is very large and much broader than the body, depreſſed and flat beneath; the lips thick, wrinkled, and doubled, with two very ſoft fleſhy caruncles within; the gill-covers large and bony; vent ſituated near the tail. The general colour reddiſh.

Ventricosus. Body naked; urinary veſſel double, very large, and diſtending the belly. Pallas. Spic. Zool.

Inhabits the ſea between Kamtſchatka and America. Its length is about twelve inches; the body olive covered, with a thick ſlimy livid mucus; back flattiſh, with the tail ſuddenly tapering behind the vent.

Gelatinosus. Body gelatinous, and ſub-tranſparent; pectoral fins very broad. Pallas.

Found in the eaſtern parts of the ſame ſeas as the preceding. This fiſh is about eighteen inches in length; the body very ſlender, oblong, compreſſed, thicker towards the head, and gradually tapering towards the tail, of a whitiſh colour tinged with roſy; the ſkin ſmooth and very ſoft, and when juſt caught is ſaid to tremble like jelly. The fleſh is not eatable, being refuſed even by the Kamtſchatkan dogs, which are fed during part of the year with fiſh of various kinds.

Liparis. Body naked; dorſal, anal, and caudal fin united. Bloch.

A general inhabitant of the northern ſeas, and ſometimes found on the coaſts of Britain. The length is from five to ſixteen inches; its ſhape thick towards the head, and becoming attenuated and compreſſed towards the tail. Donov. Brit. Fiſhes.

Lineatus. Body naked, and marked with longitudinal blueiſh lines; dorſal and anal fins running gradually into the tail. Lepechin. Nov. Com. Petrop.

A beautiful ſpecies, in its general aſpect much reſembling the laſt. Lepechin found it in the White Sea, and deſcribed it in the Tranſactions of the Peterſburgh academy. This rare fiſh has alſo once been met with on the Britiſh coaſts. It is deſcribed in Donovan's Hiſt. Britiſh Fiſhes; and the ſpecimen itſelf, from which the figure and account are taken, is arranged with the other Britiſh cyclopteri in the London Muſeum.

Ocellatus. Body naked, tapering towards both ends; two large dorſal ocellated ſpots near the ſhoulders, and before each eye a bifurcated proceſs. Donov. Brit. Fiſhes. Jura ſucker. Penn. Leſſer ſucking fiſh. Borlaſe.

Length four or five inches; a very local ſpecies found on the coaſt of Scotland, and on thoſe of Cornwall and Devonſhire in Britain; and in ſome others of the European ſeas.

Bimaculatus. Body naked, attenuated behind, and roſy, with a purple ſpot ſurrounded by a white ring on each ſide the abdomen. Donov. Brit. Fiſhes. Bimaculated ſucker. Penn.

A ſmall ſpecies, found on the coaſt of Devonſhire.

Montagui. Body naked, lanceolate, diaphanous, tinged with reddiſh and ſpotted with fuſcous; dorſal, anal, and caudal fin diſtinct; organ of adheſion oval. Donov. Brit. Fiſhes.

A new and very beautiful ſpecies of a ſmall ſize, diſcovered lately on the coaſt of Devonſhire.

CYDARA, in *Ancient Geography*, a river placed by Pliny in the northern part of the iſland of Taprobana.

CYDARUS, a ſtream of Thrace, in the vicinity of Conſtantinople.

CYDDESES, a people of Aſia, placed by Ptolemy on the confines of Bithynia.

CYDER, in *Rural Economy*, is a fruit liquor prepared by means of fermentation, from the expreſſed juice of different ſorts of apples. The proceſs by which this liquor is formed has much ſimilarity in all the different diſtricts where it conſtitutes an object of the farmer, though there is much diverſity in regard to the care and management which are beſtowed upon it.

The varieties of apples which are grown and cultivated in the various fruit diſtricts of the kingdom, with this intention, are extremely numerous; but by ſome it is ſuppoſed that all ſuch as have a yellow or light red ground, are tinged with red ſtreaks on the ſun ſide, having a ſmart acid flavour, with a firm juicy parenchyma and an aromatic flavour, whatever the name may be, are unqueſtionably proper for cyder. It has, however, been remarked by Mr. Knight, that the properties which are eſſential for cyder and the table are rarely met with in the ſame fruit. That degree of firmneſs which is neceſſary in the eating apple, is uſeleſs in the cyder fruit; and colour, which is diſregarded in the former, is amongſt the moſt important qualities of the latter. Some degree of aſtringency, which is prejudicial in the eating fruit, is conceived beneficial in that made uſe of for cyder. In Devonſhire, according to Mr. Vancouver's Survey, a rich ſweet fruit is generally preferred for the purpoſe of cyder, while in others thoſe which have more aſtringency are held in the higheſt eſtimation. See Apple, Apple-tree and Orchard.

Gathering the Fruit.—In the buſineſs of gathering the fruit for this liquor, much care ſhould be taken that it be ſufficiently ripe before it is removed from the trees, otherwiſe the cyder will be harſh, rough, and unpleaſant in its taſte, in ſpite of any thing that can be done in the proceſs of making it. The moſt certain indications of ripeneſs, according to Mr. Crocker, are the fragrance of the ſmell, and the dropping of the apples from the trees in a ſpontaneous manner.

The moſt early ripe fruits ſhould, of courſe, be firſt gathered, but as on the ſame trees the fruits rarely become equally ripe at the ſame period of time, it is found neceſ- to throw them together into large round heaps in the open air, as noticed below, in which ſtate they are ſuffered to continue for ſome time, until a ſort of ſweating or fermentation has been brought on, which induces a ſimilar ſtate of mellowneſs and fitneſs for grinding in the whole heap. This method, however, which requires much judgment in directing it, does not, even under the moſt careful management, always anſwer the purpoſe; therefore the nearer the apples approach towards perfect ripeneſs the better, as their juice is the more rich.

Mr. Crocker adviſes that in a dry day, when the fruit has acquired ſuch a ſtate of maturity as to be ready to drop from the tree, that the limbs or branches of it ſhould be ſlightly ſhaken, and diſburthened in a partial manner of its apples, thus taking only ſuch as are in a ripe ſtate, leaving the others to acquire a due degree of maturity. It is indeed ſuggeſted as proper to make three gatherings of the crop, keeping each of them by itſelf.

The latter gatherings, as well as the wind-falls, can, however, only be employed in making inferior cyder: the prime cyder muſt be drawn from the firſt gatherings which have been made.

According to Mr. Knight, the merit of cyder will always depend much on the proper mixture, or rather on the proper ſeparation of the fruits. Thoſe whoſe rinds and pulp are tinged with green, or red without any mixture of yellow, as that colour will diſappear in the firſt ſtages of fermentation, ſhould be carefully kept apart from ſuch as are yellow, or yellow intermixed with red. The latter kinds, which ſhould remain on the trees till ripe enough to fall without being much ſhaken, are alone capable of making fine cyder. Each kind ſhould be collected ſeparately, as noticed above, and kept till it becomes perfectly mellow. For this purpoſe, in the common practice of the country, they are, as ſtated above, placed in heaps of ten inches or a foot thick, and expoſed to the ſun and air, and rain; not being overcovered except in very ſevere froſts. The ſtrength and flavour of the future liquor are however, he ſays, increaſed, by keeping the fruit under cover ſome time before it is ground; but unleſs a ſituation can be afforded it, in which it is expoſed to a free current of air, and where it can be ſpread very thin, it is apt to contract an unpleaſant ſmell, which will much affect the cyder produced from it. Few farms are provided with proper buildings for this purpoſe on a large ſcale, and the improvement of the liquor will not nearly pay the expence of erecting them. It may reaſonably be ſuppoſed that much water is abſorbed by the fruit in a rainy ſeaſon; but the quantity of juice yielded by any given quantity of fruit will be found to diminiſh as it becomes more mellow; even in very wet weather, provided it be ground when thoroughly dry. The advantages therefore, of covering the fruit, will probably be much leſs than may at firſt ſight be expected. No criterion appears, the writer ſays, to be known, by which the moſt proper point of maturity in the fruit can be aſcertained with accuracy; but he has good reaſon to believe that it improves as long as it continues to acquire a deeper ſhade of yellow. Each heap ſhould be examined prior to its being ground, and any decayed or green fruit carefully taken away. The expence of this will, he obſerves, be very ſmall, and will be amply repaid by the excellence of the liquor, and the care with which too great a degree of fermentation may be prevented in the proceſs of making it into cyder.

Mr. Crocker has likewiſe remarked that the cyderiſt, who would be particularly curious in his prime liquor, ſhould hand-gather his fruit, and keep the ſorts ſeparate one from another: but as this would be troubleſome, expenſive, and in a full ſeaſon wholly impracticable, the general crop may, at different times, be ſhaken down, and collected from the ground. Fruit of equal ripeneſs, and whoſe qualities are nearly alike, ſhould be heaped together, to meliorate their juices, or, in other words, to perfect the ſaccharine fermentation. How this is beſt done, cyder-makers are not, the writer ſays, agreed: ſome, ſays he, judging it altogether unneceſſary to keep them at all, if ſufficient time be allowed for perfecting the ſaccharine fermentation on the tree: ſome conſidering it beſt to ſweat them in cloſe lofts, whilſt others allege, that the open air is the only place where they ought to be heaped. Experience, however, ſhould, he thinks, teach us that moſt apples require time for their being mellowed, to attain their higheſt flavour; and, until this mellowing be perfected, their juices are not in the beſt ſtate poſſible for being converted into cyder-liquor.

However, philoſophy has ſhewn, he thinks, that fermentation is never improved by haſtening the operation with too much heat; nor perfected in due time under too great an expoſure to cold. It would be well, therefore, ſays he, if apples, when gathered from the tree, were placed in open ſheds, having boarded floors, in heaps or layers of ten or twelve inches deep; the hard and harſh fruits might probably, he ſuppoſes, be laid in heaps of greater depth; the ſorts to be kept ſeparate, as much as the nature and conveniences of the ſheds will allow: at any rate there muſt be a mixture of apples in the ſame heap; let them, ſays the writer, be ſuch as are of qualities nearly alike, and which are of equal ripeneſs at the time of gathering, but on no account ſhould ſweet and ſour fruit be heaped together. To ſome cyderiſts it may, ſays he, have appeared unneceſſary to keep the different ſorts of apples ſeparate, but it is of importance ſo to do: and the trouble is very little, as has been obſerved, compared to the advantages which will hereafter reſult from a regular fermentation of the juices. The impropriety of houſing and laying apples in very large heaps muſt, the writer thinks, be manifeſt to every thinking mind; more eſpecially when in the ſame room are found all ſorts; ſweet, ſour, harſh, generous, ripe, and unripe, thrown promiſcuouſly together; where ſome are rotten before others are mellowed. And what muſt the liquor be, he aſks, which is expreſſed from ſuch an heterogeneous maſs?

In reſpect to heaping, the author of the Survey of Glouceſterſhire well remarks, that though it may improve unripe fruit, it cannot communicate the richneſs found in that which is fully ripened. And that the effect which is thus produced on thoſe which are heaped in a very green and unripe ſtate, is rottenneſs, in which condition very few are capable of communicating an unpleaſant flavour, even to a very large quantity of the liquor, eſpecially where they have become of a black appearance.

Suppoſing, ſays Mr. Crocker, that the fruit, which is of different ſorts and qualities, has been kept ſeparate from one another a few weeks, it will be perceived that ſome of the prime ſorts are in a proper ſtate of maturation; that the pulp has acquired its higheſt degree of richneſs; the kernels aſſumed their browneſt colour; the rind ſtill free from any appearance of rottenneſs; and that they readily yield to the preſſure of the thumb: then is the time, ſays he, and ſuch is the fruit to be employed in making prime cyder: every neceſſary utenſil muſt now be ſet in order: the mill, preſs, tubs, caſks, pails, and bowls, clean waſhed, and ſuffered to dry before they are employed in the buſineſs.

The able writer of the Agricultural Report of the County of Glouceſter very ſtrongly and very juſtly reprobates the too common practice of thoſe who indiſcriminately, and without any regard to the maturity of the fruit "run over the whole orchard with the beating pole, or 'lug' and bring down every apple within their reach," as thus beating the trees before the fruit is nearly ripe is not only injudicious in reſpect to the cyder, but injurious to the ſucceeding year's crop of fruit; the bearing buds for the next ſeaſon being formed early in the ſummer near, and even attached to, the growing fruits. Of courſe, the beating of the trees, unleſs where the apples ſeparate with facility, muſt of neceſſity bring off the buds which nature had provided for the enſuing year, with them. And he adds that, "after an operation of this kind the ground is ſtrewed with theſe buds, to an extent ſcarcely to be conceived by thoſe who have not witneſſed it." The practice of the moſt careful farmer is therefore, he ſays, to have the trees "ſhaken limb by limb, by a perſon up in the tree," only ſuffering the few that remain to be beaten off, and occaſionally even allowing them more time to ripen, which he conſiders by far the beſt practice, except that of ſuffering them to fall of their own accord, as ſecuring a regular fermentation with leſs keeping.

Grinding the Apples. In the buſineſs of grinding the fruit for this uſe, into what is termed pommage, ſeveral different methods are practiſed: but thoſe moſt commonly in uſe are the bruiſing-ſtone, with a circular trough, and the apple-mill. In the firſt of theſe methods the apples are thrown into the trough, and bruiſed by the motion of the ſtone, as it is moved round by a horſe, in the uſual way that tanners grind their bark. This is a very ancient method, and which is ſtill in uſe in ſome parts of Devonſhire; and although it has its inconveniences, in bruiſing ſome apples too much and ſome too little, it is not without its advocates in theſe parts of the country; the inhabitants of which allege, that it bruiſes the kernels of the fruit better than other machines. Although it muſt be admitted, that the kernels poſſeſs an agreeable aromatic bitter, yet it has been held queſtionable if they impart any perceivable beneficial quality to the cyder. Be this as it may, certain it is, that this method of converting apples to pommage by the trough and ſtone has, in the laſt fifty years, much given way to the apple-mill.

The author of the treatiſe on the apple and the pear has remarked that when iron mills have been tried, this metal has been found to be ſoluble in the acid of apples, to which it communicates a brown colour and an unpleaſant taſte. No combination has, he believes, been aſcertained to take place between this acid and lead; but as the oxyd or calx of this metal readily diſſolves in, and communicates an extremely poiſonous quality to, the acetous juice of the apple, it ſhould, he thinks, never be ſuffered to come into contact with the fruit or liquor. In the conſtruction of theſe mills, there are various methods had recourſe to in regard to their motion or moving powers, ſome being worked by hand, ſome by horſes, and others by water. The horſe and water powers have obviouſly conſiderably the advantage in the quantity of work that is capable of being performed; but the hand method is ſuppoſed capable of reducing the pulp into a ſtate of greater fineneſs, where the lateſt improvements in mills of this kind have been adopted. See Cyder-*Mill*.

It has been ſuggeſted in the Herefordſhire report, that each ſort of apples ſhould be ground ſeparately, or at leaſt ſuch ſorts in mixture as become ripe at the ſame time; but on the authority of Mr. Appeſley of Withington and other manufacturers, it is ſtated, that the former practice is that by which "fine cyder of different flavours and degrees of ſtrength is obtained, from the ſame orchard, the liquors being mixed after they are made." It is however allowed that "in all common caſes," the practice of grinding different varieties of fruit equally ripe, together, is found eligible; as it is leſs difficult to find the requiſite degrees of richneſs, aſtringency, and flavour, in three varieties, than in one. And hence it is ſuppoſed that cyders made from the juice of mixed fruits under common management, generally ſucceed with greater certainty, than thoſe from only one kind. In the grinding, the fruit ſhould be reduced as nearly as poſſible to an uniform conſiſtence, in ſuch a manner as that the rinds and kernels may be ſcarcely diſcernible from the general maſs; the operation proceeding ſlowly, with a free acceſs of air. The quantity of fruit which is uſually thrown into the ciſtern at one time to be ground, is about two buſhels in the large mills.

Preſſing the ground fruit.—It is remarked by Mr. Crocker, that cyderiſts are not agreed in opinion, whether the pommage ſhould immediately after grinding be conveyed to the preſs, there to be formed into a kind of cake, or what is ſometimes called the cheeſe; or whether it ſhould remain ſome time in that ſtate before preſſing. Some ſay it ſhould be preſſed immediately after grinding; others conceive it beſt to ſuffer it to remain in the grinding trough, or in vats employed for the purpoſe, for twenty-four hours, or even two days, that it may acquire not only a redneſs of colour, but alſo that it may form an extract with the rind and kernels. Both extremes are, he thinks, wrong. There is an analogy, he ſuppoſes, between the making of cyder from apples, and wine from grapes; and the method which the wine-maker purſues ought, he thinks, to be followed by the cyder-maker. When the pulp of the grape has lain ſome time in the vats, the vintager thruſts his hand into it and takes ſome from the middle of the maſs; and when he perceives by the ſmell that the luſcious ſweetneſs is gone off, and that his noſe is affected with a ſlight piquancy, he immediately carries it to the preſs, and by a light preſſure expreſſes his prime juice. In like manner ſhould the cyderiſt determine the time when his pulp ſhould be carried to the preſs. If he carry it immediately from the mill to the preſs, he might loſe ſome ſmall advantage, which may be expected from the rind and kernels, and his liquor may be of lower colour than he might wiſh. If he ſuffer it to remain too long unpreſſed, he will find to his coſt, that the acetous fermentation will come on before the vinous is perfected; eſpecially in the early part of the cyder-making ſeaſons. He will generally find, he thinks, that his pulp is in a fit ſtate for preſſing in about twelve or ſixteen hours. If he muſt, of neceſſity, keep it in that ſtate longer, he will find a ſenſible heat therein, which will engender a premature fermentation; and he muſt not delay turning it over, thereby to expoſe the middle of the maſs to the influence of the atmoſphere. Mr. Knight, however, thinks it ſhould remain twenty-four hours before it is taken to the preſs. And the writer of the “General view of the ſtate of agriculture in the county of Glouceſter,” ſtates that there the pulp is either immediately carried to the preſs, or, which is better, laid up in tubs or open caſks for twenty-four hours; by which the colour is improved, and by the digeſtion which takes place, a more intimate union of the rind, kernel, and ſtalk juices are produced, eſpecially when again carried to the mill and reground. See Cyder-*Preſs*.

The ground fruit or pommage being now in a proper ſtate, it is carried to the preſs, and a ſquare cake or cheeſe made of it, by placing very clean ſweet ſtraw or reed between the various layers of pulp or pommage; or by putting the ſame into hair-cloths ſpread upon the vat, and placing them one on another. They are turned up on the ſides and corners over the pulp, ſo as to nearly meet in the centres. They are laid very even, ten or twelve being often applied over each other in regular layers, the ſquare frame of the preſs being raiſed with them, keeping the pile to an uniform ſize. Upon the whole, a ſtrong board is placed, wider than the pile, on which the blocks of the preſs reſt. It is of importance that the ſtraw or reed, where they are uſed, be ſweet and perfectly free from any fuſtineſs, leſt the cyder be impregnated therewith. Particular care ought alſo to be taken to keep the hair-cloths ſweet, by frequently waſhing and drying; or the ill effects of their acidity will be communicated to the cyder. To this cake or cheeſe, after ſtanding a while, a ſlight preſſure is at firſt to be given by lowering the ſcrew of the preſs, which muſt be gradually increaſed as the cakes become dryer, until all the muſt or juice is expreſſed, which is uſually completed by the long lever and windlaſs: after which, the juice muſt be ſtrained through a coarſe hair ſieve, to keep back the groſs feculencies of the juice, and be put into proper veſſels. Theſe veſſels may be either open vats, or cloſe caſks; but as in the time of a plentiful crop of apples, a number of open vats may by the cyderiſt be conſidered an incumbrance in his cyder-rooms, the muſt ſhould be generally carried immediately from the preſs to the caſk. The preſſed pulp or cheeſes, as they are termed, on being removed from the preſs and taken out of the cloths, are thrown away, when not deſigned for further uſe; but when the crops are ſcanty they are ſometimes laid by in ſome places, to be afterwards reground with water, from which is afforded a liquor of weak quality, which is denominated in ſome places *waſhings*, but of ſufficient ſtrength to render it fit for family uſe; as notwithſtanding the utmoſt attention in grinding, and the greateſt exertion of the preſs, ſome portions of the fruit remain unbruiſed, which contain juice in an unexpreſſed ſtate. It is found that the reſidue of a quantity of fruit, ſufficient for making three hogſheads of cyder, is capable of yielding about one hogſhead of waſhings.

Fermenting, racking, and caſking the liquor.—Theſe are the next operations to be regarded in the manufacture of this liquor. It is ſuggeſted by Mr. Crocker, that cyder-making is thus far a mere manual operation, performed with very little ſkill in the operator; but that now it is that the great art of making good cyder commences: nature ſoon begins to work a wonderful change in this foul-looking, turbid, fulſome, and unwholeſome fluid; and, by the proceſs of fermentation alone, converts it into a wholeſome, vinous, ſalubrious, heart-cheering beverage. He thinks that philoſophy has ſhown, and that experience juſtifies the poſition, that the juices of all vegetables, when expoſed to certain degrees of heat and atmoſpheric influence, are diſpoſed by nature to ſpontaneous inteſtine motions of their conſtituent parts: this is called fermentation.

And it is obſerved by Mr. Knight, that the juice of the apple in its unfermented ſtate conſiſts of ſugar, vegetable mucilage, acid, water, its tinging matter, the principle of ſmell, and, he believes, of aſtringency. Of theſe component parts, the firſt only is known to be capable of producing ardent ſpirit, and it might thence be inferred that the ſtrongeſt cyders would be afforded by the ſweeteſt fruits: but the juice of theſe generally remains defective in what is termed “body” in liquors, and it is extremely apt to paſs from the ſaccharine to the acetous ſtate. Much of the ſtrength of cyder is ſuppoſed by the Herefordſhire farmers to be derived from the rind and kernels of the fruit, and hence ariſes their great attention to grind it thoroughly; the ſtalks alſo are neceſſarily reduced, when the apples are thoroughly ground, and he ſuſpects that the body of the liquor is ſtrengthened, and its flavour improved by the aſtringent juice of theſe: yet it does not appear probable, he ſays, that either of them contains any ſaccharine matter.

It is further ſtated as well-known that there are various ſtages of fermentation in the juices of all vegetables, each of which changes the very nature and quality of the fluid; but the principal ones which are to be particularly attended to, in the inſtance now under conſideration, (the muſt or juice of apples,) are theſe; namely, the vinous, the acetous, and the putrefactive. The firſt converts the muſt from its turbid, fulſome ſtate to a tranſparent ſpirituous liquor, lightly piquant on the palate, reſembling wine both in its flavour and effects.

The above writer ſtates in addition, that it has been obſerved to take place in ſuch bodies only as contain a conſiderable portion of ſugar, and that it is always attended with the decompoſition of that ſubſtance. The liquor gradually loſes its ſweetneſs, acquiring an intoxicating quality, and by diſtillation affords a greater or leſs quantity of ardent ſpirit, according to the quantity of ſugar it originally contained, and the ſkill with which the proceſs has been conducted. When this fermentation proceeds with too much rapidity, it is often confounded with the acetous, but the products of that are totally different. A violent degree of fermentation however, though purely vinous, is extremely injurious to the ſtrength and permanence of cyder, probably owing to a part of the ardent ſpirit being diſcharged along with the diſengaged air or gas.

“If,” ſays the author of the Tract on Cyder-making, “the juice has been expreſſed from ſour apples, this fermentation is perfected in two or three days; but if from ſweet apples, not under a week or ten days, and ſometimes longer.”

The next ſucceeding ſtage of fermentation gives an acidity to the vinous liquor before ſpoken of, converting it to a ſort of vinegar. This fermentation begins ſoon (frequently in a few hours) after the vinous is ended, and if the fermentation be improperly haſtened by heat, before the vinous can be perfected. And Mr. Knight has remarked that it uſually ſucceeds the vinous; but that it will ſometimes precede it, when the liquor is in ſmall quantity and expoſes a large ſurface to the air. In this proceſs, vital air is abſorbed from the atmoſphere, and the ardent ſpirits, vegetable acid, and ſugar, if any remain, are alike converted into vinegar.

It is alſo further remarked that in the putrefactive proceſs which follows the acetous, the vinegar loſes its acidity, becomes foul and viſcid, and emits air of an offenſive ſmell: an earthy ſediment ſubſides, and the remaining liquid is little but water. But although we cannot, Mr. Crocker thinks, form any clear and diſtinct knowledge of the preciſe manner in which nature performs theſe changes in fermenting liquors, yet the effects are evident; and from a conſideration of the different natures and reſults of the various fermentations, it may be perceived, that the firſt is the only one uſeful in making good cyder, and that the others tend to vitiate, and render unwholeſome a liquor that would otherwiſe be highly pleaſant, and truly ſalubrious. To regulate the firſt and to check the others, is then, ſays he, the greateſt buſineſs of that cyder-maker, who would attach to himſelf the ſatisfaction and fame which every one is emulous of acquiring and deſerving.

In the view of attaining theſe ends, fermentations ſhould not, he thinks, by too much heat, be carried on rapidly, nor by extreme cold, too ſlowly; as, in each caſe, the fermenting body muſt be injured. Hence (he ſays) it appears, that a certain degree of warmth, or rather imperceptible heat, conduces beſt to regulate this operation. This degree of warmth may be underſtood to reſt between forty and fifty degrees of Fahrenheit's thermometer. If then the warmth of the cellar, in which new-made cyder is placed, be between theſe points (no adventitious cauſe intervening), we may expect that the vinous fermentation will commence and go on with due regularity, and in a proper manner.

It has been obſerved above, that fermentation is an inteſtine motion of the parts of a fermentable body. This motion, in the preſent caſe, is always accompanied with an evident ebullition; the bubbles riſing to the ſurface, and there forming a ſcum, or ſoft and ſpongy cruſt, over the whole liquor. This cruſt is frequently raiſed and broken by the air as it diſengages itſelf from the liquor, and forces its way through it. This effect continues whilſt the fermentation is briſk, but at laſt gradually ceaſes. The liquor now appears tolerably clear to the eye, and has a piquant, vinous ſharpneſs upon the tongue. If in this ſtate the leaſt hiſſing noiſe be heard in the fermenting liquor, the room is too warm; and atmoſpheric air muſt be let in at the doors and at the windows.

"This (continues he) is the critical moment, which the cyderiſt muſt not loſe ſight of; for, if he would have a ſtrong, generous, and pleaſant liquor, all further ſenſible fermentation muſt be ſtopped. This is beſt done by racking off the pure part into open veſſels, which muſt be placed in a more cool ſituation for a day two, after which it may again be barrelled, and placed in ſome moderately cool ſituation for the winter. The Herefordſhire cyder-farmers, after the cyder has perfected its vinous fermentation, place their caſks of cyder in open ſheds throughout the winter: and, when the ſpring advances, give the laſt racking, and then cellar it. In racking, it is adviſable that the ſtream from the racking-cock be ſmall, and that the receiving-tub be but a ſmall depth below the cock: leſt, by exciting a violent motion of the parts of the liquor, another fermentation be brought up.

Though in common practice the racking of the liquor is rarely much attended to, eſpecially for ſome months after caſking, this being the old method; there cannot, however, be much doubt but that it ſhould be accompliſhed at the proper moment as ſhewn above: in proof of which it is found that in the management of the finer liquors, in ſome diſtricts, in which the fermentation is rapid, ſome have ſervants in conſtant attendance to watch its progreſs, racking it when neceſſary, even in the night, as ſuch ſaccharine liquors require timely checking to prevent their taking on the acetous ſtate.

But though frequent rackings have, without doubt, a tendency to reduce the liquor to a quiet ſtate, the ſtrength is ſuppoſed to be conſiderably lowered by it, in conſequence of the continual eſcape of the ſpirit by expoſure to the atmoſphere. Brandy, or any other clean ſpirit may likewiſe be employed for the ſame purpoſe as racking, if not found too dear. The ſame object may alſo be obtained in ſome meaſure by leaving the caſk unfilled, with an ullage. Where the tendency to fermentation is great, the caſks ſhould not be too much filled to the bung-hole, the action of the air on the ſurface of the liquor being favourable to the checking of that proceſs.

The grounds, lees, or feculence of the cyder, after racking, may be ſtrained through filtering bags, made for the purpoſe, of coarſe linen or hempen cloth, and the running placed among the ſecond-rate cyders; but by no means ſhould it, in Mr. Crocker's opinion, be returned to the prime cyder. Some find it uſeful in checking any farther irregular fermentation in the caſks. In this ſituation the cyder will, in courſe of time, by a ſort of inſenſible fermentation, (the ſame writer ſays) not only drop the remainder of its groſs lees, but will become tranſparent, highly vinous and fragrant.

"But, (it is obſerved by Mr. Knight,) that after the fermentation has ceaſed, and the liquor is become clear and bright, it ſhould inſtantly be drawn off, and not ſuffered on any account again to mingle with its lees; for theſe poſſeſs much the ſame properties as yeaſt, and would inevitably bring on a ſecond fermentation. The beſt criterion to judge of the proper moment to rack off will be (he ſays) the brightneſs of the liquor; and this is always attended with external marks, which ſerve as guides to the cyder-maker. The diſcharge of fixed air, which always attends the progreſs of fermentation, has entirely ceaſed; and a thick cruſt, formed of fragments of the reduced pulp, raiſed by the buoyant air it contains, is collected on the ſurface. The clear liquor being drawn off into another caſk, the lees are put, he ſays, into ſmall bags, ſimilar to thoſe uſed for jellies, being made, as noticed above: through theſe, whatever liquor the lees contain gradually filtrates, becoming perfectly bright, and it is then returned to that in the caſk, in which it has the effect, in ſome meaſure, of preventing a ſecond fermentation, as already hinted. It appears, he ſays, to have undergone a conſiderable change in the proceſs of filtration. The colour is remarkably deep, its taſte harſh and flat, and it has a ſtrong tendency to become acetous; probably by having given out fixed, and abſorbed vital air. Should it become acetous, which it will frequently do in forty-eight hours, it muſt not, on any account, he ſays, be put into the caſk. If, however, the cyder, after being racked off, remains bright and quiet, nothing more is to be done to it till the ſucceeding ſpring; but if a ſcum collects on the ſurface, it muſt immediately be racked off into another caſk; as this would produce bad effects, if ſuffered to ſink. If a diſpoſition to ferment with violence again appears, it will be neceſſary, he thinks, to rack off from one caſk to another, as often as a hiſſing noiſe is heard. The ſtrength of cyder is much reduced, he ſays, as noticed above, by being frequently racked off; but this, he ſuppoſes, ariſes only from a large portion of ſugar remaining unchanged, which adds to the ſweetneſs, at the expence of the other quality. The juice of the fruits which produce very ſtrong cyders, often remains muddy during the whole winter, and much attention muſt frequently be paid, to prevent an exceſs of fermentation.

The caſks into which the liquor is put, whenever racked off, ſhould always have been thoroughly ſcalded, and dried again; and each ſhould want ſeveral gallons of being full, to expoſe a larger ſurface to the air of the atmoſphere.

But, ſays he, ſhould the cyder-maker neglect the above precautions, the inevitable conſequence will be this: another fermentation will quickly ſucceed, and convert the fine vinous liquor he was poſſeſſed of into a ſort of vinegar; and all the art he is maſter of will never reſtore it to its former richneſs and purity.

When, however, the acetous fermentation has been ſuffered to come on, the following attempts may, he ſays, be made to prevent the ill effects of it from running to their full extent. For this purpoſe ſeveral means have been tried, ſometimes with a degree of ſucceſs, at other times wholly unavailably; the moſt popular ones would, however, ſeem to be theſe: as already noticed, a bottle of French brandy, half a gallon of ſpirit extracted from the lees of cyder, or a pailfull of old cyder, poured into the hogſhead ſoon after the acetous fermentation is begun: but no wonder, continues he, if all theſe ſhould fail, if the cyder be ſtill continued in a cloſe warm cellar. To give effect to either, it is neceſſary that the liquor be as much expoſed to a cooler air as conveniently may be, and that for a conſiderable length of time. By ſuch means it is poſſible fermentation may, in a great meaſure, be repreſſed; and if a caſk of prime cyder cannot from thence be obtained, a caſk of tolerable ſecond-rate kind may. Theſe remedies are innocent; but if the farmer or cyder-merchant attempt to cover the accident, occaſioned by negligence or inattention, by applying any preparation of lead, let him reflect that he is about to commit an abſolute and unqualified murder on thoſe whoſe lot it may be to drink his poiſonous draught. Such means ſhould, therefore, on no account be ever had recourſe to.

The practice which is provincially termed *ſlumming*, and which ſignifies the fuming a caſk with burning ſulphur, may ſometimes be advantageous. It is thus performed: take a ſtripe of canvas cloth, about twelve inches long and two broad; let it be dipped into melted brimſtone: when this match is dry, let it be lighted, and ſuſpended from the bung of a caſk (in which there are a few gallons of cyder) until it be burnt out. The caſk muſt remain ſtopped for an hour or more, and then rolled to and fro, to incorporate the fumes of the match with the cyder; after which it may be filled. If the *ſlumming* be deſigned only to ſuppreſs ſome ſlight improper fermentation, the brimſtone match is ſufficient; but if it be required to give any additional flavour to the cyder, ſome powdered ginger, cloves, or cinnamon, &c. may be ſtrewed on the match when it is made. The burning of theſe ingredients with the ſulphur will convey ſomewhat of their fragrance to the whole caſk of cyder; but to do it to the beſt advantage, it muſt be performed as ſoon as the vinous fermentation is fully perfected.

It is ſtated by Mr. Crocker, that when the cyderiſt has ſucceeded in obtaining a favourable vinous fermentation, and by a well-timed racking and attention he has prevented the acetous and other ſucceeding fermentations from riſing, his cyder will require very little further attention, more than filling up the veſſels every two or three weeks, to ſupply the waſte by the inſenſible fermentation, until the beginning of the ſucceeding March; at which time it may be reaſonably expected he will find his cyder bright, pure, and in a fit ſtate for its final racking. This ſhould be done in fair weather; and, if neceſſary, a commixture ſhould now be made of the high-coloured cyder, made from the Jerſey, or the luſcious ſweet apples, with that of the pale-coloured cyder from the poorer ſour apples: by which means a general regular colouring may be obtained with the leaſt trouble, and without expence in any way.

Though it may be expected that the cyderiſt will now find his liquor to his mind, both in point of brightneſs and colour, yet ſhould he be diſappointed, this is the time for applying ſome innocent remedy to remove the diſorder. He does not recommend to him either of the *forces* commonly uſed for fining liquors, namely, bullock's blood, iſinglaſs, eggs, &c. as they as frequently ſpoil a caſk of cyder as improve it; but if he put two pounds of lump ſugar into a hogſhead of cyder, he will receive all the benefit which may be expected from the moſt nauſeous *force* which naſtineſs can employ. If higher colour in cyder be deſired than what his fruit naturally gives under the foregoing management, the cyderiſt will do well, he ſays, to melt a pound of lump-ſugar in a ſtewpan, over a clear fire, ſtirring it frequently, until it comes to a very dark brown colour; then to take it off the fire, and, as it cools, add ſome cyder thereto by little and little, and continue ſtirring it until it becomes a thin uniform fluid. This colouring, in the quantity of about a pint, more or leſs as occaſion may require, to a hogſhead, is very cheap and wholeſome, tinges to perfection, gives no luſcious ſweetneſs, but rather an agreeable bitterneſs, and thus recommends itſelf to the nicer palates. Soon after this ſpring racking, but not till then, the caſks may be gradually ſtopped, by firſt laying the cork on the bung-hole, and in a few days forcing it very tightly into it, covering it over with a layer of melted roſin, or other ſimilar ſubſtance.

Bottling the Liquor.—This is the next buſineſs to be attended to in the management of cyder; and it is ſtated by the writer juſt mentioned, that in the month following, that which is named above, the cyder, in general, will be in a fit ſtate for this operation; but that the critical time for this proceſs is when the liquor has acquired in the caſk its higheſt degree of perfection: then, when the weather is fair, the barometer high, and the wind in ſome northerly point, let the bottles be filled, ſetting them by uncorked until the morning; then let the corks be driven very tightly into the necks of the bottles, tied down with ſmall ſtrong twine or wire, and well ſecured with melted roſin, or other material of the ſame nature.

It is ſtated by Mr. Knight, that cyders which have been made from good fruits, and have been properly manufactured, will retain a conſiderable portion of ſweetneſs, in the caſk, to the end of three or four years; but that the ſaccharine part, on which alone their ſweetneſs depends, gradually diſappears, probably by a decompoſition and diſcharge of fixed air, ſimilar to that which takes place in the earlier ſtages of their fermentation. Cyder is generally in the beſt ſtate to be put into the bottle at two years old, where it will ſoon become briſk and ſparkling; and if it poſſeſſes much richneſs, it will remain with ſcarcely any ſenſible change during twenty or thirty years, or as long as the cork duly performs its office, or reſiſts decay.

But in making cyder for the common uſe of the farm-houſe, the ſame writer ſays, few of the foregoing rules are or ought to be attended to. The flavour of the liquor is here a ſecondary conſideration with the farmer, whoſe firſt object muſt be to obtain a large quantity at a ſmall expence. The common practice of the country is ſufficiently well calculated to anſwer this purpoſe; the apples are uſually gathered and ground as ſoon as they become moderately ripe; and the juice is either racked off at once, as ſoon as it becomes bright, or more frequently conveyed from the preſs immediately to the cellar. A violent fermentation ſoon commences, and continues until nearly the whole of the ſaccharine part is decompoſed. The caſks are filled up and ſtopped early in the ſucceeding ſpring, and no further attention is either paid or required. The liquor thus prepared may be kept from two to five or ſix years in the caſk, according to its ſtrength. It is generally harſh and rough, but rarely acetous; and in this ſtate, the writer believes, it is uſually ſuppoſed to be preferred by the farmers and peaſantry. When it has become extremely thin and harſh by exceſs of fermentation, the addition of a ſmall quantity of bruiſed wheat, or ſlices of toaſted bread, or any other farinaceous ſubſtance, will, he ſays, much diminiſh its diſpoſition to become ſour. But the above opinion is not, he thinks, well founded; they like it beſt when it poſſeſſes much ſtrength with moderate richneſs, and when it is without any thing harſh or ſour in its flavour; but they will drink it, and to a moſt extraordinary exceſs, even when it is really in the acetous ſtate.

And, as has been ſeen above, an inferior kind of liquor is made, the writer ſays, by macerating the reduced pulp, from which the cyder has been preſſed, in a ſmall quantity of water, and regrinding it. This may be kept till the next autumn, and uſually ſupplies the place of cyder in the farm-houſe for all purpoſes, except for the labourers in the harveſt. It is generally fit to drink very ſoon after it is made; and though no attention is ever paid to it during its fermentation, it often remains, till near the end of the ſucceeding ſummer, more palatable than the cyder preſſed from the ſame fruit, which is a fortunate circumſtance for the farmer.

In the buſineſs of making perry, which is a liquor of a ſomewhat ſimilar nature, there is but little which is materially different in the proceſs. See PERRY.

Produce and application of Cyder.—The produce of this liquor is a matter which is extremely difficult to aſcertain, whether the quantity be taken by the acre, or in any other way. It has been ſtated by the author of the "Preſent State of Huſbandry," in this country, that the quantity of cyder and perry made for ſale in the fruit diſtricts is very great; but that, that uſed by the inhabitants is by various accounts much more conſiderable. Theſe liquors are, he ſays, ſold by the farmers in different ſtates of preparation for market. Sometimes they are ſold immediately from the preſs, ſometimes after the firſt racking, and frequently, not until ready for uſe. The price of cyder and perry always advances according as theſe liquors are in a prepared ſtate for the conſumer's uſe, as well as according to the quantity on hand, and the quality of the fruit whence it was made. Stire-cyder and ſquaſh-pear perry, for inſtance, ſays he, always give much higher prices than what is made from any other ſorts of fruit. The price of common cyder liquor from the preſs, for a courſe of ſeven years, may, he thinks, be rated at from 15*s.* to 30*s.* the hogſhead of 110 gallons; and common perry from 12*s.* to 15*s.* Stire-cyder, in the ſame ſtate, ſells for 5*l.*, 10*l.*, and ſometimes 15*l.* the hogſhead; and ſquaſh perry, in ordinary ſeaſons, from 4*l.* to 8*l.* the hogſhead.

But the produce of cyder or perry by the acre can only, he ſays, be gueſſed at by firſt aſcertaining the number of trees. From an orchard of trees, in full bearing, half a hogſhead of cyder may, in ſeaſons ordinarily favourable, he thinks, be expected from the fruit of each tree. As the number of trees on the acre varies from ten to forty, the quantity of cyder muſt vary in the ſame proportion; that is, from five to twenty hogſheads. Pear trees, in equally good bearing, yield fully one-third more liquor; therefore, although the liquor extracted from pears ſells at a lower price than that produced from apples, yet the value by the acre, when the number of trees is the ſame, is nearly on a par.

Mr. Vancouver, in his Survey of the County of Devonſhire, has remarked, that the great uncertainty of this ſort of crops renders it a matter of great difficulty, to ſtate any thing like an average produce of that diſtrict. He has found, however, that the mean, of ſeveral ſtatements taken upon a period of ſeven years, which varied from two and a half to five hogſheads per acre, will be found to equal that of three hogſheads and two-fifths for the acre. And that the average price of the liquor at the *pound's* mouth, or preſs, was, in 1807, fifty ſhillings the hogſhead.

And the intelligent writer of the Report of the County of Glouceſter, has offered a ſtatement of the expence, produce, and profit of this kind of crop, in a different way on the extent of twenty acres.

Suppoſing the diſtance of planting the trees to be ſixteen yards, the acre will admit ſixteen ſtocks, which, with the original coſt, planting, and fencing, may be eſtimated at 5*s.* each, or in the whole 4*l.*

Grafting, protecting, and keeping up fences till the trees are out of danger, may be ſtated at 2*s.* 6*d.* each.

It is ſuggeſted, that the return to the landlord will be very ſmall for the firſt twenty years; and that he will not be able to put an additional rent on his lands, in leſs than thirty years, for the plantation.

The coſt of erecting a cyder-houſe and mill ſtated at eighty pounds.

General Eſtimate.	£.	s.	d	£.	s.	d.
Planting 20 acres - - -				80	0	0
Grafting, protecting, repairing, &c. -				40	0	0
Intereſt for 30 years on 80*l.* - -				120	0	0
Building cyder-houſe, &c. - -				80	0	0
Total expence				320	0	0
Intereſt of 320*l.* -	16	0	0			
Profit - -	14	0	0			
				30	0	0
Advance of rent on 20 acres -				30	0	0

Conſequently the landholder has the diſtant proſpect, he ſays, of increaſing his income 14*l.* per annum, or of receiving nearly 10 *per cent.* for money laid out, but ſubject to the deductions of repairs, &c.

But that, with the tenant the advantages are ſtill leſs certain. Suppoſe the ground to be ſo well planted and grown as to contain ſixteen trees capable of affording in a good ſeaſon ſixteen barrels, or 800 gallons of cyder, which is a large average allowance; and ſuppoſe the liquor to be ſold from the mill at 4*d.* the gallon, the produce will be 13*l.* 6*s.* 8*d.* per acre, ſubject to the deductions of 20*s.* for tythes, 2*l.* for making, 10*s.* for gathering; in the whole 3*l.* 10*s.*: the remainder, 9*l.* 16*s.* 8*d.* will be clear profit; which, if it occurred every year, it would be conſidered highly beneficial; but a good crop rarely happens oftener than once in four years, while the damage done to the graſs under the trees is continued, as well as the increaſed parochial rates from the increaſed rent; it does not ſeem, therefore, the writer ſays, that the additional rent on account of the trees, is returned with much intereſt.

Though there are many individuals in the cyder diſtricts who evince much care and attention in the management of their orchard-grounds, trees, fruit, liquor, &c.: Yet this is by no means, he ſays, the common caſe; on the contrary, ſuch general negligence prevails, and ſo imperfect are the modes in which this branch of huſbandry is for the moſt part conducted, that many are of opinion, ſo much valuable land being occupied as orchards, is, in a national view, extremely unprofitable; and that owing to the ſame cauſes, want of attention, and adopting improper modes of management, the farmers at large are alſo injured, rather than benefited. While, ſays he, orchards continue to be conſidered as ſecondary objects only of the farmer's attention, as is the caſe at preſent, it can hardly be expected that the produce will be abundant, or the quality ſuch as to recommend it to more general notice. In place, however, of condemning orchard huſbandry at large, it appears much more correct, he thinks, to recommend a general reform in the management; whereby liquors, that are both wholeſome and agreeable, when well made, may be introduced into more general uſe, and ſo large an importation of foreign vinous liquors be rendered unneceſſary. In place of planting only ten or a dozen of trees on the acre over an extenſive tract of land, it would, he ſuppoſes, be more for the intereſt, and certainly much more convenient for the cydermen, were they to allot a few acres adjoining to their places of reſidence, for the ſole purpoſe of growing fruit-trees. The loſs and inconvenience of having fruit trees ſcattered over an arable field, are conſiderable. When the trees are full grown, they overſhadow, and conſequently greatly injure the crop below; the roots alſo ſpread to a great diſtance, and beſides impeding the ploughing of the ground, extract a great ſhare of the nouriſhment that would otherwiſe go to ſupport the crop of corn. The additional expence in gathering and carrying home a crop of fruit from an extenſive fruit-ground, beyond what is incurred when four trees ſtand on the ſame ſpace of ground which in the other caſe is occupied by one, alſo merits attention. Inconveniences as great and numerous reſult from having fruit-trees thinly ſcattered over a paſture field. The graſs under the ſhadow of the trees is very inferior to that in the open part of the field. The cattle muſt, ſays he, be excluded when the fruit-trees begin to ripen, eſpecially during and immediately after high winds, otherwiſe they would eat the fruit. The falling of leaves in autumn is very deſtructive to paſtures of all deſcriptions; and the ſame additional expence and trouble of gathering and carrying home the crop are alſo incurred. For theſe reaſons, a cloſe planted cyder-orchard muſt, he thinks, be preferable to fields; and where the ſoil and ſituation are proper, the grounds ſtocked with full-bearing trees of the beſt ſorts; and when the trees, the fruit, and the liquor, are judiciouſly managed, it is impoſſible but, according to the produce and prices above-ſtated, ſuch grounds muſt turn out profitable, even ſuppoſing they produce but one crop equal to that above-mentioned, every third year. On the other hand, if the ſlovenly manner of conducting the various operations of cyder-making be perſiſted in, it would be in favour of the nation, and of the individuals concerned in that branch of huſbandry, he ſuppoſes, that there were not a cyder-orchard in the iſland. Perhaps, on another account alſo, it might be for the intereſt of the farmers in the fruit diſtricts that orchards were aboliſhed: the quantity of cyder annually uſed by the ſervants and labourers is ſo immenſe, that conſidering the injury which the crops of grain and graſs ſuſtain from the land's being incumbered with trees, the labour of collecting and carting home the fruit, and the trouble attending the manufacturing it into liquors, this beverage muſt be a more ſerious article of expence than the generality of cyder farmers are diſpoſed to allow.

It is, however, ſtated by Mr. Rudge, that where the management of theſe ſorts of liquors is perfectly known and attended to, and there is a capital ſufficient to prevent the neceſſity of immediate ſale, as well as plenty of caſks in the farmer's own cellar, he may be enabled to take the advantage of the moſt favourable circumſtances of bringing it to the market, as when there is a ſcarcity from early ſales, and no ſupplies expected from crops of ſucceeding years; when the price is frequently increaſed to 8*d.* or 1*s.* the gallon.

It is added, that old cyder is always valuable, and pays for keeping; which is ſuggeſted as the beſt means of countervailing the uncertainty of crops, though it oftener benefits the dealer than the grower of the fruit.

The ſame able writer alſo ſtates, that farmers who live contiguous to canals or navigable rivers, have peculiar advantages from their ſituations, often turning long keeping fruits to a better account than grinding them for cyder, by ſending them into the interior diſtricts of the kingdom for the purpoſe of the table, at the price of 16*s.* per ſeam: "for," ſays he, "ſuppoſing that eleven ſeams of nine pecks each, are required for 100 gallons, the cyder ſhould be ſold at 8*l.* 16*s.* to equalize the profit of their ſale unground; but cyder, in its early ſtate, ſeldom averages more than 9*d.* per gallon, which would be only 3*l.* 15*s.*; ſo that even ſuppoſing all the cyder to turn out well, the former method is far the more advantageous. It is therefore conceived, that in this way alone, the profits of a fruit eſtate can be ſatisfactorily made out in favour of the tenant of it. See Orchard, and Apple-*tree*.

Cyder-*Caſk*, in *Rural Economy*, a veſſel of the barrel kind, made uſe of for the purpoſe of keeping the liquor. They are of various ſizes or dimenſions, according to the extent of the fruit grounds, and the fancy and circumſtances of the farmer, in ſo far as capital is concerned. It is, however, commonly ſuppoſed that the ſtrength of the liquor is better preſerved, if not increaſed, by a large quantity or body of it being kept together. Though caſks of this ſort are made to hold from 400 to 500 gallons, the moſt general ſize is 110 gallons, which is alone employed in ſending out the cyder for ſale. The uſual price of this kind of caſks is about five-pence the gallon.

It is obſerved that the choice of proper veſſels for keeping the liquor in after it has been fermented, is a very material point to be regarded, as none is ſo liable as this to take the taſte or twang of the caſk: new veſſels, though the wood be ever ſo well ſeaſoned, are apt to give a diſagreeable reliſh to all liquors, and remarkably ſo to cyder, unleſs due caution be uſed beforehand. Frequent ſcalding with hot water, into which ſome handfuls of ſalt have been firſt thrown, or with water in which ſome of the pommage has been boiled, and waſhing afterwards with cyder, are the uſual remedies againſt this evil, and ſeldom fail of removing it effectually. Of all ſorts of old caſks, beer veſſels are the worſt, as they always ſpoil cyder; and in return cyder caſks infallibly ſpoil beer. Wine and brandy caſks do very well, provided the tartar adhering to their ſides be carefully ſcraped off, and they are well ſcalded. Theſe different circumſtances ſhould always be carefully attended to, in cleaning and preparing caſks of this kind for the reception of the liquor.

Cyder-*Cloths*, are ſuch cloths as are manufactured for the purpoſe of the cyder-maker, being made uſe of for containing the pommage, in order to its undergoing the operation of the preſs. They are uſually formed of common hair-cloth, but which is of the more cloſe and compact nature or texture.

The ſize is generally about four feet ſquare; and they hold about two or three buſhels, or as much as the mill can grind at once; and theſe are, as has been ſeen, heaped over each other until the preſs is full, being kept to an uniform ſize by a wooden frame or gauge. The larger preſſes are capable of holding from eight to fifteen bags or cloths, which yield from one to two hundred gallons of liquor, according to the largeneſs of what is termed the *cheeſe*. To perform the work neatly, it is neceſſary to have two ſets of theſe cloths or bags, as they are apt to clog and fur in preſſing, and conſequently become unfit for uſe again till they have been waſhed and dried; ſo that while this is doing, either the preſs muſt ſtand ſtill, or another ſet be ready to employ it. But ſome, inſtead of cloths or hair-bags, lay dry ſtraw under the pommage, the ends of which they turn up over it; then cover the pommage entirely with freſh clean ſweet-ſmelling ſtraw, upon which they ſpread another layer of pommage; and ſo on alternately, until the preſs is full. Either of the methods will anſwer the purpoſe: but thoſe who are deſirous of doing the work in the neateſt and beſt manner, generally uſe hair bags or cloths in performing the buſineſs. See Cyder.

Cyder-*Kin*, an inferior ſort of fruit liquor, which is made after the better kind has been prepared, in the manner which has been noticed in ſpeaking of cyder. (See Cyder.) It is moſtly uſed for domeſtic purpoſes.

Cyder-*Mill* is that ſort of machine or contrivance, which is conſtructed for the purpoſe of cruſhing, grinding, and reducing apples, or other ſimilar fruits, into the ſtate of a fine pulp or pommage, in order that the juice or liquor may be drawn from it, by means of preſſure. In different diſtricts there are variations in the manner of conſtructing theſe mills; but they chiefly conſiſt of two kinds, the horſe and the hand mills; the former being principally in uſe where the extent of fruit ground is conſiderable, but the latter moſtly where the farms of this kind are ſmall, and inſufficient to repay the expence of ſuch large machinery.

The firſt ſort, or *horſe-mill*, which is that by much the moſt generally met with, is commonly conſtructed ſomewhat on the ſame principles as thoſe in uſe for the purpoſe of grinding bark for the tanners; and conſiſts of the following diſtinct parts, namely, the ciſtern-chaſe, or trough, the runner or bruiſing-ſtone, and the cog-wheel and upright axle-tree, with the ſtirrer, the reever, and the ſhovel employed in the proceſs.

It is ſtated by Mr. Rudge, in his "Agricultural Survey of Glouceſterſhire," that the ciſtern is circular, and formed of ſtone, being hollowed out in ſuch a manner as to fit and receive the runner, commonly to the depth of about nine inches. On the inner ſide, or that which is next, what is uſually termed the "nut" or central ſpace, it is cut out in a perpendicular form, but on the exterior or outſide ſomewhat in a ſloping direction, being left wider acroſs at the top than at the bottom; and the outſide upper edge is left two or three inches in width, in order to receive what is denominated a "curbing," which is made of wood, and raiſes it four inches higher, being finiſhed with nearly a ſharp edge. The deſign of this wood-work is not merely to prevent the pulp or pommage from being carried over, as the ſtone rolls or turns round, but likewiſe to correſpond with a four-inch plank or planks, which cover the nut, or circular vacant ſpace in the centre. It is uſual for the ciſterns to be delivered from the quarries in three or four ſeparate parts, which are afterwards fitted and cramped together by the mill-wright. A ciſtern of thirty feet in circumference will be requiſite for a mill of the ordinary ſize; and the price is regulated by the number of gallons which it is capable of containing, or at the rate of one guinea the foot in diameter.

In regard to the runner or bruiſing ſtone, it is ſeldom leſs than three feet and a half, or more than four feet in diameter, being made perfectly flat on the ſide next the nut, but a little convex on the other, nearly fitting the bottom of the ciſtern. In the middle, a ſtrong axle of wood is faſtened through it, which is connected with an upright or ſtandard axle-tree in the centre, which extends ſufficiently far from the exterior ſide of the runner to connect by means of an iron rod with a wooden bar, which is alſo linked to the upright axle, and to which the horſe is faſtened. This wooden bar or pole is ſo fixed as to be before the runner, and keep the horſe clear of it. The height is regulated by a ſubſtructure of ſtone work under the ciſtern or chaſe.

To the horizontal axle is fitted a cog-wheel of from eighteen inches to two feet in diameter, which runs on the wood-work that covers the whole ſpace; from the interior edge of the ciſtern to the perpendicular axle, and which is denominated the nut. The exact height of this wheel muſt conſequently be determined by that of the centre of the runner above the nut. The cogs of this wheel catch upon upright teeth, fixed in the nut, as it rolls upon the ſurface, and by this means force the ſtone into a rotatory motion, which under other circumſtances it would not always keep; as when the apples are firſt introduced, or when the bottom of the ciſtern has become ſmooth from the pulp, it might ſlide along rather than roll, was it not for ſome machinery of this nature; though ſome mills are without it notwithſtanding.

The perpendicular axle-tree has an iron pin at each end as pivots, which runs in a ſunk iron centre; the wood of the axle, which is bound with an iron ring or hoop, forming the ſhoulder of it.

The runner, or ſtone for grinding, is commonly ſold at the quarry at the rate of one guinea the foot, or as many guineas as the ſtone meaſures feet in diameter; being, in the diſtrict mentioned above, procured from the foreſt of Dean. They are a ſort of dark reddiſh kind of grit ſtone, not calcareous, but of ſufficient hardneſs.

It is ſuggeſted by Mr. Marſhall that much depends upon the quality of the ſtone. It ſhould not be calcareous, either in the whole or any part, as the acid of the liquor would, in that caſe, corrode and decompoſe it. Some of the ſtones in Herefordſhire have, he ſays, calcareous pebbles in them, which being diſſolved as above, of courſe leave holes in them. Nor ſhould the ſtone be of ſuch a kind as to communicate a diſagreeable tinge to the liquor.

The ſame writer remarks likewiſe that there are ſome mills of this kind which have two runners, one oppoſite the other. And he thinks that the ſituation of theſe mills ſhould be ſuch as to have a horſe-path, of about three feet in width, between the bed and the walls; conſequently, a moderate ſized mill, with its horſe-path, takes up a ſpace of fourteen or fifteen feet in every direction.

At *Fig.* 1. in *Plate* XI. on *Agriculture*, an improved mill of this ſort is repreſented, in which A is the runner or ſtone, B C D the ciſtern-chaſe or trough, in which the ſtone moves and reduces the apples; E F G the horſe-path; and H I the manner in which the moving power is attached.

The other appendages of the cyder-mill noticed above may be thus deſcribed:

The *ſtirrer* conſiſts of a ſtrong round ſtick, with which the fruit is conſtantly kept to the ſtone, and removed from the ſides to the bottom, during the proceſs of grinding; for which purpoſe, a woman or boy uſually walks either before or behind the horſe. Some horſe-mills have two ſtirrers, ſo attached to the axle-tree of the runner as to execute the work effectually without manual aſſiſtance.

The *reever* is a ſmall piece of board ſecurely faſtened to a wooden handle, and ſo formed as to fit the ſhape of the ciſtern; by means of which, when the pommage or pulp is ſufficiently ground, it is drawn together in order to be conveyed to the preſs by the ſhovel.

The *ſhovel* is a tool ſomewhat of the ſpade kind, moſtly made of wood, being a ſort of ſcoop, by which the above operation is readily performed. Iron ſhovels are, however, ſometimes made uſe of; but a portion of the iron is ſuppoſed to be diſſolved by the acid of the liquor, which may poſſibly contribute to the black tinge frequently noticed in cyder, after expoſure to the air. Wooden implements ſhould therefore, of courſe, be preferred, as being more cleanly, and, at the ſame time, free from this ſort of danger.

The ſecond ſort, or *hand cyder-mill*, is conſtituted of two toothed or indented wooden cylinders of about nine inches in diameter, each being incloſed in the manner of other mills, having a feeder at the top, and being made ſo as to be turned by the hand. By this ſort of mill, the work of bruiſing the rind, kernel, and ſtalk, as well as that of reducing the fleſhy parts to a perfect pulp, is well performed. From the circumſtance of the cylinders being ſo arranged as to be capable of being removed to a greater or leſs diſtance from each other, the buſineſs advances in a regular progreſſive manner, from the firſt cutting of the fruit until the cylinders are brought ſo cloſe together that a kernel cannot paſs without being bruiſed; and where another pair of finer toothed cylinders are had recourſe to, to work under theſe, ſo as to bring the pulp into a perfect ſtate of fineneſs, the buſineſs is ſtill more effectually executed. But though by this means much time is ſaved, more ſtrength is required in the operation. It is with difficulty that the ſame degree of fineneſs can be effected by the horſe-mill, as in ſpite of the inceſſant attention of the labourer who has the care of ſtirring the fruit while under the operation of grinding, and of keeping it to the runner, a large portion is conveyed to the preſs without having been fully reduced. A mill of this deſcription is ſhewn at *fig.* 2. in the ſame plate.

It is obſerved by the intelligent author of the Report noticed above, that “two diſadvantages attach to the hand-mill in its preſent ſtate, loſs of time and increaſe of manual labour;” it being “difficult, with the aſſiſtance of three men, to grind a hogſhead in a day;” while “with a horſe-mill, from two to three hogſheads may be made by a man and woman, or younger perſon, and one horſe;” conſequently, its ſuperiority on a large fruit farm is conceived to be decided. It is, however, added, that the hand-mill is capable of being greatly improved in the point of expedition, by the attachment of a large horizontal wheel and horſe, as has been done in ſome manufactories.

It has been remarked by the author of the Rural Economy of Glouceſterſhire, that from obſerving the great ſimplicity and high degree of perfection with which the ſugar mills grind the canes or rather preſs out their juice between two plain iron rollers, the imperfections of cyder mills appear more ſtriking. It is however noticed that the ſugar cane is a long fibrous body; and readily paſſes through between the rollers: whereas fruit being globular, and of a cellular ſubſtance, is not eaſily laid hold of, or, if caught, has no lengthened fibres to induce it to paſs, like the cane, between plain rollers. It has, however, been found, that between fluted rollers it may be made to paſs; and in conſequence, theſe rollers are in uſe, though not common. They are of caſt iron, hollow, about nine inches diameter, with flutes or teeth, about an inch wide, and nearly as much deep. In general they are worked by hand, two men working againſt each other. Between theſe the fruit paſſes twice: the rollers being firſt ſet wide, to break it into fragments, and afterwards cloſer, to reduce the fragments. But even this is not, he ſays, a perfect engine: in the reſiduum from the preſs many kernels are found. Beſides, the acid of the fruit is liable to corrode the iron, and this, in return, to tinge the liquor, though neither of theſe inconveniences is acknowledged. In a country, however, where ſtone is not eaſily to be had, this may, perhaps, be found the moſt eligible cyder-mill. But in this diſtrict, where ſtone is ſufficiently plentiful, the ſtone runner and trough ſeem to be the moſt eligible mill at preſent known: though it appears to him highly probable, that, with attention and perſeverance, a more perfect machine might be invented. Be this, ſays the writer, as it may, the preſent mill appears to be capable of improvement. It is at preſent an unfiniſhed machine: he means when it is firſt turned out of the workman's hands: time and conſtant wear do that, in part at leaſt, which the workman leaves undone. The acting parts of the machine, thoſe which are to bruiſe the rind, and cruſh the kernels, are the face of the roller and the bottom of the trough. But inſtead of their being adapted to each other, in ſuch a manner as to effect theſe purpoſes with a degree of certainty, they are left in ſuch rough unfiniſhed ſtate as in a great meaſure prevents them, during the firſt fifty years at leaſt, from performing that which is their principal intention. Inſtead of being worked over, and fitted nicely to each other, with the ſquare and chiſſel, they are hewn over with the ſtone-maſon's peck only, leaving holes and protuberances which would ſave even horſe-beans from the preſſure, much more the kernels of fruit. A runner which has been worn two and twenty years has often holes left in it which would lodge half a dozen kernels with ſafety. To account for this abſurdity ſeems, he ſays, impoſſible: perhaps the roughneſs was intended to prevent the runner from ſliding; but the uſe of the cogged wheels has ſuperſeded this intention. Perhaps it was left to gather up the fruits with greater effect; but ſurely, deep chiſſel marks, left in the form of flutes acroſs the face, would have anſwered this purpoſe better, and would perhaps have laid hold of and fixed the kernels, ſo as to ſerve their being effectually broken, preferable to any other equally ſimple expedient. Or, perhaps, the cuſtom was eſtabliſhed when the uſes of the rind and kernel were not known, and time has not yet corrected the error. He has been told, that the roughneſs is left to cut the fruit the better on its being firſt put into the trough: and that on this ingenious principle, ſome will pick their runners over as often as they wear ſmooth. To ſuch cyder-makers, he would recommend the hobnail mill, which would come much cheaper, rid work ſtill faſter, and ſave the expence of pecking. Be the origin of folly what it may, ſays he, it is painful to obſerve its effect. In this caſe, however, the folly, and, of courſe, its effect may be eaſily removed. Having made the face of the roller as true as the ſquare and the chiſſel can render it, work, ſays he, the bottom of the trough to it, until not a muſtard-ſeed can eſcape them. The kernels of fruit are hard, ſlippery, and ſingularly difficult to fix, eſcaping preſſure in a peculiar manner; and with ſingular alertneſs.

It is remarked in addition, that another improvement of the common cyder-mill appears to be much wanted; namely, a method of preventing the materials in the laſt ſtage of grinding from riſing before the runner; and further, a more mechanical way of ſtirring up and adjuſting them in the chaſe. Until theſe improvements be made, cyder-mills, ſays he, muſt remain, what moſt of them evidently are at preſent, imperfect machines.

It has been noticed by the ſame writer, that a mill-houſe, on an orchard farm, is as neceſſary as a barn on thoſe of other kinds. It is in general found to be one end of an out-building, or frequently an open ſhed, under which ſtraw or ſmall implements are laid up when not in uſe. The ſmalleſt dimenſions poſſible to render it in any degree convenient and uſeful are, he thinks, twenty-four feet by twenty; having a floor thrown over it at the height of ſeven feet; and a door in the middle of the front with a window oppoſite; the mill being fixed up on one ſide of it, and the preſs on the other; as much room as is poſſible being left towards the door, in the front part, for the reception of fruit and the different neceſſary utenſils.

Mr. Rudge conſiders the "arrangement of the buildings for the convenience of making and ſtoring fruit liquors as a matter of great importance," though it ſeems to have been but little attended to on old farms. The mill and preſs being often found in an inſulated building at a diſtance from the cellars; which occaſions the employing of a man and boy, with a horſe and dray to convey the liquor to the place where it is to be caſked, which is a labour that would be unnecceſſary were the mill-houſe and cellars attached. In ſome of the more recent erections of this deſcription, the ſpout of the vat is ſo contrived as to diſcharge the liquor through an opening in the wall, into a receiver in the cellar, from which it is diſtributed with facility to the different caſks which are to be filled.

The reſt of the utenſils belonging to a mill-houſe are few: the fruit being ſimply brought in caſks or large baſkets, and the liquor carried out in pails, or by means of ſpouts as noticed above. The hair-cloths, mentioned above, are the principal addition to the mill and preſs. The expence of fitting up a cyder-mill houſe depends, Mr. Marſhall ſays, on the ſize and quality of the mill and preſs. One of a moderate ſize, for a farm, may be furniſhed completely for from twenty to twenty-five pounds. One on a ſmall ſcale might be furniſhed for from ten to fifteen pounds: much depending on the diſtance of carriage of the ſtone. This expence is uſually borne by the landlord. A mill-houſe ſubſtantially fitted up will laſt many years. He has obſerved a mill and preſs which, by the date upon them, have been ſet up more that twenty years, yet they appeared almoſt as freſh as new. Many of the old mills and preſſes, which are ſeen, may, compared with thoſe, ſeem to be a century old; or the mills more particularly a greater age, and were probably the original mills of the farms they are upon.

Theſe obſervations ſhew that conſiderable attention ſhould be beſtowed by the fruit farmer in fitting up and completing his buildings and machinery for the management of this ſort of liquor.

CYDER-*Preſs*, a machine of the preſs kind, contrived for the purpoſe of forcing the juice from different ſorts of fruits after their ſubſtance has been reduced to the ſtate of pulp by means of grinding. They are moſtly conſtructed on the ſame principles as thoſe of other kinds which are intended to afford a ſtrong or powerful preſſure, as the packing and oil-preſs.

It is conſtituted, according to Mr. Rudge, of the following parts, a ciſtern-ſtill, vat, cheeks, or "ſiſters," cap and ſcrew, lanthorn, bridge, preſs-blocks, ſhooter, lever, windlas, and rope.

The cheeks, or ſiſters, are two ſtrong upright pieces of oak, which are preſerved in their ſituations, by being let into the ground firſt, and then by the ciſtern-ſtill, which is a thick piece of timber, extending from one cheek to the other, near to the ground, being open mortiſed at each end, reſting upon a ſhoulder, and clipping the upright: through theſe open mortiſes, and the upright, a ſtrong iron pin is paſſed, which prevents the cheeks from ſpreading or giving way in the operation of preſſing. A correſponding piece is fixed near the top, which is mortiſed and faſtened in the ſame manner to the cheeks, through the centre of which the female ſcrew or nut is made, in that caſe denominated the cap.

What is termed the vat, is a wide plank, with a groove running round it near the edge, or what is preferable, a raiſed levelled border coinciding with the edge, about an inch in thickneſs, to prevent the liquor from running off at the ſides, and conduct it to the ſluice or ſpout from which it is diſcharged into the receiver. This vat is firmly fixed on the ciſtern-ſtill.

The ſcrew, when made of wood, is moſtly nine or ten inches in diameter, and which paſſing through the cap, riſes three or four feet to the lower end, which is ſquare; the bridge is hung, by means of a rounded pin, which is a plank reaching from one cheek to the other, being freely moveable up and down, but kept to a regular ſituation or poſition by open mortiſes. The lower end of the ſcrew is left of a larger diameter, when the lever is intended to work in it, being in this caſe perforated and hooped with iron, but the lanthorn is more frequently fixed upon it. This is made of two circular pieces of wood, leſs than two feet in diameter, being kept eight inches apart by ten ſtrong pillars, between which a piece of aſh or elm timber is occaſionally placed, which is termed the lever. There are two of theſe belonging to the preſs, being uſed according to the extent of power required, one being ſhorter and leſs ſtrong than the other, being capable of being worked by the ſtrength of one man, during the commencement of the preſſing; but as the liquor becomes more expreſſed and when nearly exhauſted, another lever of greater length and ſtrength is applied to the lanthorn, and worked by means of the windlas, which is an upright poſt, turning with an iron pivot in a ſocket on the ground, and paſſing through a beam in a rather free manner at the top, being removeable when not wanted. A rope coiled round this windlas, is hung by a loop to the end of the lever, being there ſecured from ſpringing off, by a wooden pin. The windlas has likewiſe at proper heights, from two to four bars of wood paſſing through for the purpoſe of handles, to which the ſtrength of four men may be applied with much effect. The preſs-blocks are pieces of oak, about two feet in length, and ſix inches ſquare, placed one above the other, croſſing in alternate pairs, under the bridge, for the purpoſe of keeping the lanthorn, lever, and rope above the heads of the workmen at the windlas.

It is ſuggeſted that iron ſcrews have of late been coming much into uſe, being either caſt or wrought; the price of the former being about 2*l.* 15*s.*; and of the latter nearly 10*l.* The power is ſuppoſed by ſome to be increaſed by the fineneſs of the threads in the iron ſcrew, while others admit of no other ſuperiority but that of durability.

The price of a good preſs with wooden ſcrew is uſually about ten guineas.

It has been ſuggeſted by the author of the Rural Economy of Glouceſterſhire that the ſituation of the preſs ſhould be as near the horſe path of the mill as conveniency and the nature of the building will permit, in order to the more ready conveyance of the ground pommage or pulp from the mill to it. The ſize of the cyder-preſs may be different according to the extent of the apple orchard.

An improved *Large Cyder-preſs* is ſhewn at *fig.* 3, in which A A is the baſe or foundation with its ſupporting parts: B, B, the cheeks or ſiſters: D D the croſs piece at top, through which the ſcrew paſſes, and which conſequently contains the nut or female ſcrew: E the ſcrew with its appendages: F F the bridge or croſs piece which acts on the pommage: G G is the wide plank or vat on which the pulp reſts in the hair bags; in which the mode of the liquor's paſſing off is ſeen: H H (*fig.* 4.) is the windlas, with its handles, wheel, rope, &c.

At *fig.* 5, is ſeen a ſmall *Cyder-preſs* of a different kind, which acts by means of a heavy ſtone or block of wood made of a conical form, moving round the centre by a lever which is inſerted into its baſe, as ſhewn at A and B: C is the bed of the preſs, notched for letting off the liquor into the caſk or veſſel, D, placed below: E, E, E, E, are the feet or blocks on which the whole reſts.

Cyder-*ſpirit*, a ſpirituous liquor drawn from *cyder* by diſtillation, in the ſame manner as brandy from wine. The particular flavour of this ſpirit is not the moſt agreeable, but it may, with care, be diveſted wholly of it, and rendered a perfectly pure and inſipid ſpirit, upon rectification. The traders in ſpirituous liquors are well enough acquainted with the value of ſuch a ſpirit as this: they can give it the flavours of ſome other kinds, and ſell it under their names, or mix it in large proportion with the foreign brandy, rum, and arack, in the ſale, without danger of a diſcovery of the cheat.

Cyder-*Vat*, is a term applied to that part of the cyder-preſs which firſt receives the liquor as it is forced out from the pulp, and by which it is conveyed into the receiver. See Cyder-*Preſs*.

It is likewiſe a name often given to the veſſels which receive the cyder before it is racked off into the ſtore caſks.

It is remarked in the Survey of the County of Glouceſter, that the vat is ſtill, in ſome caſes, covered with lead, although the pernicious effects of its being corroded by the acid of the liquor have been frequently experienced. It ſhould on this account be always made of ſome ſort of hard wood.

Cyder-*Vinegar*. See Vinegar.

Cyder-*Wine*, is the name of a ſort of family wine made by concentrating the juice or liquor of apples, by evaporating it to nearly one half, and afterwards, when it becomes cold, fermenting it, in a ſuitable caſk in the uſual way. By this means a very pleaſant and cooling wine is ſaid to be prepared.

CYDISES Mons, in *Ancient Geography*, a mountain of Aſia, towards Armenia. Strabo.

CYDNA, a town of Macedonia, the ſame with Pydna.

CYDNUS. See Cidnus.

Cydnus, a river of Aſia Minor, in Bithynia.

CYDOESSA, a fortified village of Phœnicia, at a ſmall diſtance from the ſea, which belonged to the Tyrians.

CYDONEA, an iſland of the Mediterranean ſea; oppoſite to that of Leſbos; one of the five iſlands comprehended under the denomination of *Leucæ*.

CYDONIA, in *Botany*. Tourn. Juſſ. Vent. See Pyrus *Cydonia*.

Cydonia, or Cydonis, in *Ancient Geography*, *la Canée*, the moſt ancient city in the iſland of Crete, ſaid to have been built by Minos, and enlarged by the Samians. It ſtood according to Strabo, Pliny, and Diodorus Siculus, on the coaſt oppoſite to the Lacedæmonian territory in the Peloponneſus, and it was the moſt powerful and wealthy city of the whole iſland; ſince in the civil wars it withſtood the united forces of Gnoſſus and Gortyna, after they had reduced the greater part of the iſland. Its ſtrength was ſuch that, though it was often beſieged; it was never taken till the time of Metellus, to whom its gates were opened after the defeat of Laſthenes and Panares. On account of its antiquity, it was called by the Greeks "the mother of cities." From Cydonia the quince-tree was firſt brought into Italy, and thence the fruit was called malum Cydonium, or Cydonian apple.

CYDONIS, or Acydonis, a river of Greece, in the Peloponneſus. Strabo.

CYDONITES Vinum. See Vinum.

CYDRANA, in *Ancient Geography*, a town of Aſia Minor, ſituated on the confines of Phrygia and Lydia; W. of Coloſſæ, S. of the Meander.

CYDRIÆ, a town placed by Strabo on the frontiers of Epirus and Macedonia, belonging to a people, called *Byrſi*.

CYDRUS, or Cydrina, a town of Aſia, in Armenia. Steph. Byz.

CYENIUM, a place of Ethiopia, which, according to Arrian, was ſituated between the Nile, and the town of Adule.

CYGNUS, or Cygnum, a town built by the Greeks at the lower part of the Euxine ſea, near the banks of the Phaſis.—Alſo, another town in the ſame country at a great diſtance from the Phaſis. Pliny.

Cygnus, or *Cycnus*, *Gallina*, the Swan, in *Aſtronomy*, a conſtellation of the northern hemiſphere, between Lyra and Cepheus. See Constellation.

The ſtars in the conſtellation Cygnus, in Ptolemy's Catalogue, are 19; in Tycho's, 18; in Hevelius's, 47; in the Britannic Catalogue, 81. For an account of the variable ſtars in this conſtellation by Edward Pigott, eſq. ſee Phil. Mag. vol. lxxvi. p. 198, &c. For obſervations on the comparative luſtre of its ſtars by Dr. Herſchel, ſee Phil. Tranſ. vol. lxxxvi. p. 201. 217. vol. lxxxvii. p. 300.

Cygnus, *ſwan*, in *Ornithology*, a ſpecies of Anas, which ſee. See alſo Swan.

Cygnus *cucullatus*, the *hooded ſwan*, a name very improperly given by ſome authors to the *dodo*, a very large bird, rather approaching to the caſſowary kind, but not ſo long legged, or long necked. Ray. See Didus *Neptus*.

CYIZA Portus, in *Ancient Geography*, a ſea-port on the coaſt of Carmania, between the promontories Bagia and Alabater.

CYLANDUS, an ancient town of Aſia Minor, in Caria. Steph. Byz.

CYLARABIS, a place in the Peloponneſus, in Laconia, about 300 paces from Sparta, where the youth exerciſed.

CYLICES, a people of Illyria, according to Athenæus, called by others, *Encheleæ*.

CYLICRANI, a people of Greece, in the Phthiotide territory, between the Sperchius and Aſopus. Ortelius ſays that they were the inhabitants of the town of Heraclea, ſituated at the foot of Mount Œta.

CYLINDER. If a right-angled parallelogram be made to revolve about one of its ſides which remains fixed, the ſolid figure thus deſcribed is called a cylinder. The axis of the cylinder is that ſide of the parallelogram which remains fixed. This ſolid is terminated by three ſurfaces: a convex ſurface, and two plane circles, which are the ends, or baſes, of the cylinder.

The above is Euclid's definition (Def. 21. 11. E.): it may be rendered more general. Let there be a plane circle, and a right line drawn from the centre, whether perpendicular, or inclined in any manner to the plane of the circle; and let another right line, indefinitely produced, be carried completely round in the periphery of the circle ſo as to be always parallel to the right line drawn from the centre; thus the ſurface deſcribed by the revolving line is called a cylindrical ſurface, of which the plane circle is the baſe, and the line drawn from the centre the axis. A cylinder may now be defined to be a ſolid figure bounded by a cylindrical ſurface, and two plane circles equal and parallel to the baſe of the cylindrical ſurface. This definition will coincide with Euclid's, when the axis of the cylindrical ſurface is perpendicular to the plane of the baſe. In this caſe the ſolid is called a right cylinder; in all other caſes it is called an oblique cylinder.

From theſe definitions the following conſequences may be deſcribed in a manner too obvious to require to be formally demonſtrated. If a plane, parallel to another plane, drawn through the axis of a cylinder, cut the plane of the baſe of the cylinder in a right line that is a tangent of the baſe; that plane will touch the cylindrical ſurface, and will meet it in a right line parallel to the axis: but if ſuch a plane cut the plane of the baſe in a right line that paſſes within the baſe, it will cut the cylindrical ſurface in two parallel right lines, and the common ſection of the plane and cylinder will be a parallelogram. And, again, the common ſection of a cylindrical ſurface, and a plane parallel to the baſe, is a circle having its centre in the axis.

Let us now conſider the ſection of a cylinder by any other plane. Suppoſe a plane (*Plate* IV. *Geometry*, *fig.* 3.) to cut a cylinder in the common ſection PQ: let the cutting plane produced meet the plane of the baſe in the line MN, and from E, the centre of the baſe, draw the diameter CD, perpendicular to MN, and let a plane drawn through CD, and the axis of the cylinder, EF, meet the cutting plane, in the line PQR, and the cylinder in the parallelogram ABCD: let the axis of the cylinder, EF, meet the line PQ O in, (which is plainly the middle of PQ), and through O, and any other point of PQ, as I, draw GH and ST parallel to MN: let a plane, STZX, be drawn through ST parallel to the plane, GHLK, that paſſes through GH, and the axis EF; becauſe GH is parallel to MN, the common ſection of any two planes drawn through theſe lines will be parallel to both of them: therefore KL is parallel to GH: and in like manner XZ is ſhewn to be parallel to ST and MN. Therefore the figures, GHLK, STZX, are parallelograms; and GH = KL = CD, alſo ST = XZ. Becauſe XZ is parallel to MN, it is perpendicular to CD, and conſequently it is biſected by CD: hence it is plain that ST is biſected by PQ. Now

$$PQ : CD,\ \text{or}\ GH :: PI : CY$$

$$PQ : CD,\ \text{or}\ GH :: IQ : DY$$

Therefore, becauſe $CY \times YD = XY^2 = SI^2$,

$$PQ^2 : GH^2 :: PI \times IQ : SI^2.$$

Therefore the ſection is, in general, an ellipſe, of which PQ and GH are two conjugate diameters.

Two conditions are neceſſary to make the ſection PQ a circle: the conjugate diameters PQ and GH muſt be equal; and they muſt cut one another at right angles. The firſt of theſe conditions will take place when the triangle, ROE, is iſoſceles, or when the line, PQ, is ſo inclined to the axis of the cylinder, as to make the angle FOP = the angle AFO, and the angle POE = CEO. The ſecond condition requires that GH be perpendicular to PQ, or MN perpendicular to PR; which cannot be the caſe unleſs the plane, APCD, be perpendicular to the ends of the cylinder as well as to the plane of the ſection PQ. Hence, then, we are to conclude that, if a cylinder be cut through the axis, by a plane, ABCD, perpendicular to the two ends, and likewiſe by another plane, PQ, perpendicular to the former, in ſuch a manner that the ſecond plane, PQ, is equally inclined to the axis of the cylinder as the two ends, but in a contrary poſition; the ſection of the cylinder by the ſecond plane will be a circle equal to the ends of the cylinder. Such a ſection of a cylinder is uſually called a ſubcontrary ſection. In a right cylinder the ſection parallel to the baſe, and the ſubcontrary ſection, are confounded together, and make only one ſection. Every other ſection of a cylinder, excepting thoſe mentioned, is an ellipſe.

The ſolidity of a figure, of which all the parallel ſections are equal, ſuch as a priſm or cylinder, is meaſured by the product of the ſurface of one ſection by the perpendicular diſtance of the extreme ſections. Hence all cylinders are equal in ſolid content, that ſtand on equal baſes, and have equal perpendicular heights; however they may differ from one another in degrees of obliquity. If a cone and cylinder have equal baſes and equal perpendicular heights, the ſolidity of the former will be one-third part of the ſolidity of the latter. Euclid has demonſtrated this propoſition in the caſe of the right cone and cylinder (10. 12. E.), and the ſame demonſtration will equally apply when the ſolids are oblique.

The convex ſurface of a right cylinder is meaſured by the product of the altitude multiplied by the periphery of the baſe. If a rectangle be conſtructed, having its length equal to the altitude of a right cylinder and its breadth equal to the periphery of its baſe; it is plain that ſuch a rectangle, being lapped round the convex ſurface of the cylinder, will completely cover it. From this we may derive the ſolution of the problem (*fig.* 4.) which requires to trace the line of ſhorteſt diſtance between two points (as A and B) on the ſurface of a right cylinder. Through one of the points, as A, draw a plane, MAN, parallel to the ends of the cylinder, and through the other point, B, draw BG in the cylindrical ſurface parallel to the axis, EF: take *cd*, *cd*, &c., in the ſame ſurface, parallel to BG, and of ſuch lengths that they may bear to the arcs, *c*A, *c*A, &c. the ſame proportion that BG bears to the arc GA: then will the points, *d*, *d*, &c. mark out the line of ſhorteſt diſtance between A and B. For if the ſurface of the cylinder be rolled off into a plane, the arcs AG, A*c*, A*c*, &c. as well as the lines BG, *cd*, *cd*, &c. will be right lines, and therefore the points, *d*, *d*, &c. will be in the right line between AB, which is the ſhorteſt diſtance between theſe points.

If an oblique cylinder be cut by a plane perpendicular to the axis, then, according to what has already been ſhewn, the ſection will be an ellipſe, the periphery of which will be at right angles to all the right lines drawn in the ſurface of the cylinder parallel to the axis; and becauſe theſe right lines are all of the ſame length, equal to the axis, it readily follows that the convex ſurface of the cylinder is meaſured by the product of the axis into the periphery of the ellipſe.

It is demonſtrated in mechanics, that the ſolidity of a cylinder is the factum of the generating rectangle A B C D, (*Plate* IV. *Geometry*, *fig.* 5.) into the periphery of the circle deſcribed by the radius E G, which is ſubduple of E F, or the ſemidiameter of the cylinder. See CENTRO-BARYC *method*.

CYLINDERS, *for the ratio of.* As all cylinders, cones, &c. are in a ratio compoſed of their baſes and altitudes: hence, if their baſes be equal, they will be in the ratio of their heights; if their altitudes be equal, in the ratio of their baſes.

Hence, alſo, the baſes of cylinders and cones being circles; and circles being in a duplicate ratio of their diameters; all cylinders and cones are in a ratio compounded of the direct ratio of the altitude, and the duplicate one of their diameters: and, if they be equally high, as the ſquares of the diameters.

Hence, again, if in cylinders the altitude be equal to the diameter of the baſes, they will be in a triplicate ratio of the diameters of the baſe. All cylinders, cones, &c. are in a triplicate ratio of their homologous ſides; as alſo of their altitudes.

Again, equal cylinders, cones, &c. reciprocate their baſe and altitudes. See CONE, &c.

Laſtly, a cylinder, whoſe altitude is equal to the diameter of the baſe, is to the cube of its diameter, as 785 to 1000.

To find a circle equal to the ſurface of a given cylinder, we have this theorem: the ſurface of a cylinder is equal to a circle, whoſe radius is a mean proportional between the diameter and height of the cylinder.

The diameter of a ſphere, and altitude of a cylinder equal thereto, being given, to find the diameter of the cylinder: the theorem is, the ſquare of the diameter of the ſphere is to the ſquare of the diameter of the cylinder equal to it, nearly, as triple the altitude of the cylinder to duple the diameter of the ſphere. See SPHERE.

To find a rete, *or cage, whence a cylinder may be formed, or wherewith any cylinder may be covered.* With the diameter of the baſe deſcribe two circles; find their peripheries: and, upon a line equal to the altitude of the cylinder, form a rectangle, whoſe other dimenſion is equal to the found periphery. Thus may the cylinder required be formed, or covered.

When the cylinder is oblique, the eſtimate of its ſuperficies depends upon the rectification of the ellipſe; for a plane cutting the cylinder at right angles to the axis will produce an ellipſe, and the ſuperficies will be equal to the product of this elliptic periphery by the ſide of the cylinder.

CYLINDER, *reſiſtance of a.* See RESISTANCE.

CYLINDER, *ſcenography of a.* See SCENOGRAPHY.

CYLINDER, in *Zoology*, the VOLUTA *Oliva*; which ſee.

CYLINDER, *concave*, of a gun is the inward cavity or bore of the gun, which receives the powder and ſhot. See CANNON.

CYLINDER, *charged*, is the chamber and that part of the concave cylinder, which is filled or occupied by the powder and ball. See CANNON.

CYLINDER, *vacant*, is that part of the bore which remains empty after the gun or other piece of ordnance is loaded.

CYLINDER, *rolling*, in *Mechanics*, a cylinder which rolls up an inclined plane.

The phenomena of the rolling cylinder may be eaſily accounted for from what we have obſerved under centre of gravity.

For let A B E D (*Plate* XXII. *Mechanics*, *fig.* 1.) repreſent the ſection of a cylinder of wood, biaſſed on one ſide by a cylindrical piece of lead, as B, which will bring the centre of gravity out of the centre of magnitude, C, to ſome point, G, between C and B. Let F H be an inclined plane, whoſe baſe is F L. It is evident the cylinder laid upon the plane will no where reſt but there, where a perpendicular to the horizon, F L, paſſes through the centre of gravity G, and that point of the plane E, in which the cylinder touches it; and this, in all angles of inclination of the plane leſs than that whoſe ſine is equal to C G, the radius being C D, will be in two ſituations A B E D, and *a b e d*: becauſe when the cylinder moves, the centre of gravity deſcribing a circle round the centre of magnitude C, this circle will meet the perpendicular in two points G and *g*, in each of which the centre of gravity being ſuppoſed, the cylinder will reſt. Therefore the cylinder moves from E to *e* by the deſcent of the centre of gravity from G to *g*, in the arc of the cycloid *G h g*.

If the cylinder A B E D, *fig.* 2. inſiſting on the horizontal line E L, in the point E, has the centre of gravity G in the horizontal diameter D B, it will gravitate in the perpendicular G *e*: if therefore the plane F H touch the cylinder in the point *e*, it is evident the cylinder cannot either aſcend or deſcend on ſuch a plane. Becauſe G in any ſituation between *e* and H, or *e* and F, will gravitate to the left or right from the point in which the cylinder touches the plane; and ſo will in either caſe bring it back to the point *e*. And as the angle E C *e* is equal to H F L, it follows, that a cylinder cannot aſcend on a plane whoſe inclination is greater than that angle.

CYLINDER-*Boring*, is the method of boring out and ſmoothing cylinders of braſs, iron, or other metals, for pump-barrels, ſteam-engines, &c. &c.

Plate XXIII. *Mechanics*, is appropriated to the deſcription of a machine for this purpoſe, deſigned by Mr. John Dixon, Maid-lane, Southwark, and erected by him at the Falcon iron-foundery.

Fig. 1. is an elevation of the machine, in the operation of boring a cylinder for a ſteam-engine. *Fig.* 2. is a plan. *Figs.* 3, 4, 5, parts of the machine. *Fig.* 6. an end elevation. *Fig.* 7. a ſection.

The machine is turned by a ſteam-engine, which communicates motion by means of a coupling-box, *a*, to a long iron ſhaft A B, turning in braſs bearings, ſupported on iron ſtandards C, D, bolted to the two ground ſills E, F; this ſhaft (called the boring bar) is perforated from end to end, as is ſhewn in the ſection, *fig.* 3, and has alſo a ſlit, *b b*, *fig.* 1, through it nearly its whole length; it is turned in a lathe, and thus made a perfect cylinder. Another ſhort cylinder, D D (in the ſection, *fig.* 3. and *fig.* 5.), ſlides eaſily upon the boring bar without ſhake, and is made to turn round with the bar, by two ſhort iron bars, *d*, *d*, which paſs through the ſlit, *b b*, made in the boring bar, and fit at their ends into two notches made in the ends of the ſhort cylinder D D. E is a long ſcrew going within the boring-bar, and of the ſame length; the end which enters the boring-bar, and which is not cut into a ſcrew for ſome length, paſſes through holes made in the middle of the ſhort bars *d*, *d*, and is held in by wedges, as in *fig.* 3.

The knives or cutters, *e*, *e*, *e*, *e*, *fig.* 4, are fixed by wedges in notches round the circumference of a caſt-iron ring, *fig.* 4, called the cutter block; the inner circle, G, of the block, is of the ſame ſize as the outſide of D D, upon which it is placed, and made to turn round with it, by two ſmall wedges driven into notches *f*, *f*, made in the inſide of the ring, and entering ſimilar notches in the outſide of D D.

The cylinder, H H, to be bored, is fixed firmly concentric with the boring-bar upon a frame of caſt iron, conſiſting of ſeveral pieces, which are moveable, and can be ſet to hold a cylinder of any length or diameter. The firſt are four caſt iron bars, I, I, I, I, with ſlits through them nearly their whole length; they are firmly bolted down to the ground ſills, and ſupport two croſs bars K, K, which can be fixed at any place along the bars I, I, I, I, by ſcrews paſſing through the grooves. The croſs bars, K, K, have grooves through them in the direction of their length, to receive ſcrews which fix upon each bar two uprights, L, L, at any place.

By this ſliding of the two croſs bars K, K, the fixtures are adapted to the length of the cylinder, and by moving the uprights L, L, nearer to or farther from each other, the cylinder is fitted in its diameter, horizontal; the weight of the cylinder is ſupported by blocks and wedges driven under it upon the croſs bars K, K, and it is kept down by two ſtrong wrought iron-bands, *r*, *r*, put over it, and drawn down by ſcrews on the top of the uprights L, L.

A croſs beam is fixed upon the end of the ground ſills, into which an upright beam, M, is mortiſed, and its upper end is ſupported by the beams of the ceiling; the upright has a ſocket fixed to it, in which a nut for the ſcrew E turns, in ſuch a manner that it cannot move backwards or forwards, though it is at liberty to turn round freely; an iron croſs, *m m*, is fixed on the nut to turn it by. The end of the ſcrew, E, is ſquare, and has a ſhort croſs bar, *n*, pinned on it, which has wheels at its ends, and runs upon a thick plank, N, ſupported on iron legs, *o*, *o*; at one edge of the plank, a piece of iron plate, *p*, is ſcrewed and turned over at top, to form a groove in which one of the wheels run; the croſs bar and plank prevent the ſcrew from turning while it can be moved endways along the plank.

In the working of the machine, the firſt thing is to fix the cylinder; for which purpoſe the plank, N, muſt be removed, the ſcrew, E, drawn out of the boring bar, the upright, M, and iron ſtandard, D, taken away, the weight of the boring bar being ſupported by blocks put under the middle of it; the cutter block, and the ſhort cylinder D D, *fig.* 3, is now put upon the boring bar, the bars, *d*, *d*, *fig.* 3, being firſt put through the ſlit, *b b*, in *fig.* 1, in the bar at its end towards D, where it is enlarged for the purpoſe; the cutters are fixed in the block by wedges, and adjuſted, that they may all be at the ſame diſtance from the centre, and that they may bore the cylinder of the proper ſize. The cylinder is now put over the boring bar, and when the end of the bar comes through the cylinder, the ſtandard, D, is replaced; the weight of the bar is now ſupported, and the blocks in the middle can be taken away, to get the cylinder in its place, and fix it faſt, as before deſcribed. The ſcrew, E, is next introduced into the boring-bar, and pinned into the two croſs bars *d*, *d*, as in *fig.* 3, the upright M, is fixed, and the nut of the croſs, *m m*, ſcrewed upon the ſcrew E; the plank, N, is ſet up, and the whole put in the ſituation repreſented in the plate, except that the cutter block is ſeen on the boring bar towards A.

The ſteam-engine is now ſet to work, and the boring bar thereby turned; a workman turns the croſs, *m m*, and with it the nut of the ſcrew E; as the ſcrew is prevented from turning by the croſs bar, *n*, on its end, the ſcrew is drawn endways, and conſequently the cutter block with it, until it meets the end of the cylinder, when the cutters begin to bore, forming a new ſmooth cylinder, ſomewhat larger than the old one left by the caſting of the cylinder; as the cutters clear the metal before them, they are drawn further into the cylinder by turning the croſs, *m m*, until they come completely through. The operation is now finiſhed, and the cylinder is removed in the ſame manner as it was put in, the machine being left in pieces ready to put in another cylinder to be bored.

A great number of cutter blocks, *fig.* 4, are caſt, of different ſizes for various cylinders, and they all fit upon the ſame ſliding cylinder, D D, *fig.* 3.

CYLINDRELLA, in *Entomology*, a ſpecies of PHALENA *Tinea*, found at Hamburgh.

CYLINDRI, in *Conchology*. A foſſil ſhell, which has been referred to this genus by Mr. Walcott, has been figured in his "Petrifactions found near Bath," *fig.* 46; it has four ſpires or turns at one end, and is rounded at the other. They are found in the free-ſtone quarries near Bath.

CYLINDRIA, in *Botany*, (ſo called becauſe the ſegments of the border of the corolla are, by their juxtapoſition, a continuation of the cylinder of the tube.) Lour. Cochin. 69. Claſs and order, *tetrandria monogynia*.

Gen. Ch. *Cal.* Perianth inferior, tubular, ſhort, permanent, four-cleft; ſegments acute, coloured, ſpreading. *Cor.* tubular, four-cleft; ſegments linear, acute, fleſhy, extended jointly into a cylindrical tube, cowled at the tip. *Stam.* Filaments ſcarcely any; anthers four, two-celled, roundiſh, compreſſed, included in the cowls of the ſegments. *Piſt.* Germ egg-ſhaped; ſtyle very ſhort; ſtigma four-cleft. *Peric.* Berry ſmall, roundiſh, dry.

Seed ſolitary, globular, lanuginous.

Eſſ. Ch. Calyx four-cleft, inferior. Corolla tubular, four-cleft. Berry with one ſeed.

Sp. C. *rubra*. (Blimbimgum ſylveſtre; Rumph. Amb. 6. 79. tab. 73.) A moderate-ſized tree. *Branches* aſcending. *Leaves* oppoſite, lanceolate, ſomewhat ſerrated, ſmooth. *Flowers* red, ſmall; peduncles nearly terminal, many-flowered. *Berry* black. A native of woods in Cochin-china. Boſc obſerves, that it is very nearly allied to Protea.

CYLINDRICAL *Column*, *Compaſſes*, *Mirrors*, *Wax-Candles*. See the ſeveral ſubſtantives.

CYLINDROID, formed of κυλινδρος, *cylinder*, and ειδος, *form*, in *Geometry*, a ſolid body, approaching the figure of a cylinder; but differing from it in ſome reſpect, e. gr. as having its baſes elliptical, but parallel, and equal. The ſolidity and curve ſuperficies of this ſolid are found in the ſame manner with thoſe of the cylinder; *viz.* by multiplying the circumference of the baſe by the length or axis, for the ſurface; and the area of the baſe by the altitude, for the ſolidity.

CYLINDROID, *hyperbolic*. See HYPERBOLIC.

CYLINDROIDEÆ, in *Zoology*, a ſection or diviſion of the VOLUTA in the claſs of *Vermes Teſtacea*.

CYLIPENUS SINUS, in *Ancient Geography*, a gulf of the Baltic ſea; ſuppoſed by Cellarius to be the gulf of Livonia.

CYLISTA, in *Botany* (κυλιϛτος, *twining*). Hort. Kew. 3. 512. Schreb. 1759. Willd. 1351. Claſs and order, *diadelphia decandria*. Nat. Ord. *Papilionaceæ*, Linn. *Leguminoſæ*, Juſſ.

Gen. Ch. *Cal.* Perianth one-leafed, four-parted, very large, permanent; upper diviſion reflexed, bifid at the tip; the reſt erect, oblong, acute. *Cor.* papilionaceous, a little longer than the calyx, permanent; ſtandard roundiſh, emarginate, with a ſmall lobe on each ſide at the baſe; wings oblong, obtuſe, ſhorter than the ſtandard, with a proceſs on each ſide at the baſe; keel oblong, cloven at the tip and the baſe, longer than the wings. *Stam.* Filaments, one ſingle; nine united, aſcending; anthers roundiſh.

Piſt. Germ ſuperior, egg-ſhaped, compreſſed; ſtyle awl-ſhaped, aſcending; ſtigma ſomewhat capitate. *Peric.* Legume ovate-oblong, compreſſed, one-celled. *Seeds* two, oval.

Eſſ. Ch. Calyx very large, four-parted; upper diviſion bifid at the tip. Corolla permanent.

Sp. 1. C. *villoſa.* Hort. Kew. 3. 36. Introduced into Kew garden in 1776. Native country unknown. It is a ſhrub, and requires the heat of a ſtove. 2. C. *ſcarioſa.* Willd. Roxb. Corom. 1.-64. tab. 92*. A ſhrub. *Stem* twining. *Leaves* ternate, with the pubeſcence of phaſeolus; ſtipules ſmall, lanceolate-awl-ſhaped. *Flowers* in axillary racemes the length of the leaves; calyx green, veined; corolla yellow. A native of mountains on the coaſt of Coromandel. As there is no deſcription of C. villoſa in the Hortus Kewenſis, we cannot determine the ſpecific differenc eof the two plants.

CYLISTANOS, in *Ancient Geography,* a town of Italy, called alſo *Parthax.*

CYLISTARAUS, a river of Italy, mentioned by Lycophron.

CYLISTICI, formed of κυλιω, *to roll,* or *tumble,* in *Antiquity,* a deſignation given to the *pancratiaſtæ;* becauſe when the weaker found himſelf ſore preſſed by his adverſary, he fell down, and fought, rolling on the ground. See Pancratium.

CYLLA, in *Ancient Geography,* a town of the Cherſoneſus of Thrace, ſituated on the Helleſpont, which had been epiſcopal; called Cœlos by Mela.—Alſo, a town of Aſia Minor, in the Troade. Herodotus.

CYLLANTICUS, or Cyllanicus, *Tractus,* a particular country of Aſia, in Piſidia. Pliny.

CYLLENA, or Cyllene, a town ſituated on the weſtern coaſt of the Peloponneſus, near Elœa, of which it was the port; ſuppoſed to be the preſent *Chiarenza.* It had two temples; one of Æſculapius, with a fine ſtatue of ivory, and another of Venus, in which was a naked ſtatue of Mercury.—Alſo, a town of Aſia Minor, in the Æolide, furnamed, according to Xenophon, *Egyptian.*

CYLLENE, a mountain of the Peloponneſus, in Arcadia, which, according to Pauſanias, was the higheſt in this country. It was ſituated to the north-eaſt, between the territory of Pelléne in Sicyonia and that of Pheneos in Arcadia. On the top of the mountain was a temple of the Cyllenian Mercury, in which was a wooden ſtatue of this god. Near this mountain, according to Homer, was the tomb of Epytus, conſiſting of a mount of earth encompaſſed by a baluſtrade of ſtones. Epytus, it is ſaid, died of a wound inflicted by a ſerpent.

CYLLOPERA, a place of Greece, in Attica, near mount Hymettus, in which, as Suidas ſays, was a temple conſecrated to Venus.

CYLLOSIS, or Cyllum, from κυλλος, *lame,* in *Medical Writers,* is uſed to ſignify a leg put out of joint outwardly;—alſo one that is lame and crooked.

CYLONGO, in *Geography.* See Chylongo.

CYMA, in *Architecture.* See Cymatium.

Cyma, in *Botany.* See Cyme.

Cyma, in *Ancient Geography,* an iſland in the Mediterranean ſea, near Sicily, according to Steph. Byz; but placed by Lycophron near Italy.—Alſo, a very high mountain of Italy.

CYMATITES, in *Natural Hiſtory,* a name given by ſome writers to a ſpecies of astroites, the lineations of which are indented and repreſent waves.

CYMATIUM, Cima, or Cyma, an architectural moulding of an undulated form, being concave at top and convex at bottom. (See *Plate of Mouldings.*) It is alſo called *doucine* and *gola diritta.* Some write the word *ſimaiſe,* from *ſimus, camus, flat-noſed,* but this etymology is improbable: the beauty of the moulding conſiſts in its having its projecture equal to its height. M. Felibien, therefore, rejects this origin; contending, that the moulding is not ſo denominated from its being the uppermoſt member of the corniche, but, according to the ſentiments of Vitruvius, from its being waved, from the Greek κυματιον, *undula,* of κυμα, *wave.* This is certain, that Vitruvius ſometimes uſes the word *unda* for cymatium; and ſometimes *lyſis,* i. e. *ſolution, ſeparation;* becauſe corniches, where the *cymaiſes* are found, ſeparate one piece of architecture from another; as the pedeſtal from the column, and the frieze from the corniche. But it muſt be obſerved, that Vitruvius appears to uſe the term cymatium for any ſubordinate moulding which terminates a principal member without regarding its particular form. Thus he mentions the Doric cymatium, which, from the authority of ancient examples, we ſhould pronounce to be an ovolo, and the Leſbian cymatium which Newton ſuppoſes to be an ogee.

Felibien makes two kinds of cymatiums; the one *right,* the other *inverted:* in the firſt, that part which projects the fartheſt is concave, and is otherwiſe called *gula recta,* and doucine. In the other, the part that projects fartheſt is convex, called *gula inverſa,* or talon.

Our architects do not chuſe to give the name cymatium to theſe mouldings, except when found on the tops of corniches, but the workmen apply the name indifferently, wherever they find them. Palladio diſtinguiſhes the cymatium of the *corniche* by the name *intavolata.*

Cymatium, *Tuſcan,* conſiſts of an ovolo, or quarter round. Philander makes two Doric cymatiums, whereof this is one: Baldus calls this the Leſbian *aſtragal.*

Cymatium, *Doric,* is a cavetto; or a cavity leſs than a ſemicircle, having its projecture ſubduple its height.

Cymatium, *Leſbian,* according to Vitruvius, is what we otherwiſe call *talon;* viz. a concavo-convex member, having its projecture ſubduple its height.

CYMBACHNE, in *Botany,* (from κυμβη, a boat, and αχνη, a *glume* or *chaff.*) Mart. Mill. Retz. Obſ. 6. 36. Claſs and order, *polygamia monœcia.* Nat. Ord. *Gramina.*

Gen. Ch. Hermaphrodite flowers. *Cal.* Glume two-valved, one-flowered, ſo placed that each valve is preſſed cloſe to the rachis and parallel, not one hidden by the other; outer valve linear, blunt, ciliated at the back; inner equal in length, ſemiovate, acute, boat-ſhaped, very much compreſſed, ſtriated, coloured, ciliated at the back, encloſing the corolla. *Cor.* Glumes two, hyaline, ſmaller than the calyx. *Stam.* Filaments three; anthers black. *Piſt.* Germ minute; ſtyle ſimple; ſtigmas two, black-bearded. Female flowers. *Cal.* one-valved, egg-ſhaped, ſlightly bifid at the tip, ciliated at the edge, oppoſite to the rachis, preſſed cloſe. *Cor.* none. *Piſt.* as in the hermaphrodite, but with longer ſtigmas.

Eſſ. Ch. Infloreſence half-ſpiked, Herm. *Calyx* two-glumed, one-flowered, parallel to the rachis; outer valve linear; inner boat-ſhaped. Fem. Calyx one-glumed, egg-ſhaped, oppoſite to the rachis.

Sp. C. *ciliata.* Mart. Retz. *Culms* ſeveral, ſlender, a foot high, ſimple or branched, with a ſingle leaf, or leafleſs. *Leaf* ſhort, ſlender, ciliated on the edge above the ſheath with long ſeparate hairs; ſheath truncate, with a pale brown mouth and ciliated. *Spikes* two, terminal, linear, an inch and a half long, a line broad, ſome hermaphrodite, others female. *Rachis* linear, membranous, flat behind with three longitudinal ſtreaks alternately and flexuouſly hollowed out in front. A native of Bengal.

CYMBAL, a muſical inſtrument, uſed among the ancients; called by the Greeks κυμϐαλον, and by the Latins *cymbalum*.

Sylburgius derives the word from three ſeveral roots, *viz.* from κυφος, *crooked;* from κυπελλον, *cup;* and from φωνη, *voice*. Iſidore derives it from *cum*, and *ballematica*, an immodeſt dance uſed to accompany this inſtrument. The real etymology appears to be from κυμϐος, *cavity*.

The cymbal was of braſs, like our kettle-drums; and as ſome think, reſembling them in their form, but ſmaller, and applied to a different uſe.

Caſſiodorus and Iſidore call it *acetabulum*, the name of a cup or cavity of a bone wherein another is articulated; and Xenophon compares it to a horſe's hoof; whence it muſt have been hollow; which appears, too, from the figure of ſeveral other things denominated from it: as a baſin, cauldron, goblet, caſque; and even a ſhoe, ſuch as thoſe of Empedocles, which were of braſs.

In reality, the ancient cymbals appear to have been very different from our kettle-drums, and their uſe of another kind: to their exterior cavity was faſtened a handle; whence Pliny compares them to the upper part of the thigh, *coxendicibus*; and Rabanus to phials.

They were ſtruck againſt one another, in cadence, and made a very acute ſound. Their invention was attributed to Cybele; whence their uſe in feaſts and ſacrifices; ſetting aſide this occaſion, they were ſeldom uſed but by diſſolute and effeminate people. M. Lampe, who has written expreſsly on the ſubject, attributes the invention to the Curetes or inhabitants of mount Ida, in Crete; it is certain theſe, as well as the Corybantes, or guards of the kings of Crete, and thoſe of Rhodes and Samothracia, were reputed to excel in the muſic of the cymbal. See CORYBANTES.

The cymbals of Bacchus were two ſmall braſs veſſels, ſomewhat in the form of a ſhield, which being ſtruck together by the hands, gave a ſound. The well-known ſtatue of the dancing fawn has one of theſe in each hand. An inſtrument of this kind is frequently to be ſeen in the Bacchanalian ſacrifices or proceſſions repreſented in ancient ſculpture. It is ſtill in general uſe in eaſtern countries, and has lately been introduced among the troops of almoſt all the princes of Europe, on account of its utility in marking the ſteps of the ſoldiers, with force and preciſion during their march. Crotalo is the modern Italian name for this inſtrument; but κρόταλον in Greek, and *crotalum* in Latin, implies one that was different from the cymbalum; a kind of caſtanet.

The Jews, too, had their *cymbals*, which they called צלצלים, or מצלתים; or, at leaſt, inſtruments which the Greek, Latin, and Engliſh tranſlators render cymbals; for as to their matter, form, &c. the critics are wholly in the dark.

Le Clerc has taken ſome pains to prove, that the *tzilzelim*, which our verſion, after the ſeptuagint, renders cymbals, were only a couple of hollow demiglobes of braſs, or ſome other tinkling metal, about 6 inches in diameter, which they uſed to ſhake one againſt another like a pair of caſtanets, becauſe we find ſome ſuch inſtruments to have been in uſe among the ancients, and becauſe the root *tzalzal* often ſignifies *to tinkle*.

The modern cymbal is a mean inſtrument, chiefly in uſe among vagrants, gypſies, &c. It conſiſts of ſteel wire, in a triangular form, whereon are paſſed five rings, which are touched and ſhifted along the triangle with an iron rod held in the left hand, while it is ſupported in the right by a ring, to give it the freer motion. Durandus ſays that the monks uſed the word cymbal for the cloiſter-bell, uſed to call them to the refectory. See BELL.

CYMBALARIA, in *Botany*, Bauh. Pin. See ANTIRRHINUM *Cymbalaria*.

CYMBARIA, (from κυμβη, a *boat*, alluding to the ſhape of the fruit.) Linn. Gen. 751. Schreb. 1008. Willd. 1146. Gært. 312. Juſſ. 119. Claſs and order, *ydd, namia angioſpermia*. Nat. Ord. *Perſonatæ*; Linn. *Scrophulariæ*; Juſſ.

Gen. Ch. *Cal.* Perianth ten-toothed, erect, permanent; two oppoſite teeth ſtronger and more ſpreading; the reſt erect, linear. *Cor.* monopetalous, ringent; tube oblong, bellied; border two-lipped; upper lip two-parted, reflexed, obtuſe; lower lip three-cleft, obtuſe. *Stam.* Filaments four, the length of the tube; anthers bifid, prominent. *Piſt.* Germ ſuperior, egg-ſhaped; ſtyle filiform, the length of the ſtamens, incurved at the tip; ſtigma obtuſe. *Peric.* Capſule elliptic-heart-ſhaped, two-celled, two-valved; partition contrary to the valves. *Seeds* ſeveral, oblong, compreſſed.

Eſſ. Ch. Calyx ten-toothed. Capſule heart-ſhaped, two-celled. Nearly allied to antirrhinum.

Sp. C. *daurica*. Linn. Sp. Pl. Mart. Lam. Willd. Amm. Ruth. 47. tab. 1. fig. 2. Gmel. Sib. 3. 198. *n.* 8. Gært. tab. 53. fig. 12. Lam. Ill. Pl. 530. Whole plant ſlightly pubeſcent and hoary. *Root* perennial, fibrous. *Stems* ſeveral, ſix or ſeven inches high; branches few, oppoſite, barren. *Leaves* oppoſite, lanceolate-linear, acute. *Flowers* large, yellow, tinged with purple on the inſide, lateral, almoſt ſeſſile. *Capſule* membranous, ſlender, brown-bay, marked with a deep groove on each ſide, dehiſcent only at the edge; valves finally narrower than the receptacle; receptacles large, fungous, white, kidney-ſhaped, connected with the partition on each ſide by an intermediate flat ſubſtance. *Seeds* from twelve to fifteen in each cell, ſurrounded by an irregular membranous edge, pendulous from a nearly terminal umbilicus, imbricated downwards, bay-coloured. A native of mountainous rocky places in Siberia. This genus is diſtinguiſhed from all the reſt of its natural family by the calyx.

CYMBIDIUM, (from κυμβη, a *boat*, alluding to the ſhape of the tip of the flower.) Willd. v. 4. 94. Swartz. Act. Holm. 1800. p. 236. Tracts on Botany, 167. Schrad. Journal, 1799. 213. *t.* 1. Sco. Orchid. in Schr. Neues Journ. *v.* 1. 72. Claſs and order, *gynandria monandria*. Nat. Ord. *Orchideæ*, Linn. Juſſ.

Gen. Ch. reformed. *Cal.* three leaved. *Cor.* Petals two, generally ſmaller than the calyx-leaves; nectary a lip, concave at the baſe, without any ſpur, ſeparate from the ſtyle at its edges, its termination ſpreading, either upward or downward, undivided or lobed. *Stam.* Anther an hemiſpherical deciduous terminal lid, of two or four cells; maſſes of pollen pedicelled, in pairs. *Piſt.* Germen inferior, oblong or ovate, erect, furrowed; ſtyle ſemi-cylindrical, often gibbous, concave in front; ſtigma either concave or convex, in the fore-part of the ſtyle near the top. *Peric.* Capſule oblong or ovate, with three or ſix ribs, with one cell and three valves, opening by clefts between the ribs. *Seeds* numerous, minute, each clothed with a chaffy tunic, inſerted into the downy internal ridges of the valves.

Eſſ. Ch. reformed. Calyx-leaves upright. Lip concave at the baſe, without a ſpur, with a ſpreading border. Anther a terminal lid, deciduous. Pollen globoſe.

Obſ. Very rarely the two lowermoſt leaves of the calyx are united into one. For the reaſons of our thus denominating the three outer petals of Linnæus, or outer calyx-leaves of Swartz and Juſſieu; ſee Sm. Introd. to Botany, p. 461.

This genus was founded by Dr. Swartz, and conſiſts in his laſt work on the ſubject (*Genera et ſpecies orchidearum*, the firſt article in Schrader's New Journal of Botany, publ. 1805), of 43 ſpecies, 29 of which are ſaid to be paraſitical, and 14 to grow on the ground. Among the former are *Cymbidium coccineum*, (*Epidendrum coccineum*, Linn.)—C. *tripterum*, (E. *tripterum*, *Sm. Ic. Pict. t.* 14.) a native of Jamaica, which flowered ſeveral years ago in the collection of the Hon. Mrs. Barrington, and alſo at Kew, but has rarely been ſeen in our gardens. Its numerous green bulbs, reſembling a diſh of green-gage plums, bear long narrow leaves, and elegant ſpikes of white flowers. Many beautiful ſpecies of *Epidendrum*, or *Limodorum* in Linnæus, Roxburgh, &c. are referred to this ſection by Dr. Swartz, which do not all well agree together. Among the *terreſtrial* ſpecies is C. *pulchellum*, (*Limodorum tuberoſum*, Linn. *Curt. Mag. t.* 116.) and others allied to it.—C. *hyacinthinum*, *Sm. Exot. Bot. t.* 60.—C. *giganteum* (*ſatyrium giganteum*, Linn.) with ſeveral other Linnæan *Satyria* from Africa.—C. *corallorrhizon*, (*Ophrys corallorrhiza*, Linn. *Engl. Bot. t.* 1547.) is the only Britiſh *Cymbidium*. This has lately been found, much more plentifully than heretofore, by Mr. Edward Maughan, in boggy ſhady ground not many miles from Edinburgh. It grows alſo in the more northern parts of Europe and America. The fleſhy roots, branched like a coral, and fragrant like *Vanilla*, even long after drying, are very remarkable. The flowers are ſmall, greeniſh, and inconſpicuous. Leaves none, except a few ſheathing ſcales.

The genus of *Cymbidium* is not one of the moſt natural, its ſpecies having no very ſtriking habit or aſpect in common, and there being ſome Indian *Orchideæ*, lately diſcovered, in which the abſence or preſenet of a ſpur appears of no moment as to generic diſtinction. See Limodorum.

CYMBIUM, in *Natural Hiſtory*, a name given by many authors to a kind of ſea-ſhell, commonly called the gondola ſhell. It is of the genus of the concha globoſa, or dolium, and there are ſeveral ſpecies of it.

CYMBURUS, in *Botany*, (from κυμβος, *cavus receſſus*, and ουρα, *cauda*.) Saliſb. Parad. Lond. 49. (Sherardia; Vaill. Stachytarpheta; Vahl.) Claſs and order, *diandria monogynia*. Nat. Ord. *Perſonatæ*, Linn. *Vitices*, Juſſ. *Pyrenaceæ*, Vent.

Gen. Ch. *Cal.* compreſſed, ſeated in a lateral hollow of the common peduncle. *Cor.* monopetalous; tube crooked; border rather funnel-ſhaped, unequally quinquefid. *Stam.* Filaments four; two barren; anthers two, long, two-lobed; one lobe placed perpendicularly upon the other. *Piſt.* Germ ſuperior; ſtyle filiform, the length of the tube; ſtigma cap-ſhaped. *Seeds* two, naked. Linn. Juſſ. Gært. Almoſt naked. Vent. *Peric.* a thin pellicle adhering to the ſeeds, but continuous with the ſtyle, two-ſeeded. Saliſb.

Eſſ. Ch. Calyx compreſſed, ſeated in a hollow of the common peduncle. Anthers long; one lobe placed perpendicularly upon the other. Stigma cap-ſhaped.

Sp. 1. C. *mutabilis*. Saliſb. Parad. 49. (Stachytarpheta; Vahl. Sp. Pl. 1. 208. Zuphania mutabilis; Lam. Ill. 257. Verbena mutabilis; Jard. Malm. 36. Jacq. Ic. Coll. 2. 334. V. Orubica teucriifolio; Herm. Prod. 338. V. americana flore coccineo; Breyn. Prod. 2. 103. Sherardia teucriifolio; Vaill. Sex. 49.) "Leaves egg-ſhaped, tomentous underneath; bractes ſpreading and briſtle-ſhaped at the tip; back of the calyx ſcarcely toothed; corolla externally viſcid-pubeſcent; ſtigma entire." *Stem* becoming ſomewhat woody, with widely ſpreading branches, ſharply four-cornered, hairy. *Leaves* from two and a half to four inches long, yellowiſh-green, egg-ſhaped, ſerrated, obtuſe, hairy, paler and more nappy underneath, wrinkled; petioles half an inch long or more, convex on the upper ſide, bordered almoſt to the bottom with the decurrent leaf. *Flowers* in a long ſpike; common peduncle hollowed out for each flower as in ſome of the graſſes; bractes ſhorter than the calyx; calyx half an inch long, exceedingly compreſſed, with two deep furrows next the peduncle, hairy on the outſide; corolla an inch long or more; tube dark red, with a whitiſh bottom, cylindrical, thickly bearded within on one ſide with erect hairs; border deep ſcarlet, gradually changing to a lilac tinge, more than twice as long as the tube, its lower part only a little wider than the tube, ſomewhat compreſſed with two furrows in front, where it is internally bearded up to its mouth; upper part horizontal, with a deep purple heart-ſhaped mark about the mouth, divided into five ſhort rounded unequal ſegments; filaments whitiſh, ſhort, bearded on one ſide; barren ones very narrow; anthers pale yellow; pollen conſiſting of three or four globular bodies confluent with a ſtill larger central one; ſtyle pale yellow, ſmooth; ſtigma green, ſmooth. Saliſb. A native of the iſland of Oroba and the adjacent continent of North America. 2. C. *orubica*. (Verbena orubica; Linn. Sp. Pl. Pluk. Alm. 383. tab. 228. fig. 4. and tab. 327. fig. 7. Sherardia urticæ folio; Ehret. Pict. tab. 5. fig. 1.) "Spikes very long, leafy." A native of the iſland of Oruba. 3. C. *jamaicenſis*. (C. urticæfolius; Saliſb. Parad. Lond. 53. Stachytarpheta jamaicenſis; Vahl. Sp. Pl. 1. 207. Verbena jamaicenſis; Linn. Sp. Pl. 3. Jacq. Obſ. Faſc. 4. p. 6. tab. 85. V. erecta diviſa; Brown. Jam. 115. V. folio ſubrotundo; Sloan. Hiſt. 171. tab. 107. fig. 1. Sherardia teucriifolio, flore purpuro; Vaill. Sex. 49. Valerianoides; Boerh. Hort. Lugdb. 2. 270.) "Leaves oval-lanceolate, ſmooth; middle nerve ſomewhat hairy underneath; bractes cloſe preſſed their whole length, ovate-acuminate; back of the calyx not toothed; ſtigma entire." *Stem* becoming woody, hairy when young. *Leaves* bright green, ſharply ſerrated; petioles long. *Flowers* in a very long ſlender ſpike, ſcentleſs; common peduncle with a deep ſhining cavity; bractes membranous towards the baſe, ſlightly torn or crenulate; calyx only about two lines and a half long, exceedingly compreſſed, four-toothed, the dorſal nerve terminating below the top; corolla violet-blue, internally bearded as in C. mirabilis; filaments white; anthers ſulphur coloured; ſtigma greeniſh, ſmooth. Saliſb. A native of the iſland of Barbadoes. 4. C. *indica*. (Verbena indica; Linn. Sp. Pl. 2.) "Spikes very long, fleſhy, naked; leaves lanceolate-egg-ſhaped, obliquely toothed; ſtem ſmooth and even." Similar to the preceding, but differs in having the ſtem entirely ſmooth, the leaves more lineate, not ſerrated, gradually narrowed at the baſe, with petioles not margined. Linn. *Flowers* blue. A native of the iſland of Ceylon.

CYME, Cyma, is a form or mode of infloreſcence, conſiſting of ſeveral flower-ſtalks, all ſpringing from one centre or point, but each ſtalk is variouſly ſubdivided, and in this laſt reſpect, the cyme differs eſſentially from an umbel, the ſubdiviſions of the latter being formed like its primary diviſion, of ſeveral ſtalks ſpringing from one point. This difference, however ſlight it may appear in deſcription, is of great importance in nature. Examples of a cyme are found in the genus *viburnum*, of which the common lauruſtinus is a ſpecies. In ſeveral of theſe the ſubdiviſions are numerous or often repeated, and ſome of them are umbellate like the primary diviſion; but this is of no moment, provided any of them be irregular or diſperſed. In an umbel, which mode of flowering chiefly belongs to a natural order of plants thence called umbellate or umbelliferous, the infloreſcence is never more than twice compounded, conſiſting of a general umbel formed of ſeveral partial ones.

Linnæus conſidered the cyme, as well the umbel, kinds of aggregate flowers. See AGGREGATE and COMPOUND. Their ſtalks he reckoned as a branched receptacle, their *bracteæ* or floral leaves, as a kind of calyx remote from the flower, for which he invented the term *involucrum.* Hence the flowers became florets, *floſculi.* Many arguments may be found in favour of this hypotheſis, eſpecially what are derived from the analogy between ſuch aggregate flowers and the proper compound or ſyngeneſious ones, both having frequently radiant, female, or even neuter, marginal flowers or florets. In the marigold, *calendula,* a true compound flower with united anthers, the central florets are entirely male, the marginal ones female, exactly as in the umbelliferous flower *oenanthe;* and there are many ſimilar inſtances in both families. In the cyme of *viburnum opulus,* and various ſpecies of *hydrangea,* the flowers of the circumference are very often dilated or radiant, and in that caſe neuter. Such flowers become double, as it is called, not by multiplication of their petals, or a change of ſtamens or ſtyles into the latter; but by a ſtrange dilatation of their petals, attended with obliteration of the organs of impregnation. It ſeems to us, nevertheleſs, moſt natural and convenient to eſteem both the cyme and the umbel modes of infloreſcence, as they ſo inſenſibly, in ſome inſtances, ſlide into a *corymbus,* a *capitulum,* or a *ſpica;* or at leaſt evince a common generical affinity, if we may ſo expreſs it, with thoſe. We would therefore follow the example of thoſe who characterize the genera of umbellate, as well as cymoſe, plants by the real parts of fructification alone, being well convinced that to depend on ſuch only, is one of the ſoundeſt of the Linnæan maxims. See GENUS and INFLORESCENCE. S.

CYME, called alſo incorrectly *Cuma,* in *Ancient Geography,* a very handſome town of Aſia Minor, in Æolia, at the lower part of a ſmall gulf of the ſame name, north-eaſt of Phocæa. It was alſo called *Phririconites,* from mount Phricius, in the Locride, above Thermopylæ. Some veſtiges of this town are diſcernible in a place called *Nemourt.*

CYMEUS SINUS, the gulf of Cyme, was formed by the ſea of the Archipelago, and extended eaſtward along the coaſt of Etolia, between a peninſula which advanced to the north-weſt, towards the city of Leſbos, and another which advanced to the ſouth-weſt, towards the entrance of the gulf of Smyrna.

CYMENE, in *Botany,* a name given by the ancient Greeks to a plant with which they uſed to dye woollen things yellow, and with which the women alſo uſed to tinge the hair yellow. The *cymene* of the Greeks is evidently the ſame plant with the *lutum* or *lutea herba* of the Latins; and this is deſcribed to have leaves like the *linum,* or flax, and flowers like the *geniſta.* It is plain from this, that the *lutum* of the Romans, is the *geniſta tinctoria* of Linnæus, or dyer's weed, ſtill uſed to dye yellow, and which anſwers to all the characters of the Roman deſcription.

CYMINALIS, a name uſed by ſome authors for the *gentian,* the plant whoſe root is the fine bitter drug of that name.

CYMINO, *Cataplaſm è.* See CATAPLASM.

CYMINOSMA, in *Botany,* Gært. See LAXMANNIA.

CYMINUM. See CUMINUM.

CYMODOCEA. Konig. Annals of Botany, 296. Claſs and order, *diœcia? tetrandria.* Nat. Ord. *Inundatæ,* Linn. *Naiades,* Juſſ.

Gen. Ch. *Cal.* and *Cor.* none. Barren flowers. *Stam.* Filaments none; anthers four, lanceolate-acuminate, erect, connivent; fixed to a ſcape or peduncle, (filament, Caulini) which is bifid or quadrifid at the top; containing a ſolid maſs of pollen, which, when mature, becomes filamentous. Fertile flowers. *Piſt.* Germens two, nearly ſeſſile, convex-plane, approximate; ſtyle to each germen one, filiform; ſtigmas awl-ſhaped. *Peric.* Capſules two, approximate, compreſſed, two-valved; valves united by an ambient ring.

Sp. C. *æquorea.* Konig. ubi ſupra, Pl. (Phucagroſtis Theophraſti major; Caulini Monog. cum. tab.) *Stem* (root?) perennial, rather woody, creeping, zig-zag, jointed, throwing out filiform radicles at each joint; branches (ſhoots?) riſing from each joint, annulated towards the baſe. *Leaves* linear, obtuſe, membranous, ſheathing; ſheaths flat, cloſely covering each other. *Scape* or peduncle from the ſheaths of the leaves, long, attenuated, nearly the length of the leaves; anthers attached lengthwiſe ſo as to leave a ſpace at the two oppoſite ſides, opening longitudinally, and diſcharging a white capillary pollen; ſtyles about an inch long; ſtigmas two to each ſtyle, longer than the ſtyle, dark yellow at the upper part, tubular when viewed through a microſcope. *Fruit* roundiſh, compreſſed, with elevated margins, terminated by the remains of the ſtyle, rather woody, with a thin pulp. A native of the bay of Naples, totally immerſed in the ſea.

CYMOTHÆ, in *Ancient Geography,* a fountain of the Peloponneſus, in Circadia; placed by Pliny near the mountain *Scioeſſa.*

CYNA, a town of Aſia Minor, in Lydia.

CYNADRA, a fountain of the Peloponneſus, in the Argolide.

CYNÆDUS, in *Ichthyology,* a ſpecies of LABRUS, which ſee.—Alſo, a name given by Gronovius to the SPARUS *Sargus,* and SPARUS *Dentex* of Gmelin.

CYNÆTHA, a town of Thrace, ſituated at the foot of mount Neiſe. Steph. Byz.—Alſo, a town of Peloponneſus, in Arcadia, on the river Crathis. Pauſanias ſays, that, in his time, many altars, conſecrated to different deities, and a ſtatue of the emperor Adrian, remained on the ſcite of this town. Bacchus had a temple here, in which, in the winter ſeaſon, the feaſt of this god was celebrated with peculiar ceremonies.

CYNAMOLGI, a name given by the Greeks to a people ſeated in the ſouthern parts of Ethiopia. They had long beards, and kept very fierce dogs, in order to hunt Indian oxen, of which prodigious herds came amongſt them every year.

CYNANCHE, in *Medicine,* κυνάγχη, from κύων, *a dog,* and ἄγχω, *I ſtrangle;* hence probably the French *eſquinancie,* and our own *quinanſy* or *quinſy.* This term is applied by noſological writers to inflammations of the throat in general. It is ſynonymous with the Latin, *angina.* See ANGINA.

Sauvages has deſcribed a number of *ſpecies* of cynanche; but Dr. Cullen reduced them to five, ſetting aſide all thoſe which were only ſymptomatic, or mere varieties of the ſame diſeaſe. Dr. Cullen's ſpecies are, 1. Cynanche *tonſillaris;* 2. C. *maligna;* 3. C. *trachealis;* 4. C. *pharyngea;* 5. C. *parotidæa.*

1. Cynanche *tonſillaris,* is an inflammation of the mucous membrane lining the throat, and affecting eſpecially the tonſils, and ſpreading from thence along the velum and uvula.

The diſeaſe is marked by a redneſs of the parts, accompanied by ſwelling, which is ſometimes conſiderable, ſo as to render the act of ſwallowing painful and difficult, or even to impede it almoſt entirely. There is alſo a troubleſome clammineſs of the mouth and throat, with a frequent but difficult excretion of mucus; there is often a pain ſhooting into the ear: the voice is altered, and articulation rendered indiſtinct. A degree of fever is generally preſent.

This ſpecies of quinſy is never contagious. It terminates frequently by reſolution, ſometimes by ſuppuration, but hardly ever by gangrene. The progreſs of this inflammation to ſuppuration, is ſometimes, indeed, very rapid; at other times there are ſeveral ſmall abſceſſes, which break one after another, and the diſeaſe is tedious. Occaſionally the tonſils become enlarged and hard after this inflammation, and remain ſo for years. When a large impoſthume breaks, there is generally ſudden relief from the pain, difficulty of breathing, ſwallowing, and ſpeaking; although often no matter is thrown up, but paſſes down the œſophagus.

The diſeaſe is commonly traced to expoſure to cold. It affects the young and ſanguine, and is very liable to return, in ſome conſtitutions, upon the application of cold to any part of the body, ſo as to become almoſt habitual. It occurs, eſpecially in ſpring and autumn, when viciſſitudes of heat and cold frequently take place. The inflammation and ſwelling often begin moſt violently in one tonſil, and afterwards, abating in that, increaſe in the other.

The remedies for inflammation and the antiphlogiſtic regimen are to be employed for the cure of this complaint. It is greatly aggravated by heating diet and ſtimulating medicines. General blood-letting is ſeldom neceſſary, but leeches to the neck and external fauces are very uſeful. Bliſters, when early applied to the ſame parts, are alſo highly beneficial, and have often had the effect of curing by reſolution a violent inflammation of the throat. When ſuppuration is begun, they can be of little uſe. Purgatives, repeated occaſionally, are of eſſential benefit; and gentle diaphoretics are uſeful, whether in the ſhape of diluents, or ſaline medicines. The inflammation is often relieved by moderate aſtringents, and particularly acids, applied to the inflamed parts; hence the uſe of gargles, containing vinegar, lemon juice, or the mineral acids, and rendered palatable by means of honey or ſyrup. The acids coagulate the mucus, which adheres about the parts, and cleanſe the paſſages. In many caſes, however, no application has afforded more relief, than the vapour of warm water, received into the fauces by means of Mudge's inhaler.

The external applications of oil and volatile alkali, of vinegar, &c. by means of flannel, have little or no efficacy, unleſs employed ſo as to excite ſome inflammation externally.

II. Cynanche *maligna*, is the contagious ulcerated ſore throat, which accompanies ſcarlet-fever. See Fever, *ſcarlet*.

III. Cynanche *trachealis*, or inflammation of the windpipe, is the technical name which Dr. Cullen, and after him, ſome other phyſicians have applied to the diſeaſe, popularly termed croup. See Croup.

IV. Cynanche *pharyngea*, appears to be the ſame diſeaſe as the firſt ſpecies, except that it is ſeated lower down in the throat.

V. Cynanche *parotidea* is a diſeaſe known to the vulgar, among whom it has obtained a peculiar appellation, in every country of Europe, but has been little taken notice of by medical writers. In England it is called the *mumps*; in Scotland, the *branks*; in France, *oreillons* and *ourles*. It is often epidemic, and manifeſtly contagious. It comes on with the uſual ſymptoms of pyrexia, which is ſoon after attended with a conſiderable tumour of the external fauces and neck. This appears firſt as a glandular moveable tumour at the corner of the lower jaw; but the ſwelling ſoon becomes uniformly diffuſed over a great part of the neck, ſometimes on one ſide only, but more commonly on both. The ſwelling continues to increaſe till the fourth day; but from that period it declines, and in a few days more paſſes off entirely. As the ſwelling of the fauces recedes, ſome tumour affects the teſticles in the male ſex, or the breaſts in the female. Theſe tumours are ſometimes large, hard, and ſomewhat painful; but, in this climate, are ſeldom either very painful or of long continuance. The pyrexia attending this diſeaſe is commonly ſlight, and recedes with the ſwelling of the fauces; but ſometimes when the ſwelling of the teſticle does not ſucceed to that of the fauces, or when the one or the other has been ſuddenly repreſſed, the pyrexia becomes more conſiderable, is often attended with delirium, and has ſometimes proved fatal.

As this diſeaſe commonly runs its courſe without either dangerous or troubleſome ſymptoms, ſo it hardly requires any remedies. An antiphlogiſtic regimen, and avoiding cold, are all that will be commonly neceſſary. But when, upon the receding of the ſwellings of the teſticles in males, or of the breaſts in females, the pyrexia comes to be conſiderable and threatens an affection of the brain, it will be proper, by warm fomentations, to bring back the ſwelling; and by vomiting, bleeding, or bliſtering, to obviate the conſequences of its abſence. See Cullen, Firſt Lines, § 332.

CYNANCHUM, in *Botany*, ſtrangle-dog (from κυων, *canis*, and αγχω, *ſtrangulo*.) Linn. gen. 304. Schreb. 430. Willd. 408. Gært. 685. Juſſ. 147. Vent. 2. 429. Claſs and order, *pentandria digynia*; Linn. *Decandria*; Jacq. *Gynandria pentandria*; Dr. Smith. Nat. Ord. *Contortæ*; Linn. *Apocineæ*; Juſſ.

Gen. Ch. *Cal.* Perianth one-leafed, five-toothed, or five-parted, or five-leaved, ſmall, permanent. *Cor.* monopetalous; tube generally very ſhort; border nearly flat, five-parted; diviſions long, oblong, acute. *Nect.* ſurrounding the organs of impregnation, nearly cylindrical, five-parted, furniſhed with five membranous appendicles which have a kind of two-celled bag deſtined to receive the protruding pollen-maſſes. *Piſt.* Germen ſuperior, oblong, two-cleft; ſtyles two, ſometimes only one, or none, ſhort; ſtigma ſingle, common to both ſtyles, or both germs, abrupt, very thick, pentangular. *Stam.* Five two-lobed glands ſeated on the angles of the ſtigma, and producing in each of their cells a maſs of glutinous pollen, which finally protrudes with a very ſlender pedicel, and is received into one of the cells of the appendicles to the nectary. *Peric.* Follicles two, oblong, acuminate, one-celled, opening lengthwiſe. *Seeds* numerous, oblong, crowned with a down, imbricated on a free receptacle.

Eſſ. Ch. Corolla contorted. Nectary cylindrical, divided upwards into five ſegments, and furniſhed with five membranous appendicles, which receive the pollen maſſes of the anthers, into as many two-celled bags.

Obſ. The complex and peculiar ſtructure of the flower in this genus, and ſome others nearly allied to it, has occaſioned much perplexity to the beſt botaniſts, and has been differently underſtood by different authors. The appendicles to the nectary bear a great reſemblance to filaments, they have accordingly been ſo called by Linnæus and others, and their two-celled bags have in conſequence been conſidered as real anthers. But Dr. Smith obſerves, that the pollen is neither attached to, nor ſecreted by theſe cells, but is produced in five pair of glutinous maſſes, exactly like the pollen of the orchidiæ, from five glands inſerted upon the ſtigma, ſo that no plants can be more certainly gynandrous. See his Introduction to Botany, p. 465.

Sp. 1. C. *viminale.* Linn. Mant. 392. Mart. 1. Lam. 1. Willd. 1. (Euphorbia viminalis; Linn. Sp Pl. 9. Apocynum vineale; Baſſ. Act. bonon. A. guineenſe; Herm. parad. 61. Felfel Tavil. Alp. Æg. tab. 190?) "Stem twining, perennial, leafleſs." Whole plant milky. *Stems* ſeveral, from three to ſix feet high, about the thickneſs of a gooſe-quill, greeniſh, ſmooth, twining about each other, or any neighbouring ſupport, and then ſometimes riſing to the height of ten or twelve feet, with oppoſite branches on their upper part. A native of the Cape of Good Hope; and of Egypt if the reference to Alpinus be correct, but La Marck thinks it dubious. 2. C. *pyrotechnicum.* Lam. Forſk. Æg. 53. *n.* 79. "Stem ſhrubby, naked; peduncles ſolitary, axillary, tubercled; flowers pedicelled, in heads." La Marck thinks it diſtinct from the preceding. A native of the Cape of Good Hope. 3. C. *verticillare.* Lam. Enc.* (C. filiforme; Mart. 15. Willd. 2. Linn. jun. Supp. 169.) "Stem erect, quite ſimple; leaves linear; flowers axillary, whorled." A native of the Cape of Good Hope. 4. C. *haſtatum.* Lam. Enc.* "Stem twining, ſhrubby, much branched; branches nearly filiform; leaves haſtate-linear, acute, ſmooth. Brought from the Levant by Dr. André, and cultivated at Paris. 5. C. *criſpum.* Willd. 3. Thunb. prod. 46. "Stem erect, herbaceous; leaves lanceolate, curled; flowers lateral." A native of the Cape of Good Hope. 6. C. *mauritianum.* Lam. Enc.* Commers. Herb. (Funis papius; Rumph. Amb. 5, 14. tab. 10 and 11?) "Stem twining, ſhrubby; leaves ovate-lanceolate, ſmooth on both ſides." *Follicles* cylindrical, awl-ſhaped, ſpreading horizontally. 7. C. *tenellum.* Linn. jun. Supp. 168. Mart. 13. Lam. 14. Willd. 4. "Stem herbaceous, ſomewhat twining; leaves ovate-oblong." *Stem* filiform, with alternate branches. *Leaves* about the ſize of thoſe of common chickweed, oppoſite, petioled, ſmooth, mucronate. *Umbels* lateral, irregular, ſhorter than the leaves, ſeſſile. *Flowers* ſmall. *Follicles* awl-ſhaped, the length of a finger. Found by Mutis in New Granada. 8. C. *filiforme.* Mart. 26. Lam. Enc.* Jacq. Amer. 86. tab. 60. fig. 1. pict. tab. 86. "Stem twining; leaves ovate-acuminate, flat ſhining; umbels globular." Milky. *Stems* very numerous, cylindrical, filiform, ſhining, branched. *Leaves* ſcarcely an inch and half long, quite entire, petioled. *Umbels* ſmall, erect, lateral, alternate; common peduncle filiform, twice the length of the petioles. *Flowers* without ſcent, ſmall; petals and nectary ſnow-white. A native of New Spain about Carthagena. 9. C. *clauſum.* Mart. 27. Lam. Enc.* Jacq. Amer. 87. tab. 60. fig. 2. pict. 1. 87. "Stem twining; leaves acuminate-oblong, rolled back at the edge; flowers umbelled." Milky. *Stems* numerous, cylindrical, ſmooth. *Leaves* from two to three inches long, quite entire, veined, ſhining. *Umbels* lateral, ſolitary. *Flowers* without ſcent; petals and nectary ſnow-white. A native of New Spain. 10. C. *undulatum.* Linn. Syſt. Nat. 9. Mant. 54. Mart. 10. Lam. 5. Willd. 23. Jacq. Amer. 85. tab. 58. pict. 45. tab. 84. "Stem twining; leaves lanceolate-ovate, ſmooth; umbels globular." A milky plant, entirely ſmooth. *Stems* cylindrical. *Leaves* four inches long, on very ſhort petioles, quite entire, thick. *Umbel* ſmall, ſolitary, cloſe; common peduncle lateral, cylindrical, thickiſh, uſually ſhorter than the petiole. *Flowers* ſmall, without ſcent, firm; calyxes aſh-coloured, five-leaved; leaflets ovate, concave, ſpreading; corollas nearly the colour of the calyx on the outſide, dirty purple within; tube globular-depreſſed, a little longer than the calyx; border five-cleft; ſegments flat, very blunt, ſpreading much, half the length of the tube; throat ſpreading very wide. A native of New Spain about Carthagena. 11. C. *reticulatum.* Mart. 17. Willd. 22. Retz. Obſ. 2, 15 "Stem twining; leaves egg-ſhaped, acuminate, ſmooth, flat umbels axillary." *Stem* woody; with a thick, whitiſh, corky bark; branches twining, ſtriated, ſmooth. *Leaves* diſtant, petioled, ſmooth; upper ones lanceolate. *Flowers* ſmall, hairy on the outſide, unequally pedicelled; in peduncled, axillary umbels. *Follicles* egg ſhaped, ſmooth. A native of the Eaſt Indies. 12. C. *obtuſifolium.* Mart. 12. Lam. 12. Linn. jun. Supp. 169? Willd. 5. "Stem twining, herbaceous, ſmooth; leaves oblong-elliptical, obtuſe at the tip with a point; umbels peduncled, lateral." Lam. "Stem twining, herbaceous, leaves oblong, rounded at the tip, ending in a point; umbels lateral." Linn. jun. Smooth in all its parts. *Stems* a foot and half long, ſlender, cylindrical. *Leaves* oppoſite, petioled, ſomewhat nerved underneath. *Flowers* ſmall, from twelve to fifteen in an umbel, on unequal pedicels. Lam. A native of the Cape of Good Hope. La Marck's plant was communicated by Sonnerat; Linnæus's by Thunberg. 13. C. *pedunculare.* Lam. Enc.* (Apocynum ſcandens, foliis lauri, flore albo umbellato; Plum. Cat. 2. Burm Amer. tab. 27. fig. 2. Aubl. Guian. 273.) "Stem twining; leaves egg-ſhaped, ſmooth on both ſides, peduncles axillary, very long, ſolitary, umbelliferous." *Flowers* pure white; peduncles a foot long. A native of Guiana. 14. C. *longiflorum.* Mart. 25. Jacq. Amer. 85. tab. 59. pict. 85. "Stem twining; leaves oblong, acute, ſhaggy; flowers umbelled." Milky. *Stems* fifteen feet high, cylindrical, hairy. *Leaves* half a foot long, cordate at the baſe, quite entire, thickiſh, with hairy veins and nerves, on ſhort and hairy petioles. *Umbels* lateral, ſolitary, at moſt ſeven-flowered; common peduncle, hairy, thick, cylindrical, the length of the petiole; involucre many-leaved, unequal. *Flowers* without ſmell or beauty; calyxes pale greeniſh; corolla pale without, fuliginous within, beſet with numerous ſilvery hairs; tube elongated. A native of New Spain about Carthagena. 15. C. *parviflorum.* Mart. 20. Willd. 24. Swartzprod. 53. Fl. ind. occ. 1. 537. (Periploca ſcandens; Plum. ic. 215. fig. 1. "Stem twining, filiform; leaves ovate, awl-ſhaped at the tip; umbels nearly ſeſſile." A native of the Weſt Indies. 16. C. *capenſe.* Linn. jun. Supp. 168. Mart. 11. Lam. 13. Willd. 6. Thunb. prod. 47. "Stem twining cloſely on every ſide; leaves ſomewhat cordate-ovate; peduncles many-flowered." *Stem* lofty, ſcarcely pubeſcent, even-ſurfaced at the top, not at all cork-barked. *Leaves* oppoſite, petioled, mucronate, ſmooth and even; younger ones ovate; more advanced ones emarginate, with a point; peduncles axillary, ſhorter than the leaves, finely toothed, ſimple; pedicels alternate, capillary, longer than the peduncle; calyx very ſhort. A native of the Cape of Good Hope. 17. C. *acutum.* Linn. Sp. Pl. 1. Mart. 2. Willd. 6. Jacq. Muſc. 1. 16. tab. 1. fig. 4. Gært. tab. 117. (C. monſpeliacum *β.* Lam. Scammoniæ monſpeliacæ affinis; Bauh. pin. 294. Apocynum 3-latifolium; Cluſ. hiſt. 1. 125.) "Stem twining, herbaceous; leaves cordate-oblong, ſmooth." *Root* perennial, creeping. *Stems* annual, ſix or eight feet high. *Leaves* ending in acute points, in pairs, on long petioles. *Flowers* in ſmall axillary bunches, of a pale fleſh-colour; with lanceolate, bluntiſh, much-ſpreading, flat ſegments; nectary aſcending from the tube of the corolla, bell-ſhaped, ſhorter than the corolla, divided about two-thirds of its length into five lanceolate, acute ſegments, ſo far removed from each other as to admit five other very ſmall rounded ſegments, ſometimes quite entire, ſometimes lacerated or bifid; ſheath conical and narrow at the baſe, thence widening and divided into five two-celled, oblong appendicles ending in as many rounded ſcales, and embracing the mouths of the ſtigma. Jacq. *Follicles* diverging horizontally as they approach to maturity, cylindrical, acuminate, ſmooth; receptacle linear, membranous, free. *Seeds* ſeveral, imbricated downwards, ovate-oblong, ſomewhat compreſſed, with a narrow membranous edge and a lateral umbilicus, reddiſh-ferruginous, crowned with a tuft of ſilky-white hairs five times the length of the ſeed. Gært. The ſilky gloſs may be eaſily cleared from its ſeeds by contuſion, and affords an excellent flock, which may be adapted to various purpoſes. The more this flock is carded the finer and more fleecy it becomes, yielding a good warm down, and by its lightneſs and elaſticity, particularly fit for linings or wadding to ſurtouts and cloaks againſt the froſt. In carding it will not eaſily mix with cotton, but it thus acquires a greater conſiſtence and might perhaps be capable of being ſpun. Tooke's View of Ruſſia, vol. iii. A native of Spain, Sicily, and the neighbourhood of Aſtrachan. 18. C. *planiflorum*. Linn. Syſt. Nat. 6. Mant. 50. Mart. 3. Lam. 2. Willd. 8. Jac. Am. 82. tab. 55. pict. 44. tab. 81. "Stem twining; leaves cordate, ſmooth, downy underneath; peduncles ſomewhat racemed, milky." *Root* perennial. *Stems* cylindrical, ſmooth. *Leaves* oblong-cordate, acuminate, quite entire, very ſoft; bearded at the origin of the petiole with very ſhort, ſtiff, ferruginous hairs. *Flowers* without ſcent, half an inch in diameter, very flat; common peduncles ſmooth, lateral, ſolitary; with about five flowers on elongated pedicels; calyx five-leaved; leaflets lanceolate, acuminate, flat, widely ſpreading, ſlightly coloured, generally longer than the corolla; tube of the corolla very ſhort, ſpreading; border with five ovate-roundiſh, widely-ſpeading, flat diviſions; nectaries five, connected at the baſe, ſo as to form one body of the ſame form and ſize as the tube of the corolla; producing from their baſe in the centre of the flower five blunt, upright little appendicles, twice as long as the tube of the corolla, furniſhed at the top with cowled, two-celled, little membranes; pollen-maſſes in pairs, on ſhort capillary pedicels, inverſely egg-ſhaped, obtuſe, columnar, upright, concealed by the cowls; germens the length of the tube of the corolla; ſtyles ſhort, upright; ſtigma very large, cloven in the centre, funnel-ſhaped. A native of New Spain about Carthagena. 19. C. *roſtratum*. Mart. 19. Willd. 9. Vahl. Symb. 3 45. "Stem and petioles briſtly; leaves cordate-oblong; diviſions of the corolla lanceolate, flat." *Stem* twining, rough with reverſed briſtles. *Leaves* two or three inches long, oppoſite, acuminate, beſet with thinly ſcattered hairs on the upper ſurface, paler underneath, ſtudded with numerous raiſed dots viſible only through a lens, with a ſinus open, not cloſed as in C. criſpiflorum. *Peduncles* axillary, ſhorter than the petiole, ſmoothiſh; pedicels four or five, ſomewhat umbelled, unequal, filiform, briſtly, often twice the length of the peduncle, ſhorter than the leaves; ſegments of the calyx ovate, beſet with thinly ſcattered hairs; corolla, before it expands, ovate, acuminate-beaked; when open, three times the length of the calyx, with a few hairs on the outſide. 20. C. *tomentoſum*. Lam. 11. "Stem twining, downy; flowers ſomewhat cordate-oval, mucronate, downy underneath; umbels with about five flowers." *Stems* woody, cylindrical, cottony, whitiſh. *Leaves* oppoſite, on ſhort petioles. *Umbels* lateral, peduncled; pedicels at leaſt as long as the peduncle. A native of the Eaſt Indies, found by Sonnerat. 21. C. *grandiflorum*. Mart. 22. Willd. 10. Cavan. ic. 1. 14. tab. 21. "Stem twining; leaves cordate, ovate-cuſpidate, glaucous underneath; corollas coriaceous." *Stem* very long, cylindrical, with a rufous nap at the joints. *Leaves* with one branching nerve; petiole ſhorter than the leaves, thicker at the baſe, rather ſhaggy, often twiſted. *Flowers* in ſhort racemes; common peduncle thick, between the two petioles; pedicels in alternate pairs, an inch long; calyx deeply divided into five acute ſegments; corolla, before it expands, rolled up in a ſpiral, afterwards much-ſpreading, deep green on both ſides; with five lanceolate, acute diviſions near an inch long; nectary yellow, the ſize of a pea, with five hollows at the baſe, and as many claws arched inwards; appendicles yellow, ovate, concave; attached to the ſides of a green pentagon, which terminates a very ſhort priſm, riſing from the centre of the nectary; anther-glands red; pollen-maſſes in pairs, on diverging pedicels thinner than the fineſt hair, club-ſhaped, tranſparent, yellow, concealed between the ſides of the pentagon, and the appendicles almoſt in a horizontal ſituation; germens two, approximating, ending in conical ſtyles; ſtigma common, fungous, large. A native of South America. 22. C. *racemoſum*. Linn. Syſt. Nat. 7. Mart. 4. Lam. 3. Willd. 12. Jacq. Amer. 81. tab. 54. pict. 43. tab. 80. "Stem twining; leaves ovate-cordate, ſmooth, acuminate; racemes ſimple, many-flowered." *Stems* herbaceous, milky, ſmooth. *Leaves* oppoſite, petioled, bright green on the upper ſurface, ruſſet underneath, four inches long. *Flowers* ſmall, white, in lateral racemes; calyx five-leaved; leaflets lanceolate, concave, acute, ſpreading; tube of the corolla bell-ſhaped, very ſhort; diviſions of the border lanceolate, flat, widely ſpreading, revolute and emarginate at the tip, a little longer than the calyx; nectary in the centre of the flower, produced from its baſe, and divided into five erect, ovate, flat ſegments, the length of the calyx, three-jagged and acuminate at the end; with as many ſhort blunt appendicles, ending in cowled, two-celled membranes; pollen-maſſes in pairs, on ſhort pedicels, oval, columnar, upright, concealed in the cells of the cowls; germens two, very ſmall; ſtyle ſingle, filiform, upright, almoſt the length of the nectary; ſtigma very large, flat on both ſides, with five ſharp angles. A native of South America near Carthagena. 23. C. *nigrum*. Willd. 11. Cavan. ic. 2. 45. tab. 159. "Stem twining; leaves oblong-cordate, ſmooth, acute; racemes ſimple, few-flowered." Allied to the preceding, but quite diſtinct. *Flowers* four times the ſize, almoſt black. A native of Mexico. 24. C. *maritimum*. Linn. Syſt. Nat. 8. Mant. 54. Mart. 5. Lam. 4. Willd. 13. Jacq. Amer. 83. tab. 56. pict. 44. tab. 82. "Stem twining; leaves cordate, briſtly, downy underneath; peduncles aggregate." Milky. *Stems* cylindrical, briſtly. *Leaves* acuminate, quite entire, from two to four inches long, petioled. *Flowers* without ſcent, dark purple; peduncles ſhortiſh, one-flowered, ſpringing from a tubercle among the leaves; calyx with five lanceolate, acute, ſmall, ſpreading ſegments; tube of the corolla very ſhort, ſpreading; ſegments of the border ovate, acute, flat, large, briſtly within, ſpreading; nectary bell-ſhaped; leaflets inverſely cordate, three-toothed, ſpreading, connected at the ſides into one body, of the ſame colour with the corolla, and of the ſame length with the calyx; appendicles furniſhed with membranous, cowled, two-celled ſcales; ſtyle cloven at the baſe; at the height of the ſcales ſpread out into a wide and ſharply five cornered, body flat on both ſides; from the centre of which it again emerges ſingle, filiform, erect, bifid at the tip, the length of the corolla. A native of South America, in Tierra Bomba, on the coaſt. 25. C. *altiſſimum.* Mart. 24. Lam.* Jacq. Amer. 84. tab. 57. Pict. tab. 83. “ Stem twining; leaves cordate, downy on both ſides; flowers umbelled.” Milky. *Stems* cylindrical; when old, woody, climbing trees to the height of fifty feet, ſmooth, aſh-coloured, leafleſs; when young, green, downy, leafy. *Leaves* at firſt two inches, afterwards half a foot long, quite entire, thickiſh. *Umbels* lateral, ſolitary, cloſe, hemiſpherical; common peduncle very thick, cylindrical, downy, ſcarcely the length of the petioles; involucre many-leaved, unequal. *Flowers* thick, firm, without ſcent; calyxes greeniſh aſh colour; corollas dirty purple. *Follicles* one abortive. A native of New Spain, about Carthagena. 26. C. *radians.* Lam.* (Aſclepias; Forſk. Ægyp. 49. 67.) “ Stem erect, ſhaggy; leaves cordate, acute, undulated; umbels terminal.” A native of Ægypt. 27. C. *ſuberoſum.* Linn. Sp. Pl. 2. Mart. 6. Lam. 6. Willd. 14. (Periploca carolinenſis; Dill. alth. 300. tab. 229. fig. 226.) “ Stem twining, rough with hairs; leaves ovate-cordate, acuminate; corymbs axillary; ſegments of the corolla lanceolate.” *Root* perennial. *Stems* ſlender, covered on the lower part with a thick fungous bark reſembling cork, full of fiſſures; twining above, and, if ſupported, riſing to the height of ſix or ſeven feet. *Leaves* two at each joint; on long hairy petioles. *Flowers* green at firſt, afterwards duſky purple. A native of Carolina. 28. C. *carolinenſe.* Willd. 15. Jacq. ic. 2. tab. 342. Collec. 2. 288. “ Stem climbing, rough with hairs; leaves oblong-cordate, acuminate; corymbs axillary; ſegments of the corolla oblong, obtuſe.” A native of Carolina. 29. C. *obliquum.* Willd. 16. Jacq. ic. 2. tab. 341. Collec. 1. tab. 148. “ Stem twining, rough with hairs; leaves ovate-cordate, acute; corymbs axillary; ſegments of the corolla ovate, acuminate.” *Leaves* ſhaggy. Segments of the *corolla* oblique, revolute at the edges. A native of Carolina. 30. C. *hirtum.* Linn. Sp. Pl. 3. Mart. 7. Lam. 7. Willd. 17. (Periploca ſcandens; Plum. Sp. 2. Apocynum ſcandens virginianum rugoſum; Moriſ. Hiſt. 3. 611. § 15. tab. 3. fig. 61?) “ Stem twining, ſhrubby, cork-barked and chinked towards the bottom; leaves ovate-cordate.” *Stem* riſing to the height of twenty feet or more, if ſupported. *Leaves* on long, ſmooth, petioles. *Flowers* yellowiſh-green. Sent to Miller by Houſton from Jamaica. 31. C. *criſpiflorum.* Ait. Hort. Kew. 1. 302. Mart. 16. Willd. 18. Swartz Prod. 52. (Periploca florum diviſuris criſpis; Plum. ic. 210. tab. 216. fig. 1.) “ Stem twining; leaves ſhaggy underneath, oblong-cordate; ſinus cloſed; petals curled at the tip.” A native of South America and the Weſt Indies. 32. C. *proſtratum.* Mart. 21. Willd. 19. Cavan. Hiſp. 5. *n.* 7. tab. 7. “ Stem proſtrate, ſomewhat herbaceous; leaves reniform-cordate, acute, downy underneath.” *Stems* a foot high, cylindrical, filiform, branched, knotted, downy. *Leaves* nearly equal to the petioles, quite entire, ſoft, with an unpleaſant ſmell. *Flowers* in ſolitary umbels; common peduncles half an inch long, between the two petioles; rays four, one-flowered, ſurrounded at the baſe by three little bractes; calyx ſmall, divided half way down into five ovate ſhaggy ſegments; corolla deep green, deeply divided into five ſpreading diviſions, with a revolute border; nectary whitiſh, pitcher-ſhaped, with five deeply two-horned ſegments; appendicles two from the centre of each horn; one arched towards the ſtigma; the other very ſmall, oppoſite to the former, verging outwards. A native of Mexico. 33. C. *monſpeliacum.* Linn. Sp. Pl. 4. Mart. 8. Lam. 8. Willd. 20. Cavan. Hiſp. 44. tab. 60. (Periploca monſpeliaca, foliis rotundioribus; Tourn. 93. Scammonea monſpeliaca; Bauh. Pin. 294. Apocynum. 4-latifolium; Cluſ. Hiſt. 1. 126.) “ Stem twining, herbaceous; leaves reniform-cordate, acute, ſmooth.” *Stems* very long, ſwelling at the joints, green, ſmooth. *Leaves* about the length of the petioles, glaucous. *Flowers* on ſolitary peduncled racemes, between two petioles; calyx ſmall, five-cleft; corolla deeply five-parted; ſegments linear, white above, pale roſe-coloured underneath; nectary whitiſh, pitcher-ſhaped, ten-cleft, with five broad ſhorter ſegments and five acute longer ones, furniſhed internally with as many acute appendicles, which are raiſed upwards; ſheath in the middle of the nectary, obſcurely five-cornered, with five pendulous two-celled appreſſed little bags, ending at the top in as many orbicular ſcales, converging towards the top of the ſheath; pollen maſſes in pairs, globular, on very ſhort capillary pedicels; ſtigma crowned by two little teeth, approximating at the baſe, afterwards divaricating. Cav. The milky juice of this ſpecies thickens when dry, becomes blackiſh, and reſembles the true ſcammony in its purgative qualities; but it is not equally ſtrong. A native of the ſouth of France and Spain. 34. C. *extenſum.* Ait. Hort. Kew. 1. 303. Mart. 9. Willd. 21. Jacq. ic. 1. tab. 54. Miſc. 2. 353. (C. cordifolium; Retz. Obſ. 2. 15.) “ Stem twining, ſhrubby; leaves cordate, acute; peduncles elongated; pedicels filiform; corollas briſtly at the edge; follicles ramentaceous.” *Root* annual, divided into whitiſh fibres a foot and half long, and not ſo thick as a quill, milky. *Stem* twelve feet high, cylindrical, ſhaggy, with longer hairs thinly interſperſed, rough, glaucous, finely tinged with purple. *Leaves* quite entire, almoſt ſmooth on both ſides, on a long, cylindrical, ſhaggy petiole. *Flowers* of a pale-greeniſh colour, pendulous ſweet-ſmelling, opening about ſix in the evening, and cloſed by morning; common peduncles between the oppoſite petioles, generally ſingle, but ſometimes one on each ſide, from half a foot to a foot long, cylindrical, rugged, ſhaggy, ſpreading; pedicels an inch and half long, coming out aggregately at intervals; calyx ſmall, ſomewhat ſhaggy; with five lanceolate, acute, erect diviſions; corolla wheel-ſhaped; tube ſomewhat five-angular, longer than the calyx; diviſions of the border three times the length of the tube, lanceolate, acute, flat, but rolled back at the ſides, ſpreading; nectary a ſheath attached to the tube of the corolla, elevated into a pentagon five-grooved white cone, ſhorter than the corolla, which conſiſts of five erect obtuſe ſcales, three-lobed at the tip, the middle lobe longer and lying on the vertex of the ſtigma, with a ſmall two-celled bag for the lodgment of the pollen maſſes; and on the back at the baſe of the bag, a lanceolate convex appendix, bent both ways, acute, erecting itſelf from the middle of the ſheath beyond the ſtigma; pollen-maſſes in pairs, inverſely egg-ſhaped, compreſſed, yellow, pendulous, on ſhort pedicels. Stigma capitate, globular, with an obtuſely five-cornered rim about the edge. *Follicles* lanceolate, acuminate, muricated, turgid, glaucous, coriaceous, diverging or reflexed. A native of the Eaſt Indies. 35. C. *aſperum.* Mart. 18. “ Stem twining, ſhrubby; leaves cordate, acute, rough; flowers lateral.” *Stem* twenty feet high or more, very ſlender, armed with ſmall ſtinging hairs. *Leaves* in diſtant pairs at each joint, on ſlender petioles. *Flowers* in ſmall cluſters, ſitting cloſe to the ſtalks, rather large, yellow, ſtar-ſhaped, ſpreading open to the bottom. *Follicles* long, ſwelling. A native of La Vera Cruz, in New Spain; raiſed by Miller from ſeeds ſent by Dr. Houſton. 36. C. *odoratiſſimum.* Mart. 23. Lour. Cochinch. 166. (Flos Siamicus, ſive flos Tunkini; Rumph. Amb. tab. 26. fig. 1.) “ Stem twining, cork-barked, and chinked towards the bottom; leaves heart-ſhaped, acuminate, wrinkled; cymes reflexed.”

flexed." *Root* perennial. *Stem* very long, cylindrical, and ſmooth in the upper part. *Leaves* undulated, ſmooth, oppoſite, on long petioles. *Flowers* yellow, very ſweet-ſcented; cymes large, hemiſpherical, axillary, reclined; calyx five-leaved; leaves ovate-lanceolate, undulated, nearly erect; corolla ſalver-ſhaped; tube thick, ſhort, inflated at the baſe; border large, with five oblong ſomewhat reflexed diviſions; nectary cylindrical, thick, erect, with five connivent ſegments; appendicles five, membranous, adhering to the outſide of the nectary, and terminated by compreſſed, acute, two-celled bags incumbent on the ſtigma; ſtigma ſeſſile, ovate, emarginate. A native of Siam and Cochinchina, cultivated about Canton. In fragrance it does not yield to jaſminum ſambac, and though very common is not leſs uſed by women of the higher rank as an ornament to their hair. 37. C. *inodorum.* Lour. Cochinch. 166. "Stem twining, cork-barked, and chinked towards the bottom; leaves ovate-acuminate; peduncles ſubdivided." *Root* perennial. *Stem* long, branched. *Leaves* ſmooth, oppoſite. *Flowers* numerous, ſmall, yellow, ſcentleſs; peduncles ſhort, axillary; corolla rather ſalver-ſhaped; ſegments linear, longer than the tube, ſpreading; ſtigma large, ſeſſile, ovate-oblong. *Follicles* oblong, acuminate, downy, curved inwards. A native of Cochinchina. 38. C. *erectum.* Linn. Sp. 5. Mart. 14. Lam. 9. Willd 25. Jacq. Hort. 1. tab. 38. Miſc. 1. 20. tab. 2. fig. 1. (Apocynum folio ſubrotundo; Bauh. Pin. 302. Tourn. 92. A. 1. latifolium. Clus. Hiſt. 1. 124.) "Stem erect, divaricated; leaves cordate, ſmooth." *Root* perennial. *Stems* ſeveral, about three feet high, ſlender, ſomewhat branched. *Leaves* oppoſite, petioled, ending in a point, inclining to glaucous. *Flowers* ſmall, white; in lateral, lax, branched corymbs; calyx green, ſmall, ciliated, five-cleft; ſegments lanceolate, acute, erect; corolla white, divided almoſt to the baſe into five, oblong, obtuſe, flat ſegments, forming at the bottom an almoſt bell-ſhaped corolla, but ſpreading much at the top; nectary a ſheath placed immediately on the pedicel of the flower, cylindrical, green, two-grooved near the bottom; putting out from the back, about the level of the germ, five, ſmall, white, petal-ſhaped, ſomewhat linear, upright leaflets; dividing afterwards into five oblong, concave, yellowiſh ſegments, ending in a roundiſh ſcale, applied to the ſtigma, and about half its length, not furniſhed with two-celled bags, but having inſtead of them two roundiſh, yellow, ſmall plates, ſituated above the baſe in a parallel poſition, and extended forward; germens two, obtuſe, pale; ſtyle very ſhort, thick, ſingle, and undivided, common to both germens; ſtigma very large, elongate-conical, thick, erect, pale yellow, bifid and obtuſe at the end, very long; anther-glands five, at the ſides of the ſtigma about the middle, from each of which protrudes a pair of yellow, obovate, flat, pollen maſſes, almoſt without pedicels, hanging forward between adjoining plates of the nectary. A native of Syria. 39. C. *arboreum,* Lam.* Forſk. Ægypt. 53. *n.* 80. "Stem twining; corolla rotate." A lofty tree, not milky. *Flowers* green. A native of Egypt.

C. *vomitoria*; Lam. See Asclepias *Aſthmatica.*

Propagation and Culture.—C. acutum and C. monſpeliacum, being natives of the ſouth of Europe, are hardy, and propagate too faſt by their creeping roots; they may be tranſplanted any time after the ſtems decay, till they begin to ſhoot in the ſpring. C. erectum and C. ſuberoſum will live in the open air in England, if planted in a dry ſoil and warm ſituation. The former may be increaſed by parting the roots in the ſpring; the latter by laying down the young ſhoots about Midſummer, which may be tranſplanted in the autumn. The natives of the Cape muſt be preſerved in the dry ſtove, and may be increaſed by layers, cuttings, &c. Thoſe of the tropical climates require a bark ſtove all the year, and muſt be allowed only a little water in winter; they may be propagated by laying down the young ſhoots, which, in three or four months, may be tranſplanted into pots filled with light ſandy earth, and plunged into the tan-bed.

CYNANTHEMUM, a name given by ſome authors to the Anthemis *Cotula,* or ſtinking May-weed. Ger. Emac. Ind. 2.

CYNANTHROPIA, from κυνω, *dog,* and ανθρωπος, *man,* a term uſed for madneſs given by a dog, wherein the patient avoids light, or any thing bright, fears water, and trembles at the ſight and remembrance of it. It proceeds uſually from a poiſonous bite, or the like, of ſome mad creature, as a dog, a wolf, &c.

CYNAPIUM, in *Botany.* See Æthusa.

CYNARA, (according to Linnæus, from κυων, *canis;* but the derivation is altogether uncertain. The French botaniſts ſpell it cinara, as it is found in ſome Latin authors.) Linn. Gen. 928. Schreb. 1257. Willd. 1436. Juſſ. 173. Vent. 2. 498. Claſs and order, *ſyngeneſia polygamia æqualis.* Nat. Ord. *Compoſitæ capitatæ;* Linn. *Cinarocephalæ;* Juſſ.

Gen. Ch. *Cal. common,* very large, dilated towards the baſe, imbricated; ſcales numerous, large, fleſhy at the baſe, ending in a more or leſs prickly point. *Cor.* Florets all perfect, nearly equal, funnel-ſhaped; tube very ſlender; border erect, ovate, five-cleft; diviſions linear, one of them more deeply ſeparated. *Stam.* Filaments five, capillary, very ſhort; anthers united into a tubular cylinder, the length of the floret, five-toothed. *Piſt.* Germ ſomewhat ovate; ſtyle filiform, longer than the ſtamens; ſtigma ſimple, oblong, emarginate. *Peric.* The permanent common calyx a little converging. *Seeds* ſolitary, oblong-ovate, four-cornered, compreſſed; down ſeſſile, long. *Recep.* briſtly, more or leſs thick and fleſhy.

Eſſ. Ch. Calyx dilated at the baſe, imbricated with ſomewhat fleſhy ſcales; receptacle more or leſs thick and fleſhy.

La Marck obſerves that this genus really differs from carduus only in the fleſhineſs of the ſcales of the calyx, and the thickneſs of the receptacle; ſince the emarginate termination of the ſcales with a point in the middle, though inſerted by Linnæus, occurs only in the firſt ſpecies, and muſt therefore be excluded from the generic character.

Sp. 1. C. *ſcolymus.* Common artichoke. Linn. Sp. Pl. 1. Mart. 1. Lam. 1. Willd. 2. Blackw. tab. 458. Woodv. Med. Bot. tab. 199. (C. ſylveſtris; Park. Parad. tab. 519. fig. 4. Ger. 992. 3. emac. 1153. 3.) "Leaves ſomewhat ſpinous, pinnated and undivided; calyx-ſcales ovate." β. Mill. Dict. 1. French artichoke. C. hortenſis aculeata; Bauh. Pin. 383. C. maxima alba; Ger. 991. emac. 1153. 2. C. patula; Par. parad. tab. 519. fig. 3. γ. C. hortenſis; Mill. Dict. 2. Globe artichoke. C. hort. foliis non aculeatis; Bauh. Pin. 383. C. maxima anglica: Ger. 991. fig. 1. emac. 1153. 1; Bauh. Pin. 383. C. ſativa rubra et alba; Par. parad. tab. 519. fig. 1. 2. *Root* perennial, large, fibrous. *Stem* from three to ſix feet high, thick, ſtrong, ſtriated, ſomewhat branched. *Root-leaves* from two to four feet long, petioled, irregularly pinnatifid, deeply cut, more or leſs ſpinous; aſh-coloured, ſmooth and veined above, hoary, downy and reticulated underneath. *Stem-leaves* ſimple, ſerrated or jagged, ſometimes almoſt quite entire. *Flowers* terminating the ſtem and branches, on thick fleſhy peduncles; common calyx globular, three or four inches in diameter; ſcales thick and fleſhy at the baſe; tough, membranous, and ſhining above; deeply and widely notched at the tip, with a ſtrong point between the ſegments; florets purple or blue. A native of the ſouth of Europe. In its wild ſtate it is ſaid to be taller, more downy, and more ſpinous, than it appears in our kitchen gardens, but to have ſmaller heads. It has long been cultivated in almoſt every part of Europe; but in England, at leaſt, rather as a luxury than as a profitable eſculent. With us the heads, in their immature ſtate and before the flowers open, are boiled in ſalted water, till all ſuch parts of them are ſoft as are capable of becoming ſo. The ſcales of the calyx are then plucked off one by one, the lower part of them dipped in a mixture of melted butter and pepper, and the fleſhy ſubſtance ſucked from the reſt. But there is generally ſo little to be obtained, as almoſt to juſtify the obſervation of a raw country ſervant, who having waited at ſupper when artichokes made one of the diſhes, was eager, on his return into the kitchen, to taſte a kind of food which he had never ſeen before; but, to his great diſappointment, finding little more than a kind of horny ſubſtance, which equally defied his tongue and his teeth, declared with great *naïveté*, that gentlefolks ſeemed to him to have ſtrange fancies, for as far as he could diſcover, one leaf would do as well to lick up the butter as a thouſand. It was fortunate for him that he did not encounter what is emphatically ſtyled by Engliſhmen the choke, from a not ill-founded perſuaſion that any unlucky wight who ſhould happen to get it into his throat would certainly be choked. This conſiſts of the unopened florets and briſtles which ſtand upon the receptacle of the compound flower, and muſt be carefully cleared away before the epicure can arrive at the receptacle itſelf, the *bottom*, as we call it, or *le cul*, as it is more elegantly termed by our poliſhed and refined neighbours on the other ſide of the channel, which is undeniably the moſt plentiful, as well as the moſt delicate part of the viand. On the continent, artichokes are more generally uſed, and are alſo eaten raw with ſalt and pepper. It is moreover eſteemed a branch of good houſewifery, to preſerve them as a valuable part of the family winter-ſtore.

For this purpoſe various methods have been deviſed; but the beſt is ſaid by Parmentier to be that which is practiſed at Laon and in its neighbourhood. The heads are firſt half boiled and ſtripped of the calyx-leaves and the choke; the bottoms while they are ſtill warm, are then plunged into cold water, which gives them a conſiſtence, or as it is there expreſſed, *blanches* them. They are afterwards laid upon flat pieces of wicker work, and put four times ſucceſſively into an oven in which bread has been baked, where they are kept till it has gradually cooled. By this proceſs they become thin, hard, and tranſparent as horn, and do not reſume their primitive appearance till they have been ſteeped in warm water. When they are once thoroughly dried in the oven, nothing farther is neceſſary than to keep them in a dry place, that that they may not grow mouldy. To obtain a pound of theſe preſerved bottoms about forty heads of a moderate ſize muſt be expended.

Mr. Miller has mentioned two kinds, which he thought diſtinct ſpecies, but which appear to be only permanent varieties. 1. C. Scolymus, the green or French artichoke. 2. C. hortenſis, the globe artichoke. The firſt has the ſcales of the calyx remarkably open; its head draws up rather to a point in the middle; the leaves are larger, much wider, of a paler colour, and inclining to yellow on the under ſurface terminated by ſhort ſpines; the bottoms are not ſo thick of fleſh, and have a perfumed taſte, which is not generally agreeable, ſo that it is not much cultivated by our gardeners. The ſecond, which is our common artichoke, has its calyx-leaves turned inwards at the top, and its head rather flat; its leaves are of a bluer caſt, and are more deeply cut, with no, or only ſmall and ſcarcely perceptible prickles. John Bauhin had long before obſerved that the preſence or abſence, the abundance or the rarity of ſpines are merely characters of ſeminal varieties which are often produced indiſcriminately from the ſame ſeeds. In France, where artichokes are in more general uſe, there is a greater number of varieties. Parmentier mentions five principal ones. 1. The white, diſtinguiſhed by the ſtrong ſpines of its calyx leaves, is the earlieſt and the ſmalleſt kind; but as it is alſo the moſt tender, and is with difficulty kept alive through the winter in the moſt favourable ſituation and ſoil, it is but little propagated. 2. The green, which is moſt in requeſt in the French green markets, grows to a great ſize. Its form is more flat, and its ſcales more open than in the other varieties; its bottom is ſometimes five inches in diameter, and the fleſh very tender and well taſted, when it has been boiled in a good deal of water. 3. The violet, which has a more pointed head than the preceding, and ſcales with a ſmall ſharp ſpine, and a tinge of violet at their extremity, is as good and as tender as the green, but being ſmaller, is not ſo profitable to the grower. The French artichoke of Miller ſeems to be an intermediate variety of theſe two. 4. The red, which has entirely a red-purple exterior, with a yellow and more delicate fleſh than any of the former kinds. It is always eaten raw, and that only when it is very young, as it ſoon becomes hard and ſtringy. 5. The ſugary artichoke of Genoa, ſo called from its remarkably ſweet taſte. It is eaten raw like the red, and is even thought more delicate, but as it degenerates in the ſecond year, and muſt therefore be annually renewed by freſh ſets brought from Genoa, it is found in but few of the French gardens.

This ſpecies has obtained a place in the Materia Medica, and has been recommended for its diuretic qualities, but is now little uſed. The whole plant has a ſtrong bitter taſte and a peculiar ſmell. The flowers are uſed to curdle milk, and have lately been found to poſſeſs ſo much of the tanning principle as not to be inferior to white galls. 2. C. *horrida*. Aiton. Hort. Kew. 3. 148. Mart. 2. Willd. 3. "Leaves pinnatifid, downy underneath, ſpinous; ſpines at the baſe of the leaves, and of the pinnæ connate at the baſe." Found by Maſſon in the iſland of Porto Santo, near Madeira; and introduced at Kew in 1778. 3. C. *cardunculus*. Cardoon, Linn. Sp. Pl. 2. Mart. 3. Willd. 4. (C. ſylveſtris β. Lam. C. ſpinoſa, cujus pediculi, eſitantur; Bauh. Pin. 385.) "Leaves ſpinous; all pinnatifid; calyx-ſcales ovate." J. Bauhin aſſerts that this is either a hybrid plant, or a ſeminal variety of the firſt ſpecies. La Marck makes it a variety of his ſylveſtris, to which he refers caſpar. Bauhin's C. ſylveſtris latifolia, quoted by Linnæus and other authors as a ſynonym to C. ſcolymus. He gives the following deſcription of the wild plant, which he ſays is a native of the ſouth of France, Spain, Italy, and Sicily. "Very ſpinous; leaves ſomewhat hoary, finely cut; ſpines long, flaveſcent." *Stem* four or five feet high, upright, thick, cottony, a little branched, ſpinous near the top by means of the upper leaves, which are ſlightly decurrent and very ſpinous at the baſe. *Leaves* large, winged; pinnules decurrent, narrower than thoſe of the firſt ſpecies, furniſhed with a long yellowiſh ſpire at the extremity of each ſegment, pale green above, very white and cottony underneath. *Flowers* blue, terminal, ſmaller than thoſe of the common artichoke; calyx-ſcales ſomewhat fleſhy, terminated by a very ſharp and rather long ſpine. It is much cultivated for the table in many parts of the continent, but is not much eſteemed in England, and not often raiſed. The roots, and the ſtalks with the midribs of the leaves are the only parts that are eaten, and chiefly the latter, which are thick and criſp, and though naturally bitter, are rendered mild and pleaſant by being blanched like celery. They are eaten either alone, or as a ſauce to animal food, and eſpecially roaſt meat, and are often introduced as a diſh in the ſecond courſe. But the cultivation of them is ſo troubleſome, and after all ſo much depends upon the ſkill of the cook to render them very palatable, that they are almoſt confined to the upper ranks. In France the flowers carefully dried in the ſhade, are uſed by the country people as well as thoſe of the common artichoke, to coagulate milk for the purpoſe of making cheeſe. 4. C. *integrifolia*. Mart. 6. Willd. 1. Vahl. Symb. 1. Vahl. Symb. 1. 68. "Leaves lanceolate, finely toothed; calyx ſcales lanceolate-acuminate." A low ſmooth plant with a ſimple, ſtriated ſtem. *Leaves* an inch and half long, petioled, mucronate, toothed with remote ſmall ſpines. *Flower* blue, terminal, ſolitary, peduncled, only half the ſize of that of C. ſcolymus; lower calyx-ſcales terminated by a weak ſpine. A native of the mountains near Toledo in New Caſtile. 5. C. *humilis*. Linn. Sp. Pl. 3. Mart. 4. Lam. 3. Willd. 5. Desfon. Atl. 2. 248. (C. ſylveſtris bœtica; Cluſ. Curſ. 35. Carduus tingitanus; Pluk. Alm. 85. tab. 81. fig. 2. C. humilis tingitanus; Moriſ. Hiſt. 3. 158. § 7. tab. 33. fig. 9.) "Leaves ſpinous, pinnatifid, downy underneath; calyx-ſcales awl-ſhaped." β. Carduus andeluſiacus; Pluk. Alm. 85. tab. 19? *Lower leaves* a foot long or more, three or four inches broad, ſtretched on the ground, cut on each ſide to the midrib into pinnatifid, rather narrow, pointed pinnules, with each of their ſegments ending in a ſhort ſpine. *Stem* erect, ſcarcely longer than the root-leaves. *Flower* terminal, large, blue; calyx-ſcales oval-lanceolate, terminated by a ſharp point. A native of Spain and Barbary. 6. C. *acaulis*. Linn. Sp. Pl. 4. Mart. 5. Lam. 4. Willd. 6. Desſont. Att. 2. 249. tab. 223. Lam. Ill. Pl. 663. fig. 2. (C. acaulos tunetana faſga dicta; Til. Piſ. 41. tab. 20. C. orientalis moſchata; Tourn. Cor. 51.) "Stemleſs; leaves pinnated, without ſpines, ſmooth above." Linn. "Stemleſs; leaves without ſpines, downy underneath, pinnatifid; ſegments inciſe-toothed; calyx-ſcales lanceolate, ſcarious and toothed at the tip. Willd. A native of the coaſt of Barbary near Tunis, and of the Levant. Obſ. Juſſieu has obſerved that C. humilis, having a radical flower, and calyx-ſcales not ſpinous, but ciliate-palmate at the tip, like the jaceæ, ought to be referred to another genus. But did he not mean this ſpecies? 7. C. *glomerata*. Willd. 7. Thunb. Prod. 141. "Stemleſs; leaves pinnatifid, ſpinous." A native of the Cape of Good Hope. 8. C. *pygmæa*. Willd. 8. "Stemleſs; leaves pinnated, nearly ſmooth; ſegments toothed, ſpinous; inner calyx-ſcales ſcarious at the tip." *Leaves* an inch and half or two inches long, green on both ſides, unequally pinnated, briſtly on the midrib. *Flowers* an inch and half long, ſeſſile; calyx cylindrical; outer ſcales ovate, toothed at the tip; teeth terminated by a ſpine; inner ones ovate, quite entire, furniſhed with a ſingle ſpine at the tip; innermoſt oblong, ſcarious and without a ſpire at the tip. A native of Spain.

Cynara, in *Gardening*, comprehends plants of the hardy perennial and biennial kinds; of which the ſpecies cultivated are, the common artichoke (C. *ſcolymus*); and the cardoon artichoke, or cardoon, (C. *carduncoulus*).

Method of Culture.—Theſe different plants are increaſed without much difficulty, if proper care be taken to preſerve them from the froſts in winter ſeaſon, by ſome protecting material.

Method of Culture in the Artichoke Kind.—Theſe are a ſort of plants which ſucceed beſt in a ſoil of the light, deep, friable, loamy kind, well enriched by ſtable dung, or ſome other manure. Where the ſoil is ſtiff and wet, they are liable to be deſtroyed in the winter ſeaſon by the ſtagnation of moiſture about their roots.

Their propagation is moſt commonly effected by planting the offsets, or ſuckers produced from the old ſtools or roots, in the early ſpring months, as about the latter end of March, in an open ſituation, in rows four or five feet apart, and the ſame diſtances in the rows. The ground ſhould be previouſly prepared by trenching in the dung to a good ſpade's depth or more.

In the buſineſs of planting out the offsets, after being ſeparated from the old plants, they ſhould be trimmed in their leaves and other parts, and be then put in by means of a line and dibble to the depth of three or four inches. Some plant two or three plants in one place, but others only one. The latter is probably the better method, as the plants ſpread very much. Whichever mode is practiſed, the earth ſhould be well cloſed about the ſets, and a good watering immediately given, eſpecially if the weather be dry; repeating it as there may be occaſion afterwards.

After this they only require to be kept free from weeds during the ſummer, which is beſt performed by hoeing between the rows with a large ſharp hoe; and to be protected from froſt in the winter months.

Whenever large heads are wanted, all the ſmall lateral ones ſhould be removed as ſoon as they are formed to any ſize. In ſome ſituations, the ſmall lateral crooked heads are, however, held in much eſteem, conſequently muſt not be rubbed off. The maturity of the heads of the artichoke is ſhewn by the plates or ſcales ſeparating from each other conſiderably, and appearing of a browniſh caſt.

In ſeparating or cutting the heads, ſix inches of the ſtem ſhould be preſerved to them, and in many caſes, when for market, a foot or more. And care ſhould be taken, that as the heads are cut, the ſtalks be broken down to the bottom and removed, in order to promote the growth of new ſuckers for offsets.

With the view of protecting the plants during the winter from being injured by froſt, it is the practice of ſome gardeners to earth or mould up the rows of the plants, ſo as to cover their crowns, forming the earth into a ridge. This is uſually done about the latter end of November, or beginning of the following month, the lower leaves being cut and removed before the work is attempted. The author of the "Scotch Forcing Gardener," however, inſtead of ridging up the plants, adviſes that they ſhould be carefully covered with ſtable-dung or other litter in the beginning of winter, which he conſiders as much better than digging trenches and moulding up with the earth from them, as the roots in that way are, he ſuppoſes, doubly expoſed. Many inſtances have occurred where the plants managed in that method have been deſtroyed, while thoſe well covered by litter have not ſuſtained the leaſt injury.

About the middle of March, or beginning of the following month, when the plants have begun to ſhoot, the ridges where that method has been employed, ſhould be levelled down, removing all the unneceſſary ſhoots, only leaving one or two on each plant. This work ſhould be performed when the weather is dry, and the mould be well cleared and removed from the crowns of the plants.

But where they have been covered with litter, the coarſe parts ſhould be removed about the ſame time, and the more reduced and rotten parts dug in; previouſly removing the ſhoots, as in the former caſe, to prevent their being too much crowded and producing ſmall imperfect heads.

This is a ſort of culture which muſt be repeated every year, for the old roots or ſtools, which ſhould not be ſuffered to continue more than ſeven or eight years in the ſame ſituation, as they then begin to produce heads that are ſmaller in ſize; and where ſucceſſions of this ſort of crop are wanted, a few of the beſt offsets ſhould be planted every year as ſoon as poſſible, after being taken off, in the manner that has been directed above. This practice not only keeps up the ſtock of plants, but continues the ſeaſon of having the produce, as the young plants afford their heads much later than the old ones.

When it is neceſſary that the offsets ſhould be conveyed to a diſtance, they ſhould be carefully packed, eight or ten together, when dry, and bound round with a hay-band, the whole being then placed in a hamper or mat. In this caſe, ſome adviſe moiſtening the roots before planting them out in the garden.

The globular-headed ſort is, in general, found the largeſt and moſt fleſhy, but the green conical-headed the moſt hardy, and beſt capable of reſiſting the effects of ſevere ſeaſons.

Method of Culture in the Cardoon Kind.—This is readily accompliſhed, in this ſort of plants, by ſowing the ſeeds in the latter end of April or beginning of May, or later, in the places where the plants are to remain. It is beſt done by forming trenches at the diſtance of about five feet from each other, in the manner directed for celery, to the depth of a good ſpade, placing the mould on the ſides or interſpaces; then to point in with a ſpade a little well-rotted compoſt manure in the bottoms, and make a ſmall drill in the centre, to the depth of an inch, dropping in the ſeeds two or three inches apart, covering them with the fine mould: a little water ſhould be given at the ſame time, when the ſeaſon is dry and hot.

When the young plants have advanced two or three inches in their growth, they ſhould be thinned out to the diſtance of ten or twelve inches, and gradually to much greater diſtances. And as they proceed in their growth, they ſhould be gradually moulded up when dry, in order to be blanched and rendered tender, in the ſame manner as practiſed for celery; only the leaves being carefully gathered, and tied together each time with a little old matting, in order to prevent the mould from getting between them and cauſing their decay.

It is likewiſe the practice with ſome gardeners to raiſe the plants on beds, and afterwards tranſplant them into drills, or holes, where they are to remain and be earthed up for blanching; but it is probable that the former is, in moſt caſes, the preferable practice.

With the view of having a longer ſucceſſion of theſe plants, the moulding up ſhould be performed at different times, from about the beginning of September, at the diſtance of a fortnight or three weeks.

Theſe plants are found to ſucceed beſt on ſuch ſoils as are of the more deep ſandy loam kinds, which have not been much enriched by manure from long cultivation.

With the view of ſaving ſeed, ſome of the beſt plants ſhould be ſuffered to remain without being blanched, and be protected by litter during the winter; and in the ſpring they will ſhoot up into flower, and produce ripe ſeed in the autumn, which ſhould be carefully preſerved.

The fleſhy parts and roots of the cardoon are capable of being preſerved in the winter ſeaſon, in the ſame manner as the carrot, celery, and other ſimilar plants, which have large thick roots.

CYNARA, in *Ancient Geography*, a name given by Pliny to an iſland of the Ægean ſea.

CYNCHRAMUS, in *Ornithology*, a name given by Aldrovand and Briſſon to the EMBERIZA *Miliaria*, which ſee.

CYNDONIS, a river of the Helleſpont. Heſychius.—Alſo, a river of Greece, in the Peloponneſus.

CYNEAS, or CINEAS, in *Biography*, a miniſter of Pyrrhus, king of Epirus, more diſtinguiſhed by his talents than by birth. He had been inſtructed in oratory by Demoſthenes, and in military tactics by the moſt celebrated officers in Alexander's army. So remarkable was he for the arts of perſuaſion that his ſovereign uſed to compliment him with having gained more towns by his eloquence, than he could ever have conquered by force of arms. He was indeed an enemy to war, as the curſe of mankind, when undertaken for the gratification of ambitious projects: he was of the Epicurean ſect, and was perpetually urging upon the mind of his king the maxim, "That no addition to his territory; no augmentation of his power, could add one ingredient to the happineſs already within his reach." Pyrrhus, however, was a warrior and a king, and not a philoſopher; he determined on conqueſt, and forced upon his miniſter a chief command. After a deciſive victory over the Romans in the year B. C. 280, Cyneas propoſed to negotiate, the king conſented, and ſent him to Rome for the purpoſe. In this he was unſucceſsful, and on his return, he told Pyrrhus that the Roman ſenate ſeemed to him an aſſembly of kings. Cyneas made a ſecond attempt but with no better ſucceſs than before. He was afterwards diſpatched to Sicily, and prepared the way for his maſter's reception in that iſland. From this period no more is heard of Cyneas: he is recorded by Pliny and others as a moſt extraordinary inſtance of the powers of memory: he is ſaid to have been able, the day after his arrival in Rome, to ſalute all the ſenators and knights by their names. As an author, he is mentioned by Cicero, as having in conjunction with the king, his maſter, compoſed a treatiſe on the military art. He abridged alſo the "Tactics" of Æneas. Univer. Hiſt. Moreri.

CYNEBOTE, the ſame with Cenegild.

CYNEGETICA, in *Ancient Geography*, a name given by the Greeks to a mountain of Africa, on the ſtraits of Hercules, oppoſite to that of Europe; and both together were called the *Columns* of *Hercules*.

CYNEGETICS, from κυνηγος, *huntſman*, of κυων, *dog*, and αγω, *I lead out*, books treating of the art of hunting. Gratius Faliſcus has written a *Cynegetica* with applauſe.

CYNEGICA REGIO, in *Ancient Geography*, a country of Aſia, in Syria, placed near the town of Antioch.

CYNESII, a people of Iberia, or Spain, called alſo *Cynetæ;* ſuppoſed to be that part of Luſitania which is now denominated Algarve.

CYNETIA, a town of the Peloponneſus in the Argolide.

CYNETICUM JUGUM, a mountain of Spain on the coaſt of the Mediterranean ſea, and near the river Ana.

CYNIA, a town of Epirus, in Acarnania. Strabo.

CYNICS, a ſect of ancient philoſophers, who valued themſelves on their contempt of every thing, eſpecially riches and ſtate, arts and ſciences; all excepting morality.

The founder of this ſect is ſaid to have been Antiſthenes, a diſciple of Socrates; who, after his maſter's death, quitting the Pyræum, retired to Cynoſarges, a kind of academy not far from the gates of Athens. See ANTISTHENES.

Hence, ſome will have it, came the name κυνικος, *cynicus*, viz. from *cynoſarges*. But others, with more probability, derive it from *κυων*, *dog*, becauſe of their ſeverity and importunity in reprehending vice. Thus Ariſtotle obſerves, οἱ δε κυνικοι, &c. *the* Cynics *were ſo called from their free way of rebuking*, &c. Hence Diogenes the Cynic ſaid of himſelf, *I bite the evil;* and Antiſthenes himſelf was called απλȣς κυων, *an ingenious and ſincere dog:* it being the diſtinguiſhed character of the Cynics to attack and bark at the ill, and to defend and fawn on the good.

Arrian very much extols the Cynical genius: "A Cynic (ſays he) is a meſſenger ſent from Jupiter to overlook human affairs; a public doctor, and tutor of mankind; who inſtructs and chaſtiſes at the ſame time; an Æſculapius; a lord and king, adorned with a ſceptre and diadem, who governs the people; and this voluntarily, without trembling, without guards, &c. but by a good conſcience." The ground of this encomium may be owing, in ſome meaſure, to the affinity between the *Stoics* and *Cynics:* the chief difference between them conſiſted in this, that the former were more modeſt and reſerved than the latter; who were ſaid to have baniſhed all ſhame, and were able to practiſe any obſcenity without bluſhing.

Hence Laertius obſerves of Diogenes, that he did every thing openly, whether it belonged to Ceres or to Venus: though the ſame Laertius adds, that he did it in imitation of the choridida|cali, *i. e.* he only ran to an exceſs of impudence, to put others out of conceit with it.

The ſect of the Cynics is to be regarded more as an inſtitution of manners than as a ſchool of philoſophy: as it was formed rather for the purpoſe of providing a remedy for the moral diſorders of luxury, ambition, and avarice, than with a view to eſtabliſh any new theory of ſpeculative opinions. Antiſthenes, and the other leaders of this ſect, were conſidered by their diſciples not ſo much as the authors of a new doctrine, as inflexible patterns of virtue, and rather as examples for their imitation in the conduct of life, than as preceptors to guide them in the ſearch after truth. The ſole end of the Cynic philoſophy was to ſubdue the paſſions and produce ſimplicity of manners: and the characteriſtic peculiarities of the ſect were an indignant contempt of effeminate vices, and a vigorous adherence to the rules of moral diſcipline. According to the original ſpirit of the ſect, a Cynic was one who appeared in a coarſe garb, and carried a wallet and ſtaff, as external ſymbols of ſeverity, and who regarded every thing with indifference, except that kind of virtue which conſiſts in a haughty contempt of external good, and a hardy endurance of external ill. Simplicity and moderation were, indeed, in this ſect, carried to the extreme of auſterity, and at laſt produced the ſtoical ſyſtem of apathy: but the real deſign of both theſe ſects ſeem to have been to eſtabliſh virtuous manners. The vigorous diſcipline of the Cynics, which had for its primary object the laudable purpoſe of exhibiting an example of moderation and virtuous ſelf-command, degenerated by degrees into the moſt abſurd ſeverity: but candour will ſuggeſt an apology for the errors of this extreme. In order to be at perfect liberty to apply themſelves to the cultivation of virtuous habits and manners without interruption from the noiſy conteſts of ſpeculative philoſophy; the Cynics renounced every kind of ſcientific purſuit: accordingly they diſcarded all dialectic, phyſical, and mathematical ſpeculations, and confined themſelves to the ſtudy, or rather to the practice, of virtue. In this reſpect they formed themſelves upon the model of Socrates: and it may be pleaded in their excuſe, that the learning which chiefly prevailed in Greece at that time conſiſted very much in futile ſpeculations and an illegitimate kind of eloquence, which contributed little towards the happineſs of ſociety, or the real improvement of the human mind. As an apology for the ſingularities of this ſect, it may be further alleged, that the manners of the Greeks were at this time verging much towards the extreme of effeminacy. Luxury and vanity infected even the philoſophers, as we may juſtly infer from the accounts that are tranſmitted to us concerning the dreſs and manners of Ariſtippus, Arceſilaus, Ariſtotle, Stilpo, and others. Socrates made an attempt to correct the public taſte; and Antiſthenes, without poſſeſſing his judgment and moderation, adopted the ſame plan, but purſued it to an extreme that paſſed beyond the limits of decorum. Regarding attention to external appearance as unfavourable to virtue, he deviated into the ſimplicity of nature farther than was conſiſtent with the decorum of civilized life. His followers, ſeduced by his example, and by the reputation and influence which he acquired, as a pattern of wiſdom and fortitude, adopted his peculiarities and carried them to a ridiculous and abſurd extreme. Thus the Cynic philoſopher, being at firſt merely a ſevere public monitor:—

> "Virtutis veræ cuſtos, rigiduſque ſatelles—"
>
> Hor. ep. i. 1. 17.
>
> "The ſtern defender of pure virtue's cauſe—"

commanded attention and reſpect; but when, in proceſs of time, the freedom of cenſure degenerated into ſcurrility, the boldneſs of the philoſophers was admired by the vulgar, but their imprudence excited the wonder of the more judicious: and the whole order gradually ſunk into diſeſteem and contempt. Hence we may account for the diſgraceful tales which have been induſtriouſly propagated concerning this ſect; inſomuch, that the ſingularity of the early Cynics, and their groſs violations of decorum, rendered the ſect, at a later period, not only ridiculous but infamous, and furniſhed occaſion for thoſe, who did not properly diſtinguiſh between the firſt deſign of this inſtitution and its ſubſequent abuſes, to declaim againſt the Cynical philoſophy in general, as a compound of vulgarity, ſpleen, and malignity.

The ſum of the moral doctrine of Antiſthenes, and the Cynic ſect, is this: virtue alone is a ſufficient foundation for a happy life. Virtue conſiſts, not in a vain oſtentation of learning, or an idle diſplay of words, but in a ſteady courſe of right conduct. Wiſdom and virtue are the ſame. A wiſe man will always be contented with his condition, and will live rather according to the precepts of virtue, than according to the laws or cuſtoms of his country. Wiſdom is a ſecure and impregnable fortreſs: virtue, armour which cannot be taken away. Whatever is honourable is good; whatever is diſgraceful is evil. Virtue is the only bond of friendſhip. It is better to aſſociate with a few good men againſt a vicious multitude, than to join the vicious, however numerous, againſt the good. The love of pleaſure is a temporary madneſs." Laertius, Julian. Orat. Maxim. Tyr. Diſſ. Arrian. Diſſ. Epict. Fabr. Bib. Grec. v. ii. Brucker's Hiſt. Philoſ. by Enfield, vol. i.

CYNIC *Period.* See *Egyptian* YEAR.

CYNIC *ſpaſm*, *ſpaſmus* CYNICUS, a ſort of convulſion, whereby the patient is brought to imitate the geſtures, ſnarlings, howlings, &c. of a dog. See SPASM.

Dr. Freind, in the Philoſophical Tranſactions, gives us an account of a very extraordinary *ſpaſmus* of this kind, wherewith two families, at Blackthorn in Oxfordſhire, were ſeized.

The novelty of the thing drew abundance of viſitors to the village, and among the reſt Dr. Willis; who, a good while before he reached the place, heard a terrible noiſe of barking and howling: upon his entering the houſe, he was immediately ſaluted by five girls, bawling, and anſwering each other by turns, with violent motions of the head. In their face there was no convulſion ſeen, beſide *cynic* diſtortions, and oſcillations of the mouth: their pulſe was pretty regular; their noiſe was rather like that of the howling, than of the barking of dogs; though its returns were more frequent, with deep ſighings between.

The *ſpaſmus* had ſeized all equally: whereof the youngeſt was but ſix, and the eldeſt fifteen years of age: at intervals they had their reaſon and ſenſes entire; but not long before one of them, returning to her yelling, ſet on the reſt: till at length, all fainting, they fell like epileptics on a bed laid in the middle of the room to receive them.

A little while they would lie quietly and decently together; but upon a new orgaſm of the ſpirits, they began to beat and bruiſe each other. Two of the youngeſt awaked while the doctor ſtayed, and left their ſiſters on the bed: but the *ſpaſmus* ſoon had hold on them again.

In July 1700, Dr. Freind viſited another family, in the ſame village; where one boy and three girls had been ſeized ten weeks, without any apparent preceding cauſe. A girl had had it firſt; and the reſt, as the mother informed him, were ſo ſtruck with their ſiſter's diſorder, that they too were ſeized. At his arrival, they were all at play, very briſkly, and unconcernedly, before the doors; at length the eldeſt girl, about fourteen years of age, was ſeized as uſual.

The only ſymptom of its approach, was a ſwelling of the ſtomach; which riſing gradually up to the throat, ſet the muſcles of the larynx and the head upon their uſual convulſions: this riſing was a certain ſymptom of an approaching paroxyſm in them all; and if they endeavoured to ſtop it, it burſt out with the greater violence, and held the longer.

The noiſe they made was inceſſant, and diſagreeable; yet not ſo much like the barking or howling of dogs, as had been given out, as a quaint kind of a ſong, conſiſting of three notes, or tones, repeated twice over; and cloſed by deep ſighs, &c. accompanied with extraordinary geſtures and nutations of the head.

This diſeaſe the doctor takes to be natural; and to riſe from the common cauſe of all convulſions, viz. from the animal ſpirits growing unruly in the nerves, and driving the muſcles into various contractions, according to the circumſtances of the indiſpoſition.

CYNIPS, in *Entomology*, a genus of hymenoptera in the Linnæan ſyſtem, and of the piezata in that of Fabricius. The mouth is furniſhed with a ſhort unidentated membranaceous jaw, the mandibles vaulted, horny and cleft, and the lip entire; feelers four, ſhort, unequal, and capitated; antennæ moniliform; ſting ſpiral, and often concealed within the body. The Fabrician character conſiſts in having four unequal and ſomewhat capitated feelers, the lip horny and entire, and the antennæ moniliform.

Many of the excreſcences found on the leaves, ſtems, branches, and roots of trees, are occaſioned by the puncture of theſe inſects; their larvæ are ſoft, without feet, of a cylindrical form, and inhabit within the gall, where they ſubſiſt on the juices of the tree; the pupa differs from the complete inſect only in being deſtitute of wings, but the rudiments of the wings are perceptible even in this ſtate of the creature. Moſt of the ſpecies appear to be peculiar to certain plants; the oak and willow in particular are much infeſted with inſects of this kind.

Species.

Adscendens. Braſſy; abdomen petiolate, conic and aſcending. Fabr.

The largeſt ſpecies in this genus, and is found in Saxony. The antennæ are ſhort and black; ſcutel pointed; legs pale, thighs black at the baſe.

Rosæ. Black; abdomen ferruginous, black behind; legs ferruginous. Linn.

Inhabits the roſa hiſpida in Europe.

Compressa. Gloſſy-black; abdomen compreſſed; ſhanks ferruginous. Fabr. Append. Native of Italy.

Glechomæ. Fuſcous; thorax villous. Fabr. *Cynips glecochomae hederaceæ*, Linn.

Inhabits Europe, and forms rough globular galls on the glechoma hederacea.

Quercus Baccarum. Black, baſe of the antennæ and legs yellowiſh. Linn.

Forms roundiſh pellucid galls about the ſize of a pea on the under ſurface of the oak leaves. Found in Sweden, France, and other parts of Europe.

Quercus Folii. Black; thorax lineated; legs grey; thighs beneath black. Linn. *Diplolepis fuſcus*, Geoffr.

This ſpecies forms galls about the ſize of a nut on the under ſurface of the leaves of the oak.

Quercus Inferus. Deep black; antennæ and legs pale. Linn.

Forms globular opake red galls on the under ſurface of the leaves of the oak.

Quercus Petioli. Black; legs white; thighs fuſcous; Linn.

Forms convex galls on the footſtalk of oak leaves.

Quercus Pedunculi. Grey; wings with a linear croſs. Linn.

Occaſions by its puncture the granulated connected galls on the male flowers of the oak.

Quercus Ramuli. Pale; abdomen and wings black. Linn.

Quercus Tojae. Grey; abdomen ſhining-ferruginous. Fabr.

One of the largeſt ſpecies of the genus, and is found in France on the quercus toja. Boſc.

Fagi. Deep black and without ſpots. Linn.

Forms pear-ſhaped galls on the under ſurface of the leaves of the beech.

Viminalis. Yellow; thorax black. Linn.

Forms galls on the leaves of the willow, ſalix viminalis.

Capreae. Green, and ſhining; legs pale. Linn.

Forms ferruginous galls, reſembling grains of barley, on the leaves and branches of the willow.

Salicis Strobili. Deep black; thorax greeniſh on the back. Linn.

In the extremities of the branches of the ſalix glabra, which it dilates into a ſtrobile-ſhaped excreſcence.

Amerianae. Black; legs pale. Linn.

Forms unequal galls at the ends of the branches of ſalix pentandria.

Ruficornis. Black; abdomen azure; antennæ rufous. Fabr.

Found in France by Boſc.

Acris. Body brown; thorax black, and longer than the abdomen. Gmel.

Forms glabrous ſubturbinated galls on the leaves of acer pſeudoplatanus. Act. Boh.

Megacephala. Deep black; head large and retuſe; abdomen truncated. Fabr.

A ſmall ſpecies, found on rotten wood in Denmark.

Italica. Deep black and ſhining; thorax golden. Fabr. Native of Italy.

Psenes. In protuberances of the ficus carica. Linn.

Sycomori. In protuberances of the ficus ſycomorus. Haſſel.

The body is black; the ſting weak and exſerted.

Longipennis. Black; abdomen compreſſed; wings long, white, and marked with two black dots. Fabr.

Inhabits France, and is found in a ſmall flat gall. Boſc.

Aptera. Without wings, ferruginous with compreſſed abdomen marked with a broad black band.

A large ſpecies, found in France.

Rosmarini. On the roſmarinus chilenſis. Molin. Chili.

Forms white galls about the ſize of a nut, and of a globular form, which are full of clear oil, on the branches of roſmarinus chilenſis.

Aterrima. Black, with raiſed dots; tarſi pale. Schrank.

Inhabits Auſtria, and forms a very large excreſcence on the ſtems of plants.

Rubi. Silky green-gold punctured; briſtles at the end of the tail ſhorter than the body. Shranck.

Forms protuberances on the ſtems and branches of the rubus caeſius.

Phragmitis. Black; baſe of the antennæ and legs teſtaceous; abdomen elongated into a broad projecting tail. Schranck.

Found in the inflated ſtalk of the arundo phragmitis.

Lugdunea. Black, ſpotted with yellow; poſterior thighs globular, and dentated at the inner margin; ſting triple, turned back over the abdomen. Tourette. Act. Par.

A large ſpecies, found on various plants.

Testacea. Teſtaceous; head and legs yellowiſh; eyes black. Gmel. Native of Europe.

Nigra. Black; baſe of the abdomen and legs pale. Gmel. Inhabits Europe.

Inanita. Black; abdomen of one ſegment; the anterior part with a diaphanous ſpot each ſide; legs ferruginous. Gmel.

Size of formica rufa, and inhabits Upſal.

CYNNA, in *Ancient Geography*, a town of Aſia, in the vicinity of Heraclea; the ſame with the epiſcopal town of *Ceniva*, placed by Hierocles in Galatia.

CYNO, a place of Egypt, in the Delta, between Tmuis and Tava, according to the Itinerary of Antonine.

CYNOCEPHALÆ, eminences of Greece, in Theſſaly, before Scotuſſa, mentioned by Strabo; who adds, that the Romans under the command of T. Quintius Flaminius, gained here a victory.—Alſo, the moſt weſtern promontory of the iſle of Corcyra or Corfu.

CYNOCEPHALI, a ſection of the ſimia, with ſhort tail, including the baboons. See Simia.

Cynocephali, in *Mythology*, a kind of baboons, or animals with heads like dogs, which were wonderfully endowed and reverenced in many temples of Egypt. See Cunocephali.

CYNOCEPHALUS, in *Ichthyology*, a name given to ſome ſpecies of the *Squalus*, which ſee.

CYNOCRAMBE, in *Botany*, Dioſcoridis; Bauh. pin. 122. Alſines foliis; Barrel. ic. 335. Proſtrata; Gært. tab. 75. fig. 9. See Thelygonum. C. mas and fœmina; Cam. epit. 999. See Mercurialis *perennis*.

CYNOCTONON. See Aconite.

CYNODESMUS, or Cynodesmion, among *Anatomiſts*, the band, or ligament, which ties the prepuce of the yard to the nut or glans.

CYNODON, in *Ichthyology*, the name given to the Sparus *Dentex*, which ſee.

CYNOGLOSSA, in *Botany*, minor montana. Col. Ecphr. See Myosotis *Lappula*.

Cynoglossa *montana media ct maxima*. See Cynoglossum *officinale ct apenninum*.

CYNOGLOSSOIDES, Isnard. See Borago *Indica et Africana*.

CYNOGLOSSUM (κυνος γλωσσα, from the ſhape of the leaves). Hounds-tongue. Linn. Gen. 183. Schreb. 243. Willd. 278. Tourn. cl. 2. § 4. gen. 9. Gært. 416. Juſſ. 131. Vent. 2. 393. Claſs and order, *pentandria monogynia*. Nat. Ord. *Aſperifoliæ*, Linn. *Borragineæ*, Juſſ.

Gen. Ch. *Cal.* Perianth one-leafed, inferior, with five diviſions, permanent. *Cor.* monopetalous, funnel-ſhaped, the length of the calyx; tube cylindrical, ſhorter than the border, cloſed at the mouth by five convex, prominent, converging ſcales; border cleft half way down into five obtuſe ſegments. *Stam.* Filaments five, very ſhort, in the mouth of the tube; anthers roundiſh. *Piſt.* Germs four; ſtyle awl-ſhaped, permanent. *Peric.* Nuts four, compreſſed or concave, attached to the ſtyle by their interior ſide.

Eſſ. Ch. Corolla funnel-ſhaped; the throat cloſed with arched ſcales. Nuts flat, attached to the ſtyle by their interior ſide.

Sp. 1. C. *officinale.* Linn. Sp. Pl. 1. Mart. 1. Lam. 1. Willd. 1. Pluk. Ic. tab. 78. Curt. Lond. Faſc. 4. tab. 16. Eng. bot. 921. Woodv. Med. Bot. Supp. tab. 216. Lam. Ill. Pl. 92. fig. 1 (C. majus vulgare; Bauh. pin. 257. Tourn. 139. Lob. ic. 580.) "Stamens ſhorter than the corolla; leaves broad-lanceolate, downy ſeſſile." *Root* biennial, ſpindle-ſhaped, a little branched, with a blackiſh bark. Whole herb downy and ſoft to the touch, with a ſtrong fœtid ſmell reſembling that of mice, or the urine of dogs. *Stem* about two feet high, erect, cylindrical, often furrowed, branched, leafy. *Leaves* ſcattered, entire, undulated, veined, of a dulliſh green colour, ſeven or eight inches long; lowermoſt petioled, upper ones half embracing the ſtem, almoſt heart-ſhaped. *Flowers* in recurved naked racemes, forming a panicle, ſmall, dull purpliſh red; lobes of the corolla rounded; ſtigma acute. *Seeds* inverſely ovate, attached by their points, rough with numerous hooked prickles. A native of England and moſt parts of Europe, by road ſides and in waſte places, chiefly in a calcareous ſoil. Like moſt plants of its natural family, it is mucilaginous, aſtringent and narcotic, and is ſuppoſed to be deleterious, when taken internally in any conſiderable quantity. A decoction of the roots taken inwardly, and cataplaſms of them applied externally, have been recommended in ſtrumous and ſcrophulous caſes; but no preparation of the plant is much uſed in the preſent practice. 2. C. *ſylvaticum.* Smith Fl. Brit. 2. Jacq. Coll. 2. 77. Eng. Bot. 1642. (C. officinale γ Linn. Sp. Pl. β. Hudſ. Fl. Aug. β. Willd. C. montanum; Lam. 2. C. ſempervirens; Bauh. pin. 257. C. folio virenti; Rai. Syn. C. montanum virenti folio flore minore; Tourn. 140. Cynogloſſa montana media; Colum. ecphr. 176. tab. 15.) "Stamens ſhorter than the corolla; leaves lanceolate, ſomewhat ſpatulate, ſhining, nearly naked, rather ſcabrous, with ſmall tubercles." *Root* annual or biennial. *Stem* about a foot and half high, but little branched, beſet with looſe hairs. *Leaves* green, not downy, roughiſh with ſhort ſeparate hairs; root ones petioled, a little nerved; ſtem ones ſeſſile, oblong, rather diſtant. *Flowers* at firſt reddiſh, afterwards aſſuming a blueiſh hue. The whole plant is almoſt free from any fœtid ſmell. A native of Switzerland, France, and ſome parts of England, eſpecially Eſſex. 3. C. *pictum.* Ait. Hort. Kew. 1. 179. Mart. 10. Willd. 2. Vahl. Symb. 2. 34. (C. amplexicaule; Lam. Ill. 1794. C.

cherifolium; Jacq. Collect. 3. 30. Scop. Carn. *n.* 193. C. creticum; Vill. delph. 2. 457. C. creticum 2. Cluſ. Hiſt. 2. 162. Bauh. Hiſt. 3. 600. C. creticum latifolium fœtidum; Bauh. pin. 257. Tourn. 140. C. flore cœruleo ſtriis rubris; Moris. Blas. 258. Hiſt. 3. 449). "Corollas about the length of the calyx; lobes roundiſh-dilated; leaves lanceolate, downy; upper ones cordate at the baſe." Ait. "Border of the corolla dilated, variegated; leaves oblong, embracing the ſtem, pubeſcent; upper ones ſomewhat cordate." Lam. *Root* perennial. Reſembling C. officinale in habit and ſize. *Stems* a foot and a half high, more branched. *Leaves* ſhorter, ſofter, and more hoary. *Flowers* pale blue or purpliſh, beautifully pencilled with deeper coloured veins. A native of the ſouth of Europe, Barbary, and Madeira. 4. C. *lanceolatum.* Mart. 11. Willd. 3. Vahl Symb. 2. 34. Forſk. Ægypt. 41. "Leaves lanceolate, attenuated at both ends, rugged, with pointed tubercles above; upper ones ſeſſile." *Stem* herbaceous, upright, angular, rough with hairs, hoary at the top. A native of Ægypt and Arabia. 5. C. *virginicum.* Linn. Sp. Pl. 2. Mart. 2. Lam. 4. Willd. 4. (C. amplexicaule; Gron. virg. 19. Moris. Hiſt. 3. 449. § 11. tab. 30. fig. 9?) "Leaves ſpatulate-lanceolate, ſhining, three-nerved at the baſe; bracte of the peduncles embracing the ſtem." *Root* annual. *Stem* four feet high, erect, branched, covered with rough hairs. *Leaves* from three to four inches long, embracing the ſtem, gradually leſſening at both ends, rough with hairs, ſhining on the upper ſurface. *Flowers* ſmall, white, ſcattered, near the ends of the branches. A native of Virginia and other parts of North America. 6. C. *limenſe.* Willd. 5. Feuill. Peruv. 1. 71. tab. 49. "Leaves oblong, acuminate; ſeſſile, ſmooth, a native of Lima. 7. C. *cherifolium.* Linn. Sp. Pl. 3. Mart. 3. Lam. 5. Willd. 6. (C. creticum 1. Cluſ. Hiſt. 2. 162. C. creticum, argenteo anguſto folio; Bauh. pin. 257.) "Corollas double the length of the calyx; leaves lanceolate." Linn. "Calyxes downy, ſhorter than the corolla; ſtamens included; leaves narrow-ſpatulate, very ſoft, tomentous-ſilky." Lam. *Root* biennial, ſpindle-ſhaped, and a little branched. *Stems* ſeveral, erect, pubeſcent, ſtriated, leafy, branched. *Leaves* half embracing the ſtem, not rough with tubercles. *Flowers* in naked racemes, white with red, blue or purple veins. A native of the ſouth of Europe. 8. C. *apenninum.* Linn. Sp. Pl. 4. Mart. 4. Lam. 3. Willd. 7. Gært. tab. 67. (C. montanum maximum; Tourn. 139. Cynogloſſa montana maxima; Col. Ecphr. 178. tab. 175. Rai. Hiſt. 490.) "Stamens equalling the corolla." Linn. "Stamens rather longer than the corolla; calyxes ſhaggy; root-leaves ovate, petioled, very large." *Root* biennial, ſtem two feet high or more, very thick, almoſt covered with leaves, which give it a pyramidal form. *Leaves* ſoft, pubeſcent, greeniſh white. *Flowers* in a terminal, branched panicle, at firſt dull red, afterwards blueiſh. Lam. *Nuts* four, with a leathery ſhell, fixed to a pyramidal receptacle, ovate-acuminate; flattiſh above, (depreſſed when old,) and muricated with ſmall erect prickles; gibbous and ſcabrous with acute points underneath and at the ſides; pale ſtraw-coloured, one-celled. *Seed* large, inverſely egg-ſhaped, beaked, umbilicated under the beak, brown. Gært. A native of the Apennines. 9. C. *hiſpidum.* Willd. 8. Thunb. prod. 34. "Leaves oblong, obtuſe, rough with briſtles; ſtamens ſhorter than the corolla." *Root* annual. 10. C. *hirſutum.* Willd. 9. Thunb. prod. 34. "Leaves lanceolate, ſhaggy; prickles of the ſeeds hooked." *Root* annual. 11. C. *echinatum.* Willd. 10. Thunb. prod. 34. "Leaves lanceolate, obtuſe, covered with ſoft tubercles; ſeeds ſomewhat conical, beſet with hooked prickles." *Root* perennial. 12. C. *muricatum.* Willd. 11. Thunb. prod. 34. "Leaves ovate, ſhaggy, ſcabrous; ſeeds callous-muricated." *Root* perennial. The laſt four are natives of the Cape of Good Hope. 13. C. *anguſtifolium.* Willd. 12. (C. emarginatum; Lam. Ill. 1799. C. orientale minus, flore campanulato cæruleo; Tourn. Cor. 7.) "Leaves linear, briſtly; ſtyle longer than the campanulate corolla; ſeeds even-ſurfaced." Willd. "Corolla longer than the calyx; border obtuſe, emarginate; leaves narrow-lanceolate, ſhaggy." Lam. *Root* perennial. *Stem* half a foot high, erect, hairy. *Root-leaves* petioled, obtuſe, hairy; ſtem ones ſeſſile. *Flowers* in a naked, terminal, trichotomous raceme, blue. Willd. A native of Armenia. 14. C. *lævigatum.* Mart. 5. Lam. 2. Willd. 13. Gært. tab. 67. fig. 4. Lam. Ill. Pl. 96. fig. 3. (C. rindera; Linn. jun. Supp. 130. Rindera tetraſps; Pallas it. 1. 486. tab. 1. fig. 1, 2.) "Leaves lanceolate-ovate, ſmoothiſh; calyxes downy; ſeeds even-ſurfaced." *Root* perennial. *Stem* a foot high, erect, ſtriated, panicled at the top. *Root-leaves* narrowed into a petiole, ſoft, ſmooth; ſtem ones ſmall, ſeſſile. *Flowers* white; calyx five-leaved; leaves linear; tube of the corolla the length of the calyx; anthers almoſt ſeſſile, between the diviſions of the border; ſtyle briſtle-ſhaped; ſtigma globular, ſcarcely conſpicuous. *Nuts* four, coriaceous membranous, ſhield-ſhaped on the outſide; ſhield ovate, large, membranous at the edge, radiated with ferruginous lines; nut itſelf placed in the concave part of the ſhield, ovate-globular, acuminate at the top, marked in the middle with an oblong umbilical ſpace, one celled: receptacle tetragonous-awl-ſhaped, ending in the ſtyle. *Seeds* ſolitary, ovate, beaked, ſomewhat compreſſed, dark bay-coloured. A native of Siberia and the Levant. 15. C. *glaſtifolium,* Willd. 14. (C. orientale glaſtifolium; Tourn. Cor. 7.) "Leaves lanceolate, ſmooth, covered with ſoft tubercles underneath: ſeeds membranous, ſomewhat muricated in the centre." *Stem* erect, angular, ſmooth, branched. *Leaves* ſmooth, ſcabrous at the edge. *Flowers* in racemes: peduncles after flowering near two inches long. *Seeds* furniſhed with two or three ſolitary prickles at the centre. A native of Armenia. 16. C. *criſtatum,* Lam. 7. Willd. 15. (C. orientale buglоſs. folio; Tourn. Cor. 7.) "Leaves linear-lanceolate, briſtly; ſeeds membranous, muricated at the centre and on the margin." β. C. fructu umbilicato; Bauh. pin. 257. Tourn. 140. Rai. hiſt. 491. Moriſ. 3. 449. § 11. tab. 30. fig. 7. Cynogloſſa altera media; Colum. Ecphr. 1. 177. tab. 178. *Stem* a foot high or more, cylindrical, ſhaggy, leafy, with two or three branches near the top. *Leaves* ſeſſile, attenuated at the baſe, rough with hairs proceeding from white callous points. *Flowers* in naked terminal racemes, ſmall, red; calyx divided to the baſe, ſhaggy; corolla not larger than the calyx. *Nuts* toothed on the membranous edge. Found by Tournefort in the Levant. The variety has narrower, ſmoother leaves, and is a native of Italy. 17. C. *luſitanicum* Linn. Sp. Pl. 6. Mart. 6. Lam. 12. Willd. 16. (Omphalodes luſitanica elatior; Tourn. 140.) "Leaves cordate embracing the ſtem, ſmooth, even at the edge." Vahl. "Leaves lanceolate, nearly even-ſurfaced; racemes few-flowered, very ſhort." Lam. Whole plant ſmooth. *Root* annual. *Stem* a foot high, erect, branched. *Leaves* glaucous green, obtuſe, veinleſs. *Flowers* red or violet, remote, in naked terminal racemes; pedicels an inch long, ſpreading; calyx deeply cleft; ſegments lanceolate. A native of Portugal. 18. C. *linifolium* Linn. Sp. 5. Mart. 7. Lam. 13. Willd. 17. Gært. tab. 67. (Omphalodes luſitanica lini folio, ſmooth, toothed, ſcabrous at the edge." Vahl. "Leaves lanceolate," Tourn. Linum umbilicatum; Park. Theat. 1687. Barrel. c. 1234. Cynogloſſum minus album; Moriſ. 3. 449. § 11. tab. 30. fig. 11.) "Leaves linear-lanceolate, glaucous, ſcabrous at the edge; racemes long, erect, ſomewhat panicled."

cled." Lam. *Root* annual. *Stems* a foot high, ſmooth, leafy, branched at the top. *Leaves* ſmooth above, rough, with ſhort ſtiffiſh hairs at the edges and underneath. *Flowers* white, peduncled. *Nuts* four, ſmall, incumbent on an awl-ſhaped receptacle which becomes incurved as the ſeeds ripen, ſomewhat membranous, compreſſed, ovate-acuminate, extenuated at the edge into a pellucid whitiſh membrane, deeply ſtriated, with a large toothed hole at the top, whence this and ſome other ſpecies have been called navelwort. A native of Portugal. 19. C. *lanatum*, Lam. 8. Willd. 18. (C. orientale flore roſeo; Tourn. Cor. 7.) "Calyxes tomentous-woolly: border of the corolla with five deep acute diviſions; racemes drooping." *Stem* a foot high, ſtriated, pubeſcent towards the top, leafy, ſomewhat branched. *Root-leaves* ſeven or eight inches long, nine or ten lines broad, petioled, narrow-lanceolate, pubeſcent; ſtem ones ſmall, oval-acute, embracing the ſtem. *Flowers* in ſhort, cluſtered, woolly, terminal racemes; calyx pitcher-ſhaped, very woolly; ſtyle longer than the flower. A native of the Levant. 20. C. *japonicum*, Mart. 9. Lam. 9. Willd. 19. Thunb. Flor. jap. 81. "Leaves oblong, ſhaggy; ſtems proſtrate." *Root* annual. *Stems* four or five, cylindrical, ſhaggy, decumbent, afterwards flexuoſe-erect, unequal, four or five inches long. *Leaves* embracing the ſtem, oblong, acute, finely ſerrated, ſhaggy on both ſides, ſpreading. *Flowers* in a terminal raceme, purple. A native of Japan. 21. C. *lateriflorum*, Lam. 10. Ill. Pl. 92. fig. 2. Willd. 20. "Leaves linear, acute, narrow, hairy; flowers lateral, ſolitary, nearly ſeſſile." A ſmall ſhaggy plant, of a whitiſh colour. *Stems* three or four inches long, ſlender, leafy, branched. *Leaves* nearly an inch long, a line broad. *Flowers* ſmall; corolla ſcarcely longer than the calyx. *Seeds* ſmall, elliptical, rough at the edge with radiant points. Found near Lima by Dombey. 22. C. *ſcorpioides*. Lam. Ill. Willd. 21. Jacq. Collec. 2. 3. Schmidt Bohem. 1. n. 220. "Stem proſtrate; leaves lanceolate, ſcabrous; peduncles axillary, one-flowered; ſeeds umbilicated, ſmooth." *Root* annual. *Stem* ſomewhat four-cornered, dichotomous; lower leaves oppoſite. A native of moiſt ſhady places in Bohemia. 23. C. *omphalodes*. Linn. Sp. Pl. 7. Mart. 8. Lam. 11. Willd. 22. Bot. Mag. tab. 7. (Symphytum minus, borraginis facie. Bauh. pin. 259. Borrago minor; Moriſ. 3. 437. § 11. tab. 26. fig. 3. Omphalodes pumilaverna; Tourn. 140.) "Creeping root-leaves ovate-cordate; ſtem ones ovate, petioled." Willd." *Root* perennial. *Stems* ſlender, leafy, from four to ſix inches long; ſome barren, others bearing flowers. *Flowers* blue with a white ſtar in the middle. A native of the ſouth of Europe, where it is ſaid to flower about Chriſtmas. In our gardens it flowers from March to May. 24. C. *cappadocicum*, Willd. 23. (C. omphalodes β. Lam. Omphalodes orientalis corni folio; Tourn. cor. 7.) "Root-leaves cordate; loweſt ſtem ones lanceolate, petioled; uppermoſt cordate, ſeſſile." *Root-leaves* on long petioles, acuminate, quite entire, marked with prominent veins underneath, three or four inches long, two or three inches broad: petioles the length of the leaf or more. *Flowers* in a terminal raceme. A native of Cappadocia. 25. C. *myoſotoides*, Willd. 24. Billard. ic. pl. ſyr. 2. 6. tab. 2. (C. lithoſpermifolium; Lam. 14.) "Root-leaves ſpatulate-lanceolate; ſtem ones linear, ſeſſile; ſeeds membranous, even-ſurfaced, ciliate-toothed at the edge." *Root* perennial. *Stems* four or five inches high, ſlender, branched, cloathed with ſhort hairs. *Leaves* ſcabrous and ſhaggy. *Flowers* in naked terminal racemes, ſmall, alternate. *Nuts* four, ſmooth, wrinkled, ſtriated, reſembling thoſe of C. omphalodes, but ſmaller. The whole plant has the habit of myoſotis arvenſis. Found on the ſummit of Mount Lebanon.

Cynoglossum *boraginis folio æthiopicum*; Pluk. See Borago *africana*.

Cynoglossum *glandulis faucium glabris*; Hall. See Myosotis *Lappula*.

Cynoglossum *minus*; C. Bauh. See Myosotis *Lappula*.

Cynoglossum *perenne maritimum*; Moris. See Pulmonaria *maritima*.

Cynoglossum *procumbens maritimum*; Pluk. See Pulmonaria *maritima*.

Cynoglossum, *virginianum flore & fructu minimo*; Moris. See Myosotis *Virginiana*.

Propagation and Culture.—C. luſitanicum and C. linifolium, called Venus' navelworts by our gardeners, are annuals commonly ſown to adorn the borders of the flower garden. They ſucceed beſt when ſown in autumn, and flower earlier, but do not well bear tranſplanting. C. omphalodes ſhould be planted in a moiſt cool ſituation; it then readily propagates itſelf by its trailers, but ſeldom produces ſeeds.

Cynoglossum, in *Gardening*, compriſes plants of the herbaceous annual and perennial ornamental kinds. Of which the ſpecies cultivated are the flat-leaved hound's-tongue, or Venus's navelwort (C. *linifolium*); the Portugal hound's-tongue, or Venus's navelwort (C. *luſitanicum*); the comfrey-leaved hound's-tongue (C. *omphaloides*).

Method of Culture.—The two firſt or annual ſorts, are uſually increaſed by ſowing the ſeeds in the early ſpring months, in patches, in the borders, clumps, or other places where the plants are to remain and flower, covering them in a light manner. When the plants appear, they only ſtand in need of being kept clean from weeds, and having a little water occaſionally given them.

But in order to protract the time of flowering, two or three different ſowings ſhould be made, at proper intervals, in theſe ſorts of plants.

With regard to the third or perennial ſort, it may be eaſily propagated by taking off the rooted ſtalks, and planting them out in the ſituations where they are to remain, either in the ſpring, ſummer, or autumnal ſeaſons.

Theſe are a ſort of plants which afford much ornament and variety to the garden, as well as the borders, clumps, and other compartments of grounds of the pleaſure kind.

CYNOGLOSSUS, in *Ichthyology*, a ſpecies of *Pleuronectes*, which ſee.

CYNOGLUCOS, from κυων, *dog*, and λυκος, *wolf*, in *Natural Hiſtory*, a name given by the ancient writers to a creature which had the ſhape partly of a dog, and partly of a wolf, and was generated, according to their accounts, by a mixture of thoſe two ſpecies of animals in copulation, as the *Leocrocotta* was, between the hyæna and lioneſs.

CYNOMETRA, in *Botany* (κυνος μητρα, *canis matrix*, a fooliſh alluſion to a fancied reſemblance in the form of the fruit), Linn. Gen. 519. Schreb. 710. Willd. 820. Gært. 898. Juſſ. 350. Vent. 3379. Claſs and order, *decandria monogynia*. Nat. Ord. *Lomentaceæ*, Linn. *Leguminoſæ*; Juſſ.

Gen. Ch. *Cal.* Perianth four-leaved; leaflets oblong, reflexed. *Cor.* Petals five, lanceolate, equal, nearly erect. *Stam.* Filaments ten, longer than the petals; anthers oval, bifid at the tip. *Piſt.* Germ ſuperior, boatſhaped; ſtyle filiform, the length of the ſtamens; ſtigma ſimple. *Peric.* Legume ſomewhat fleſhy, ſhort, lunate, or nearly hemiſpherical, ſlightly compreſſed laterally, containing one or two large, elliptical, ſlightly compreſſed ſeeds.

Eſſ. Ch. Calyx four-leaved. Anthers bifid at the tip. Legume ſomewhat fleſhy, ſhaped like a half-moon, with one or two ſeeds.

Sp. C. *caudiflora*, Linn. Sp. Pl. 1. Mart. 1. Lam. 1. Ill. Pl. 331. fig. 2. Willd. 1. Gært. tab. 156. (Cynomorium; Rumph. amb. 1. 163. tab. 62. Burm. Ind. 100.) "Trunk floriferous." *Roots* knotty and large, appearing above ground, interſperſed with curled ſmaller ones. *Trunk* ſeldom two feet high, very irregular, knotty, covered with a thick, rugged, dark-coloured bark; the head not large, but denſe, conſiſting of thick long branches, ſubdivided into many others. *Leaves* only near the end of the ſmaller branches, in alternate conjugate pairs, each pair on a ſhort common petiole, three or four inches long, an inch and half broad, entire, ſmooth, firm, flexible, ſharp-pointed; with a ſtraight rib prominent on both ſurfaces, and dividing the leaf into two very unequal parts. *Flowers* proceeding from the trunk, the large branches, and thoſe roots which are above ground, Rumph. *Legume* large, the ſize of half the palm of the hand, or more, compreſſed like a lens, with a groove, like a ſuture, along its whole circuit, tubercled on the ſides and rough to the touch like a woollen cloth, one-celled, not dehiſcent. *Seed* nearly filling the cavity of the legume, attached to it by a ſhort thick chord at the middle of the ſuture, ſmooth, marked with curved capillary veſſels proceeding from the umbilicus, of a red ferruginous colour; with a ſimple, coriaceous, thin integument, which, in old ſeeds, is ſcarcely ſeparable from the kernel in boiling water; albumen none, nor any veſtige of it; embrio the ſhape of the ſeed, white; cotyledons plano-convex, hollowed within into a ſmall chamber to contain the radicle; plume ſlender, two-horned, ſurrounded about its baſe by ſhort, ſoft, matted hairs, by which it is ſeparated from the cotyledons to the diſtance of half a line; radicle conical, immerſed, centrifugal. A native of the Eaſt Indies. Obſ. Lamarck is in poſſeſſion of ſpecimens of fruit and leaves, received from Sonnerat, which do not appear to differ from this ſpecies, except that the legumes have two ſeeds. 2. C. *ramiflora*, Linn. Sp. 2. Mart. 2. Lam. 2. Ill. Pl. 331. fig. 1. Willd. 2. (Cynomorium ſylveſtre; Rumph. amb. 1. 164. tab. 63. Iripa; Rheed. Mal. 4. 65. tab. 31. Burm. Ind. 100. Rai. Hiſt. 1675.) "Branches floriferous." A lofty evergreen tree, about ſixty feet high. *Trunk* thick, ſolid, cinereous, reddiſh within; branches numerous, not forming ſo denſe a head as in the preceding ſpecies. *Leaves* conjugate, nearly ſeſſile, roundiſh, emarginate, ſmooth, dark green and ſhining above, paler underneath, unequally divided by the midrib, nerved. *Flowers* ſmall, white, ſcentleſs. *Legumes* oblong-roundiſh, compreſſed, tubercled, furrowed, dehiſcing on both ſides. *Seed* ſolitary. A native of the coaſt of Malabar, and other parts of the Eaſt Indies.

CYNOMOLGUS, in *Zoology*, a ſpecies of *Simia*, which ſee.

CYNOMORIUM, in *Botany* (κυνος μοϱιον, another indelicate fooliſh compariſon), Linn. Gen. 1033. Schreb. 1394. Willd. 1620. Juſſ. 445. Claſs and order, *monœcia monandria*. Nat. Ord. *Amentaceæ*; Linn. *Undetermined;* Juſſ.

Gen. Ch. Barren and fertile flowers in the ſame, erect, club-ſhaped, imbricated catkin. Barren ones. *Cal.* Perianth four ſcales of the catkin. *Cor.* none. *Stam.* Filament ſingle; anther two-celled. Fertile ones. *Cal.* Perianth four-leaved (ſuperior; Linn.) or none. *Cor.* none. *Piſt.* Germ ovate; ſtyle ſingle; ſtigma obtuſe. *Peric.* none. *Seed* ſingle, roundiſh.

Eſſ. Ch. Barren flowers. Perianth four-leaved. Corolla none. Fertile flowers. Perianth four-leaved, or none. Corolla none. Seed one, naked.

Sp. 1. C. *coccineum*. Linn. Sp. Pl. Mart. 1. Lam. Enc. Ill. Pl. 742. Willd. 1. (Fungus typhoides, Bocc. Muſ. 2. 69. Sic. 80. tab. 81. Till. Piſ. 64. tab. 25. F. mauritanicus ruber; Pet. Gaz. tab. 39. fig. 8. Cynomorium purpureum; Mich. Gen. 17. tab. 12.) "Stem ſcaly; catkin cylindrical; ſcales imbricated, ovate, retuſe." A paraſitical, leafleſs plant, appearing ſomewhat like a fungus. *Stem* about a foot high, as thick as the human finger, erect, ſolid, becoming woody when dry; entirely covered, when young, with imbricated, oval, acute, white ſcales, moſt of which fall off when the flowers begin to appear. The whole plant is then of a purple or ſcarlet colour. *Flowers* in a catkin about the length of the ſtem, and twice its thickneſs, terminal, conſiſting of barren and fertile imperfect flowers cloſely intermixed, ſometimes accompanied by a few perfect ones; three of the calyx-ſcales of the barren flower club-ſhaped; the other inferior, larger, very obtuſe, channelled; filament firm, ſtraight, longer than the ſcales; calyx-ſcales of the fertile flower club-ſhaped, tubercled, equal, permanent. A native of the ſouth of Europe, and of the coaſt of Barbary, on the roots of trees and ſhrubs near the ſea. 2. C. *jamaicenſe*. Mart. 2. Willd. 2. Swartz Prod. 12. Fl. Ind. Occ. 1. 11. "Stem ſcaly; catkin elongated; ſcales imbricated, halved, rhomboidal." *Stem* three, four, or five inches high, commonly ſmalleſt towards the bottom, ſucculent, fleſhy, at firſt thickly covered with cordate ſcales, which gradually fall off, and leave it thickly beſet with tranſparent denticles, intermixed with a few tubular trifid flowers. A native of Jamaica in ſhady inland woods. 3. C. *cayanenſe*. Mart. 3. Willd. 4. Swartz Prod. 12. Fl. Ind. Occ. 1. 13. "Stem naked; catkin ſomewhat globular; ſcales roundiſh, peltate." A native of Cayenne. 4. C. *Balanophora*. Willd. 3. (Balanophora fungoſa; Forſt. Prod. *n.* 333. Lam. Enc. and Ill. Pl. 742.) "Stem ſcaly; catkin oblong; ſcales ſpreading, oblong-lanceolate." Willd. Barren flowers in two or three rows on the lower part of the catkin, larger, diſtinct; calyx-ſcales (petals; Forſt.), lanceolate, rather thick, ſpreading; ſtamen the length of the ſcales, erect, cylindrical; anther large, oval-oblong, erect, channelled. Fertile flowers above them, much more numerous, extremely ſmall, diſpoſed ſeveral together on very minute, diſtinct, but cloſe-ſet receptacles, without a calyx or a corolla. A native of the iſland of Tanna, in the South Sea. All the ſpecies are paraſitical and perennial.

Obſ. We have followed Willdenow in adding the Balanophora of Forſter to this genus, an union ſuggeſted by Juſſieu, and which La Marck ſeemed inclined to approve, though he did not adopt. We have accordingly ventured to make ſome alteration in the generic character; but the fructification of all the ſpecies ſtands in need of a more accurate inveſtigation.

Cynomorium; Rumph. See Cynometra.

CYNONTODIUM, Hedw. See Ttichostomum.

CYNOPHALLOPHORUS. Plum. See Capparis *Cynophallophora*, *n.* 37.

CYNOPHONTIS, in *Antiquity*, a feſtival obſerved in the dog-days at Argos, and ſo called απο τȣς κυνας φονειν, *i. e.* from killing dogs; becauſe it was uſual on this day to kill all the dogs they met with.

CYNOPOLIS, or Cynospolis, "*city of dogs*," in *Ancient Geography*, a town of Upper Egypt, ſuppoſed, by ſome ruins of columns and ancient edifices, to be the preſent *Mi-*

niet. The inhabitants of this city held the dogs in great veneration. The prieſts nouriſhed this animal with ſacred meat, in honour of Anubis, the companion and guardian of Oſiris.—Alſo, a town of Aſia in Iſauria.

CYNOPOLITES *Nomon*, a nome of Egypt, extending on both ſides of the Nile; the capital of which, according to Strabo, was *Cynopolis*.

CYNOREXY, or CYNODES OREXIS, an immoderate appetite to the degree of a diſeaſe; called alſo *fames canina*, and *bulimy*.

CYNORRHODON, in *Botany*, the *dog-roſe*, as the Greek term ſignifies; the common wild briar, or wild white roſe, ſo common in our hedges.

CYNORTION, in *Ancient Geography*, a mountain of Greece in the Peloponneſus, where was a temple of Apollo, according to Pauſanias.

CYNORYNCHIUM, in *Botany*, Pluk. See CHELONE *pubeſcens*.

CYNOSARGES, a place of Greece in Attica, near Athens; where were the gymnaſium and a temple conſecrated to Apollo. The Cynic philoſophers had their ſchool here.

CYNOSBATOS, from κυνων and βατος, *buſh*, in *Botany*, a word uſed as the name of different ſhrubs by different authors. It is now generally uſed as the name of the wild, or dog-roſe; but ſome authors have applied it to the common bramble; others to the *oxycanthus*, and others to the *caper-buſh*.

The fruit of the wild roſe is the *hip*, uſed in conſerve, and ſaid to be good in diſorders of the breaſt, &c. See CONSERVE.

CYNOSORCHIS, in *Botany*, C. Bauh. See ORCHIS *pyramidalis*, *uſtulata* & *militaris*.

CYNOSSEMA, in *Ancient Geography*, a promontory of the Thracian Cherſoneſus.—Alſo, a promontory of the Doride, placed by Strabo between the towns of Lorimus and Cnidus.—Alſo, a maritime place of Egypt, in the vicinity of Tapoſiris. Strabo.—Alſo, a place of Africa in Libya. Steph. Byz.—Alſo, a place of Greece, in Calydonia. Id.—Alſo, a place of Thrace, in the environs of Maronæa. Strabo.

CYNOSURA, in *Aſtronomy*, a denomination given by the Greeks to *Urſa minor*, or the little bear.

The word is formed of κυνοσȣρα, *q. d.* the *dog's tail.*

This is the conſtellation next our pole, conſiſting of ſeven ſtars; four whereof are diſpoſed like the four wheels of a chariot; and three lengthwiſe, repreſenting the beam: whence ſome give it the name of the *chariot*, or Charles's *wain:* a name now more commonly given to the ſeven principal ſtars forming the ſame kind of figure in the Great Bear.

From theſe ſeven ſtars it is the pole takes its name, *Septentrionalis*; and the reſt of the hemiſphere, as far as the line, *Septemtriones*.

CYNOSURA, in *Ancient Geography*, a promontory of Greece, in Attica, formed by a ſmall chain of mountains, being the continuation of mount Hymettus towards the eaſt.—Alſo, a place of the Peloponneſus, in Arcadia.—Alſo, a place of the Peloponneſus in Laconia.

CYNOSUROS, in *Zoology*, a ſpecies of SIMIA; which ſee.

CYNOSURUS, in *Botany*, (κυνος ουρα) dog's-tail graſs. Linn. Gen. 87. Schreb. 118. Willd. 138. Gært. 8. Juſſ. 31. Vent. 2. 105. Claſs and order, *triandria digynia*. Nat. Ord. *Gramina*, Linn. *Gramineæ*, Juſſ.

Gen. Ch. Receptacle common unilateral, with or without bractes. *Cal.* Glume two-valved, two or many-flowered. *Cor.* two-valved; the outer concave, longer; the inner flat, awnleſs; nectary two-leaved; leaflets ovate, acute, gibbous at the baſe. *Stam.* Filaments three, capillary; anthers oblong. *Piſt.* Germ top-ſhaped; ſtyles two, villous, reflexed; ſtigmas ſimple. *Peric.* only the permanent corolla cloſely inveſting the ſeed. *Seed* ſingle, oblong, acuminate at each end.

Eſſ. Ch. Calyx two-valved, chaffy, bearded, two or many-flowered, on a unilateral receptacle.

Obſ. It has often been obſerved that this genus, as it was eſtabliſhed by Linnæus, conſiſts of ſpecies differing from each other in general habit, and other characters. Gærtner has divided it into two, cynoſurus and eleuſine, with the following characters. 1. Cynoſurus. *Involucres* pectinated or pinnated, under the flowers. *Calyx* two-valved, two or four-flowered. *Cor.* two-glumed, longer than the calyx. *Seed* free, covered, furrowed on one ſide. 2. Eleuſine. *Cal.* two-valved, four-flowered. *Cor.* two-glumed, with unequal valves. *Capſule* membranous, one-celled, valveleſs, one-ſeeded. *Seed* globular. It is by this pericarp, which he calls a capſule, but which ſeems more properly an aril, that this genus, according to him, is diſtinguiſhed from all the other known graſſes. La Marck, when he wrote the alphabetical part of the French Encyclopedie Methodique, adhered to the Linnæan arrangement; but afterwards in his "Illuſtration des Genres," adopted that of Gærtner, retaining under cynoſurus only criſtatus, echinatus, and aureus, which Dr. Stokes, in Withering's arrangements, had ſome time before pronounced to be the only legitimate ſpecies. After conſiderable deliberation, we have judged it moſt expedient, at leaſt for the preſent, to keep the original genus entire.

* *With Bractes.*

Sp. 1. C. *criſtatus*. Linn. 1. Mart. 1. Lam. 1. Willd. 1. Schreb. Gram. 69. tab. 8. fig. 1. Flor. Dan. tab. 238. Lam. Ill. tab. 47. fig. 1. Eng. Bot. 316. (Phleum criſtatum; Scop. Carn. 2. *n.* 81. Gramen pratenſe criſtatum; Bauh. Pin. 3.) "Bractes pinnatifid." Linn. "Bractes pinnate-diſtichous, awnleſs; ſpike ſimple, linear." Smith. *Root* perennial, fibrous, tufted. *Stems* ſeveral, a foot high, erect, ſtiff, leafy, naked near the top, cylindrical, ſtriated, quite ſmooth. *Leaves* linear, acute, even-ſurfaced; ſheaths cylindrical, ſtriated, quite ſmooth; ſtipula ſhort, obtuſe, jagged. *Spike* obtuſe, ſtiff and ſtraight; rachis ſomewhat zig-zag, angular, ſmooth and even. *Spikelets* alternate, ovate, many-flowered, nearly ſeſſile; calyx-glumes linear, acute, keeled; keel ſcabrous; florets alternate, a little tumid, ſcarcely keeled, ſcabrous towards the ſummit, mucronate; bractes compoſed of abortive flowers, which are alternate, compreſſed-keeled, ſcabrous on the back, acute, ſcarcely awned. Ray mentions a variety with four rows of ſpikelets. Smith. Common in dry paſtures in England, and other parts of England. 2. C. *echinatus*. Linn. Sp. Pl. 2. Mart. 2. Lam. 2. Willd. 3. Gært. tab. 1. Lam. Ill. Pl. 47. fig. 2. Eng. Bot. 1333. (Gramen alopecurioides ſpica aſpera; Bauh. Pin. 4. Schench. Gram. 80. tab. 2. fig. 3. D. Barr. Rar. tab. 123.) "Bractes pinnated, ſpike compound, ovate. *Root* annual, fibrous, downy. *Stems* one or more, aſcending, leafy, cylindrical, ſtriated, ſmooth. About ſeven inches high. *Leaves* lanceolate, ovate at their baſe, acute, flat, ſtriated, roughiſh on both ſides; ſheaths a little inflated, ſomewhat compreſſed or two-edged, furrowed, roughiſh; ſtipula lanceolate. *Spike* denſe. Spikelets alternate, ovate; bractes conſiſting of alternate, lanceolate, membranous, ribbed, rough huſks, each tipped with a ſtraight, rough, purple awn, various in length; calyx-glumes equal, thin, beardleſs; florets two or more; outer glume roughiſh, inner finely fringed. Smith. A native of a ſandy ſoil on the ſouthern coaſt of England, and other warmer parts of Europe. 3. C. *aureus*. Linn. Sp. Pl. 10. Mart. 13. Lam. 6. Willd. 2. (Gramen paniculâ pendulâ aureâ; Bauh. Pin. 3. G. barcinonenſe; Tourn. 523. G. ſciurum, Barr. ic. 4.) "Panicle racemed; bractes reſembling ſpikelets, pedicelled, faſcicled, pendulous, awnleſs; ſpikelets about three-flowered, awned. *Root* annual. *Stems* from four to ſeven inches high, leafy. *Leaves* about two lines broad, ſmooth. *Panicle* two or three inches long, narrow, ſilky; bractes pinnate, chaffy, yellowiſh-green; pinnæ obtuſe, concave, alternate. A native of the ſouth of Europe, among rocks. 4. C. *falcatus*. Willd. 2. Thunb. Prod. 23. (Melica falx; Linn. jun. Supp. 109. Mart. Lam. Enc. & Ill.) "Bractes ſimple, lanceolate." *Culm* a foot and half high, even-ſurfaced. *Spike* the length of a finger, compreſſed, imbricated; bractes acuminate, three-nerved, a little longer than the ſpikelets, one to each ſpikelet; ſpikelets with a white edge, pubeſcent; calyx two-flowered, one larger, one ſmaller, with the rudiment of another; outer glume of the larger floret inverſely egg-ſhaped, ciliated with white hairs, very obtuſe, emarginate; inner one long, narrow, ſmooth, lanceolate; ſtyles two, pubeſcent; ſmaller flower ſimilar to the other, but without ſtyles. Found by Sparman at the Cape of Good Hope. The younger Linnæus found no ſtamens in the ſpecimens which he examined, but ſeems to have conjectured that the florets are imperfect, and that the ſmaller one is ſtameniferous.

** *Without Bractes.*

5. C. *monoſtachyos*. Mart. 17. Willd. 13. Vahl. Symb. 2. 20. "Spike ſimple; calyxes awl-ſhaped, about three-flowered; florets awned." *Culm* a foot and half high, upright, ſmooth. *Leaves* awl-ſhaped, narrow. *Spike* a ſpan long; rachis convex and keeled on the outſide; ſpikelets imbricated on the inner ſide, alternate, ſmooth; outer calyx-valve the length of the florets; inner one ſmaller; florets bearded at the baſe, compreſſed, one perfect, another imperfect and ſtameniferous, the third quite abortive; outer valve of all the three awned below the tip; awns ſtraight, twice the length of the calyx. A native of the Eaſt Indies. 6. C. *filiformis*. Mart. 16. Willd. 12. Vahl. Symb. 2. 20. "Spike ſolitary, two-rowed; calyxes awl-ſhaped, three-flowered; abortive floret awnleſs." *Culms* creeping, branched, filiform, compreſſed at the bottom; internodes an inch long. *Leaves* at the joints, ſeveral on each ſide, an inch and half long, briſtle-ſhaped; ſheaths compreſſed, equitant, nearly the ſame length with the leaves, and broader. Floriferous culms terminal, about ſeven inches long, quite ſimple, jointed, with a ſingle awl-ſhaped leaf towards the middle. *Spike* an inch long, linear; ſpikelets ſmall, alternate, compreſſed, ſmooth; calyx valves ſpreading, nearly equal, the length of the florets, acute; florets uſually three, one perfect, ſeſſile; another imperfect, ſtameniferous; the third quite abortive; the two former with an awn below the tip, a little longer than the calyx. A native of the Eaſt Indies. 7. C. *uniolæ*. Linn. jun. Supp. 110. Lam. Enc. 5. Mart. 7. Willd. 11. Thunb. Prod. 17. "Spike ſolitary, two rowed; calyxes many-flowered, mucronate; corollas ſhaggy at the baſe." Quite ſmooth, with the habit of uniola, but its calyx is bivalved, not many-valved. *Spike* linear; ſpikelets ſeſſile, preſſed cloſe to the rachis, alternate, ſpreading at the ſides, oblique, quite ſmooth. A native of the Cape of Good Hope. 8. C. *paniculatus*. Willd. 5. Thunb. Prod. 23. "Spike compound, ovate; calyx many-flowered; one glume mucronate; corollas hairy at the baſe." A native of the Cape of Good Hope. 9. C. *Lima*. Linn. Sp. Pl. 3. Mart. 3. Lam. Encyc. 3. Willd. 6. Lœfl. it. 41. Cavan. ic. 1. 62. tab. 91. (Eleuſine lima; Lam. Ill. 1128.) "Spike ſolitary; inner glume of the calyx placed below the ſpikelets;" Linn. "Spike rigid; ſpikelets ſeſſile, in two rows, but ſtrictly unilateral, about five flowered; glumes acute;" Lam. *Root* annual. *Culms* ſlender, from five to ſeven inches high. *Leaves* very narrow, ſhorter than the ſheath, ſlightly rolled in at the edges ſo as to give them a ruſh-like appearance. *Spike* ſcarcely an inch long, oval, ſometimes conical, glaucous; ſpikelets compreſſed, awnleſs, lower ones ſomewhat peduncled; calyx-glumes awl-ſhaped; outer one larger, keeled, roughiſh at the edges; inner one flat. A native of Spain. 10. C. *durus*. Linn. Sp. Pl. 4. Mart. 4. Lam. Enc. 4. Willd. 7. Pollich Pal. *n.* 100. tab. 1. fig. 1. (Eleuſine dura; Lam, Ill. 1127. Gramen loliaceum majus ſupinum; Bauh. Prod. 19. G. arvenſe polypodii panicula; Barr. Icon. 50. Lolium; Hall. *n.* 1419. Poa. Scop. *n.* 101.) "Spikelets alternate, ſeſſile, rigid, obtuſe, adpreſſed," Linn. *Root* annual. *Culms* few, about three inches high, almoſt procumbent, leafy. *Leaves* ſmooth and even, ſcarcely longer than the ſheath, a line and half broad. *Spine* erect, branched, compreſſed, oval-ſpaculate, awnleſs; rachis of the branches zig-zag; ſpikelets ſeſſile, alternate, two-rowed, three-flowered, linear, ſtriated, ſmooth. A native of the ſouth of Europe. Linnæus thought its true genus doubtful; according to La Marck, it is more nearly allied to lolium than to poa. 11. C. *retroflexus*. Mart. 13. Willd. 8. Vahl. Symb. 2. 20. "Spike compound, ſpikelets aggregate; calyx two-flowered, armed; florets awnleſs." *Stems* cylindrical, ſmooth. *Leaves* about ſeven inches long, awl-ſhaped, ſmooth. *Common rachis* grooved, angular; ſpikelets in threes at each tooth of the rachis, an inch long, linear, ſpreading; lateral ones ſeſſile; middle one on a ſhort pedicel, all bent back when old; there is ſometimes a fourth ſeſſile ſpikelet a little above the others: partial rachis zig-zag; florets compreſſed, ſmooth. A native of the Eaſt Indies. 12. C. *coracanus*. Linn. Sp. Pl. 9. Mart. 8. Lam. Enc. 7 Willd. 14. (Eleuſine; Gært. tab. 1. 11. Lam. Ill. Pl. 48. fig. 1. Gramen dactylon orientale; Pluk. Alm. 174. tab. 95. fig. 1. Panicum gramineum, five Naatſjoni; Rumph. Amb. 5. 203. tab. 76. fig. 2. Tſjitti-pullu; Rheed. Mal. 12. 149. tab. 78.) "Spikes digitate, incurved; culm compreſſed, erect; leaves nearly oppoſite." *Root* annual. *Culms* four or five feet high, leafy, compreſſed, ſometimes a little branched. *Leaves* long, three lines broad, with a few long diſtant hairs juſt above the ſheath. *Spikes* from four to ſix, an inch and half long, about five lines broad, thick, ſomewhat compreſſed, at firſt erect; ſpikelets numerous, ſhort, ſeſſile, four-flowered, cloſely imbricated in ſeveral ranks on the ſame ſide of the rachis. A native of the Eaſt Indies. The ſeeds are eaten in a ſcarcity of rice. 13. C. *floccifolius*. Mart. 20. Willd. 15. Vahl. Symb. 1. 10. Forſk. Ægypt. 21. *n.* 73. "Spikes linear, ſtraight; leaves folded together, alternately bearded at the edges." In habit reſembling the preceding ſpecies. *Spikes* alternate, upper ones in pairs. *Leaves* alternate, ſmooth on the ſurface; ſheaths not ciliated. A native of Ægypt. 14. C. *triſtachyos*. Lam. Encyc. 10. (Eleuſine; Illuſt. 11. 23.) "Spikes ternate, thick, obtuſe, erect; ſpikelets ſeſſile, adpreſſed, about four-flowered." *Culms* three inches high, compreſſed, leafy. *Leaves* alternate, in two oppoſite rows, often longer than the culms, a line and half broad. *Spikes* ſix or ſeven lines long, four or five broad, ſeſſile; ſpikelets cloſe. Found by Commerſon near Monte Video. 15. C. *penicillatus*. Mart. 18.

Willd. 16. Vahl. Symb. 2. 21. "Spikes digitate; calyx four-flowered, awned at the back; outer petals of the perfect flowers awned, with bearded pencils." *Culm* cylindrical, finely ſtreaked, pubeſcent at the top. *Spikes* in threes, ſometimes ſolitary, on very ſhort pedicels, four or five inches long, bearded at the baſe, ſometimes a little recurved at the end; rachis ſomewhat convex on the outſide, channelled within; ſpikelets from the inner ſide only, ſeſſile, alternate, much crowded, awl-ſhaped, ſlightly compreſſed, ſpreading; inner valve of the calyx lower, ovate acuminate, almoſt tranſparent; outer one three times longer, lanceolate, attenuated, compreſſed, keeled, grooved at the back, ciliated in a raiſed line on each ſide of the groove; awn on the middle of the valve, upright, the length of the valve; florets bearded at the baſe, two of them perfect, outer petal bearded at the top with two pencils, ciliated with long, very ſoft, white hairs; two ſmaller, probably only ſtameniferous; one of them awnleſs. A native of the Eaſt Indies. 16. C. *paſpaloides*. Mart. 19. Willd. 17. Vahl. Symb. 2. 21. tab. 27. (Chloris petræa; Thunb. but not of Swartz.) "Spikes digitate; calyx two-flowered, ſomewhat globular; exterior valve awned; florets awnleſs." *Culm* a foot high, almoſt leafleſs. *Root-leaves* two inches long, ſheathing, linear-lanceolate, ſharpiſh; ſheaths compreſſed, equitant, twice the breadth of the leaves. *Spikes* five, an inch and half long, ſeſſile, woolly at the baſe, linear, narrow, ferruginous, ſhining; ſpikelets the ſize of millet ſeed, alternate, crowded, very obtuſe; outer valve of the calyx ſhorter than the corolla, ovate, awned a little below the tip, emarginate, keeled; inner one ſmaller; outer glumes of the corolla keeled, ciliated at the edges and on the keel. A native of the Cape of Good Hope. 17. C. *ægyptius*. Linn. Sp. Pl. 7. Mart. 9. Lam. Enc. 8. Willd. 18. (Eleuſine cruciata; Lam. Ill. 1125. Pl. 48. fig. 2. Gramen dactylon ægyptiacum; Bauh. Pin. 7. Theat. 110. Tourn. 521. Moriſ. Hiſt. 3. 184. § 8. tab. 3. fig. 7. Schench. Gram. 109. G. iſchæmum; Pluk. Alm. 175. tab. 300. fig. 8. Neiem el Salib. Alp. Ægyp. 56. tab. 43. Gramen; Rumph. Amb. 6. tab. 4. fig. 1. Cavara-pulla; Rheed. Mal. 12. tab. 69.) "Spikes digitate, in fours, obtuſe, widely ſpreading, mucronate; calyx mucronate; ſtem creeping." *Root* annual. *Culm* from ſix to nine inches long, aſcending, bent at the joints, leafy. *Leaves* two or three lines broad, rough at the edges. *Spikes* generally four, ſometimes five, ſcarcely an inch long, thick, compreſſed, obtuſe, with a ſmall point; ſpikelets ſhort, cloſe, mucronate, two-flowered. A native of Aſia, Africa, and America. Obſ. La Marck conſiders this ſpecies as an eleuſine, in oppoſition to Gærtner, who aſſerts that, notwithſtanding the ſimilarity of its habit, it muſt be referred to another genus. May it not be juſtly doubted whether the pericarp on which Gærtner lay ſo much ſtreſs, be in this caſe a ſufficient generic diſtinction? 18. C. *indicus*. Linn. Sp. Pl. 8. Mart. 10. Lam. Encyc. 10. Willd. 19. (Eleuſine; Gært. Lam. Ill. Pl. 48. fig. 3. Panicum compreſſum; Forſk. Decl. 18. Gramen dactyloides; Burm. Zeyl. 106. tab. 47. fig. 1. G. vaccinum; Rumph. Amb. 6. 10. tab. 4. fig. 2. Ranara-pullu; Rheed. Mal. 12. 131. tab. 16.) "Spikes digitate, linear; culm compreſſed, declined, with a knot at the baſe." *Root* annual. *Culm* ſometimes only four or five inches, ſometimes more than a foot long, leafy, commonly with a branch ſpringing from the knot. *Leaves* about two lines broad, in two rows, beſet with looſe hairs, eſpecially about the ſheath. *Spikes* from three to ſeven, in an open faſcicle two or three inches long, generally with a ſolitary ſpike below the faſcicle; ſpikelets three or four-flowered, ſhort, cloſe, awnleſs, in two or three longitudinal rows. A native of the Eaſt Indies. 19. C. *pectinatus*. (Lam. Encyc. 12. C. Eleuſine; Ill. 1126.) "Spikes linear, ſomewhat pectinate, alternate, in a kind of raceme; ſpikelets three-flowered, ſhorter than the mucronate calyx." *Leaves* three lines broad or more, ſmooth. *Spikes* from forty to fifty, in an erect raceme five or ſix inches long, ſeſſile, alternate, ſolitary or in pairs; ſmooth, compreſſed, diminiſhing in length from the bottom to the top, lower ones from twelve to fifteen lines long; ſpikelets ſeſſile, in two rows, alternate, compreſſed, ſmooth, with one of their edges to the rachis as in lolium, two or three-flowered. Found in the Eaſt Indies by Sonnerat. 20. C. *virgatus*. Linn. Sp. Pl. 6. Mart. 11. Lam. Enc. 13. Willd. 20. (Feſtuca virgata; Lam. Ill. Gramen loliaceum panicula e ſpicis ſimplicibus; Brown. Jam. 137. G. dactylon; Sloan. Jam. 34. Hiſt. 1. 113. tab. 70. fig. 2.) "Panicle with ſimple branches; ſpikelets ſeſſile, about ſix-flowered; uppermoſt floret barren; the lower ones ſomewhat awned." β Domingenſis. "All the florets armed." Mart. 12. Jacq. Miſ. 2. 363. Ic. Rar. 1. tab. 22. (Bromus capillaris; Mœnch. Meth. 194.) "Culms about a foot and half high, erect, leafy. *Leaves* from two to four lines broad, with looſe hairs on their upper ſurface towards the baſe, and a little upon the ſheath. *Panicle* from five to ſeven inches long, pale green, ſometimes purpliſh. *Spikes* from twenty to thirty, two or three inches long, linear, ſlender, ſome alternate, others faſcicled or whorled, two or three together at intervals; ſpikelets ſeſſile, alternate, almoſt two-rowed, but truly unilateral, very ſmall, ſmooth; calyx-glumes lanceolate, keeled, compreſſed, rough at the back. A native of the Eaſt and Weſt Indies.

CYNOSURUS *eruciformis*; Ait. Mart. Willd. See PHALARIS *erucæformis*.

CYNOSURUS *cæruleus*; Linn. & C. ſphærocephalus Jacq. &c. See SESLERIA.

CYNOSURUS *ſcoparius*; Lam. Enc. See ANDROPOGON *polydactylon*.

CYNOXYLON, *Americanum folio craſſiuſculo*; Pluk. See NYSSA *aquatica*.

CYNOZOLOS, a name given by ſome of the old Greek writers, and, from them, copied by Pliny, and the Latins, to expreſs the black *chamæleon thiſtle*, a poiſonous plant, which it was very neceſſary to diſtinguiſh perfectly from the plant called the white *chamæleon thiſtle*, which was a ſafe and eſculent plant.

CYNTHIUS, or CYNTHUS, in *Ancient Geography*, a mountain near the ſea, towards the middle of the eaſtern coaſt of the iſland of Delos. The city of Delos was at the foot of this mountain, between which and the ſea, over-againſt the iſle of Rhenia, was a theatre of marble. This mountain was ſaid to be ſo high, that the ſhadow of it covered the whole iſland; but modern travellers repreſent it as a hill of very moderate height. Here Latona is ſaid to have been delivered of Apollo and Diana; whence it derived its peculiar ſanctity. It is one block of ordinary granite; cut on the ſide that faces the city in regular ſteps, encloſed with a wall. On the top of the mountain are the remains of a ſtately building, with a Moſaic pavement, broken pillars, and other monuments of antiquity. This mountain, as well as the whole iſland, was conſecrated to Apollo; and hence he, and alſo Diana, derived the appellation of Cynthian.

CYNURA, a town of Greece, in the Peloponneſus, the territory of which was always a ſubject of diſpute between the kings of Lacedæmon and thoſe of Argos.

CYNURIA, a town of the Argolide, in that part which belonged to Laconia. The inhabitants of this town were called *Cynurii*.

CYNUS, a place of Greece on the ſea-coaſt, N.E. of Opuntia, of which it was the port.

CYOLOCK, in *Zoology*, a name given to the Orang-Utang, or Simia *Satyrus;* which ſee.

CYON, or Cion, a graft, ſpring, or ſucker.

Cyon, in *Ancient Geography*, a town of Aſia Minor, in Caria. Steph. Byz.

CYPÆRA, a town of Greece, in Theſſaly.

CYPÆTA, a town of Africa, in Libya.

CYPARISSA, a town of various orthography, ſituated in that part of Meſſenia which, extending itſelf towards the north-weſt, formed with the territory of Elis a gulf, called the "gulf of Cypariſſa." In the time of Pauſanias, it had two temples, one of Apollo and another of Diana *Cypariſſia*. It has been conjectured, that this town took its name from the great quantity of cypreſs which grew near it. The *Cypariſſa* of Homer is thought by ſome perſons, in deference to Strabo, to have been the burgh of Lycorea, ſituated on a mountain near Parnaſſus. According to Pauſanias, it was the ſame town with Anticyra, ſituated on an iſthmus, which united with the continent a ſmall peninſula, that extended to the gulf of Corinth. Anticyra was celebrated among the ancients for the hellebore which was ſupplied by its vicinity. This place is now called *Aſproſpitia*.

CYPARISSEIS, a river of the Peloponneſus in Meſſenia, near the town of Cypariſſa. Both the river and town are called *Arcadia*.

CYPARISSIA, a town on the iſthmus of a peninſula in Laconia, N.W. of Hypertebatum, which had a port in the lower part of a ſmall bay. It was deſtroyed in the time of Pauſanias. Near its ruins was a temple of Minerva *Cypariſſian*.—Alſo, one of the names given to the iſle of Samos.

CYPARISSIUM Promontorium, a promontory of the Peloponneſus in Meſſenia; which took its name from that of the town Cypariſſia. Strabo.

CYPARISSIUS, a ſmall river of Meſſenia, ſouth of Aulon, weſt of Electra; which received the *Cocus*. The river diſcharged itſelf into a ſmall gulf, called the gulf of Cypariſſus, or Cypariſſa. The gulf is now called the gulf of *Ronchio*.

CYPARISSUS, an ancient town of Greece, in the Phocide, placed by Steph. Byz. and Euſtathius near mount Parnaſſus and the town of Delphi.

CYPASIS, a town ſituated towards the Helleſpont.

CYPERELLA, in *Botany*, Mich. See Schænus.

CYPERI *Genus Indianum;* Pluk. See Scirpus *retrofractus*.

CYPEROIDES, the third natural order of monocotyledonous, hypogynous plants in the ſyſtem of Juſſieu, with the following character. *Flowers* perfect, or monoicous, very rarely dioicous, each furniſhed with a chaffy glume, which ſuſtains the office of a calyx; glumes one-flowered, crowded, variouſly diſpoſed ſo as to form either ſpikes or faſcicles; ſometimes empty, probably owing to the flowers having become abortive. *Stamens* generally three, inſerted under the piſtil. *Germ* one, ſuperior; ſtyle one; ſtigmas moſt frequently three, ſometimes two. *Seed* one, naked, or arilled, *i. e.* covered with a tunic; in ſome ſurrounded by briſtles or ſoft hairs ſpringing from the baſe. *Corculum* and germination as in the gramineæ. *Stems* or culms cylindrical, or triquetrous; in moſt without knots, in a few jointed. *Floral leaves* ſeſſile; root and ſtem ones ſheathing; ſheaths entire. It contains the following genera. I. Flowers monoicous. Carex. II. Flowers perfect. Fuirena, ſchænus, gahnia, eriophorum, ſcirpus, cyperus, thryocephalum, killingia, mapania, chryſitrix. Ventenat has admitted only carex, ſchænus, eriophorum, ſcirpus, and cyperus.

Cyperoides; Tourn. Mich. Schench. See Carex.

CYPERUS, (κυπειρος; Hippoc. Theophraſ. Dioſcor.) Linn. Gen. 66. Schreb. 93. Willd. 112. Gært. 13. Juſſ. 27. Vent. 2. 92. Claſs and order, *triandria monogynia*. Nat. Ord. *Calamariæ*, Linn. *Cyperoideæ*, Juſſ.

Gen. Ch. *Cal.* a ſingle ſcale to each flower, keeled, convex, permanent, compoſing part of an imbricated two-rowed ſpike, with the rows oppoſite to each other. *Cor.* none. *Stam.* Filaments generally three, ſometimes two or one; anthers oblong, furrowed. *Piſt.* Germen ſuperior, very ſmall; ſtyle filiform, long; ſtigmas three, capillary. *Seed* ſingle, naked, generally ſomewhat triangular, acuminate, without any hairs at the baſe.

Eſſ. Ch. Flowers imbricated in two rows, perfect. Corolla none. Seed ſingle, naked, beardleſs.

This vaſt genus is divided into two principal ſections, the firſt conſiſting of ſpecies with a round ſtem, the others having a triangular one. The latter, by far the moſt numerous, are ſubdivided according as their ſpikelets are one or more, and ſeſſile, or very numerous in branched or compound umbel-like panicles. Willdenow reckons 76 ſpecies of *Cyperus* in all, but this is perhaps ſcarcely half the true number.

In the firſt ſection we find C. *minimus*, Linn. of which C. *tenellus* L. Suppl. 103. (*Scirpus ſetaceus* α Rottb. tab. 15. f. 4.) is a variety, and the very remarkable C. *articulatus*, Linn. *Sp. Pl.* whoſe naked and jointed ſtems are two or three feet high. It grows in Jamaica, as well as in Egypt and the Eaſt Indies. See its figure in Sloane's Jamaica, t. 81. f. 1.

In the ſecond ſection are C. *longus*, Linn. Sp. Pl. 67. Engl. Bot. t. 1309. whoſe long creeping roots are highly aromatic and agreeable.—C. *rotundus*, an oriental ſpecies, whoſe round tuberous knobs have a ſimilar fragrance, and are uſed in Greece, where they are ſtill called κύπειρη, to keep inſects away from clothes.—C. *eſculentus*, whoſe radical tubers taſte like very ſweet filberds, and are ſold in the markets of Italy and the Levant. The plant has been cultivated in our green-houſes, where its roots increaſe, but never bear flowers. This is Dulcichinum of Dodonæus, p. 340; C. *eſculentus* of Gerarde em. 32. The Italians call it Traſi.—Above all the C. *Papyrus* is moſt remarkable, the celebrated Papyrus of the ancients, ſo called perhaps from the Syrian name *Babeer*, whence alſo our word *paper*. This grows in Egypt, Syria, Sicily, and Madagaſcar, in watery places. It has flowered finely in England, having been but lately brought hither from the ſouth of Europe. The ſtem is many feet in height, and terminated by a very large and compound umbel, or rather cyme, of innumerable flowers. The root is very large and creeping. Leaves ſword-ſhaped, ſheathing the lower part of the ſtem. The ancient paper, it muſt be confeſſed of a very rude kind, was made of the inner rind of the ſtem cut into ſtrips, and laid together in parallel and tranſverſe rows, which being preſſed with weights adhered together. An ancient manuſcript, compoſed of ſuch paper, may be ſeen in the Britiſh Muſeum. The floral *thyrſus* or tuft of the *Papyrus* was uſed to adorn the temples and ſtatues of the gods. Two new ſpecies of *Cyperus*, found by Dr. Sibthorp, are figured in the *Flora Græca*, and deſcribed by Dr. Smith; *viz.* C. *comoſus*, *t.* 44. "Stem triangular, naked. Umbel leafy. Spikelets linear, very long. Knobs of the root ovate, obſcurely zoned."—This grows in marſhes near Patras, and has a fragrant root, a large and handſome umbel, with remarkably long linear ſpikelets of a deep ſhining brown. C. *radicoſus*, *t.* 45.

"Stem triangular, naked. Umbel leafy. Spikelets lanceolate. Leaves widely ſpreading, rigid, recurved."—Found on the ſandy banks of the Ryndacus, between Smyrna and Bruſa, as well as in ſome of the Greek iſlands. The roots are very long, perpendicular, creeping, beſet with frequent knobs. Stems a ſpan high. Umbel ſmall, twice compound, with reddiſh-brown ſpikelets. Leaves remarkably ſpreading, rigid, recurved at their points.

Cyperus *Root*, in the *Materia Medica*, the name of a root uſed in medicine, of which there are two kinds, the long and the round; the long cyperus is of our own growth; the round, when genuine, we have from the Eaſt Indies: but what is uſually ſold is the root of a baſtard kind, common about our own ditches, and called by authors, by way of diſtinction from the Indian kind, *cyperus rotundus noſtras*.

The Indian round cyperus is a knobbed root, full of ſmall ſpecks and tubercles, brown on the outſide, and greyiſh within, of a ſlightly ſweet ſmell, and of an acrid taſte. The long cyperus is an oblong root, covered with a great number of fibres, not eaſily broke, of a duſky brown without, and a pale bright grey within, of an acrid taſte, and very agreeable ſmell, when freſh and good. The plants which produce them both grow in watery places, and have leaves and flowers in ſome meaſure reſembling the water-graſſes, which, from their reſemblance to theſe, are called cyperus graſſes. They are poſſeſſed of the ſame virtues, cure ill-ſcented breaths, are good in nephritic diſorders, in colics, and in diſorders of the womb. They are taken in powder, or decoction.

The roots of cyperus are attenuants, and deobſtruents, promote urine, and the menſes, are good ſtomachics, and ſerviceable in the firſt ſtages of the dropſy.

CYPHANTA, in *Ancient Geography*, a town of the Peloponneſus, in the interior of Laconia; 10 ſtadia from the ſea, according to Pauſanias.—Alſo, a port of Laconia, in the Argolic gulf, ſouth of Pruſiæ. Although the town was deſtroyed in the time of Pauſanias, there remained a temple of Æſculapius, with a ſtatue of this god in marble.

CYPHARA, the name of a ſtrong place in Theſſaly, mentioned by Livy.

CYPHER. See Cipher.

CYPHI, a term in the *Arabian Pharmacy*, ſignifying a kind of cordial perfume.

Mithridates gave the appellation cyphi to the troches wherewith the Egyptian prieſts uſed to ſweeten their gods, to make them grant what they requeſted. He uſed the ſame in the compoſition of mithridate, on account of their efficacy againſt poiſons, defluxions, &c.

The cyphi are compoſed of raiſins, or dried grapes, turpentine, myrrh, bdellium, ſpica nardi, caſſia lignea, aſpalathum, ſaffron, &c. tempered into a maſs with honey and a little wine.

CYPHIA, in *Botany*, a genus ſeparated by Bergius and Juſſieu from *Lobelia*, on account of its anthers being all diſtinct and unconnected; but that character proving of no importance in ſimple flowers, this alteration has not been generally adopted. See Lobelia.

CYPHOMA, Cyphos, and Cyphosis, in *Medical Writers*, an incurvation of the ſpine, forming a crookedneſs of the back.

CYPHON, in *Antiquity*, a kind of puniſhment uſed by the Athenians; it was a collar made of wood, ſo called, becauſe it conſtrained the criminal, who had this puniſhment inflicted on him, to bow down his head.

CYPHONISM, Cyphonismus, from κυφων, which has various ſignifications, derived from κυφος, *crooked*, a kind of torture, or puniſhment, in uſe among the ancients.

The learned are at a loſs to determine what it was: ſome will have it to be that mentioned by St. Jerom, in his Life of Paul the Hermit, chap. 2. which conſiſted in ſmearing the body over with honey; and thus expoſing the party, with his hands tied, to the warm ſun, to invite the flies and other vermin to perſecute him.

CYPHOS, in *Ancient Geography*, a town of Greece, mentioned by Homer as furniſhing 22 ſhips for the ſiege of Troy. Steph. Byz. refers to two places under this name, one in Theſſaly, and another in Perrhæbia. He alſo mentions a river of this name.

CYPHUS, a mountain of Greece, in Perrhæbia. Strabo and Steph. Byz.

Cyphus, a village of Greece, in Perrhæbia. Strabo.

CYPRÆA, in *Conchology*, a genus of univalves. The ſhells of this kind are involuted, ſubovate, ſmooth and obtuſe at each end; aperture effuſe at each extremity, extending the whole length of the ſhell, and dentated each ſide. Animal a ſlug. Theſe are the cowry or gowry of Engliſh collectors.

Species.

Exanthema. Shell ſubturbinated, ferruginous, with whitiſh round ſpots and ocellations; and dorſal line ſomewhat ramoſe. Liſt. &c.

Native of the American and Atlantic ſeas.

Mappa. Shell ſubturbinated, and marked with irregular characters; dorſal line ramoſe. Linn. *Porcellana montoſa*, Rumpf. *Carte geographique*, Argenv.

Inhabits the Indian and African ſeas, and is not a common ſpecies.

Arabica. Shell ſlightly turbinated with irregular characters; dorſal ſtripe ſimple. Linn. *Porcellana literata*, Rumpf.

Length about three inches; general colour whitiſh, with irregular brown marks reſembling Arabic characters. Inhabits India.

Argus. Shell ſlightly turbinated, ſubcylindrical, ſprinkled with ocellated ſpots; beneath four brown ſpots. Linn. *Argus*, Rumpf. *Argus magnus*, Argenv.

Native of the Indian and Atlantic ſeas.

Testudinaria. Shell obtuſe and ſubcylindrical, with the extremities depreſſed. Linn. *Teſtudinaria*, Rumpf.

Inhabits the Perſian gulph.

Stercoraria. Shell ſomewhat turbinated, gibbous, with livid and teſtaceous ſpots; emarginate each ſide, and flat beneath.

Native of Guinea.

Carneola. Shell ſlightly turbinated, pale with fleſh-coloured bands; mouth violet. Linn.

Inhabits the Aſiatic ocean. This ſhell is ſometimes white, with brown bands.

Zebra. Shell turbinated, cinereous with brown bands. Gmel.

Native of India.

Talpa. Shell ſlightly turbinated, ſubcylindrical, teſtaceous with pale bands; beneath thickened and brown. Linn. *Talpa*, Argenv.

Length from two to three inches. Native of India.

Amethystea. Shell ſubturbinated; ſides gibbous and decorticate; back violet. Linn. *Achatina*, Rumpf.

Native of Madagaſcar.

Lurida. Shell ſlightly turbinated, lurid, and ſlightly the extremities pale yellow, with two black ſpots. Gmel. *Souris*, Argenv.

Inhabits the Mediterranean, Atlantic, and American ſeas.

Venelli. Shell ſlightly turbinated, ſpotted and marked with yellowiſh dots; the extremities ſpotted with brown; throat rufous. Linn.

Native country unknown.

Lota. Shell ſlightly turbinated and white, with ſubulate denticles. Linn.

Found in the Sicilian ſeas.

Fragilis. Shell turbinated, ovate, glaucous, with teſtaceous waves, and pale bands. Linn.

Inhabits the Mediterranean ſea. Gualt.

Guttata. Shell thin gibbous, fulvous dotted with white; line in the middle horizontal; beneath white; teeth yellow. Gmel.

Deſcribed and figured by Liſter. The native place not aſcertained.

Cinerea. Shell thin, ventricoſe, reddiſh-grey with paler bands; mouth white. Gmel.

Plumbea. Shell ſlightly turbinated, thin; back lead colour, with four bands varied with blue and brown, undulated with browniſh at the margin, and marked with blue and brown lines. Gmel.

A rare ſpecies, found on the coaſt of Guinea.

Oculata. Shell ſlightly turbinated; ruſſet-brown with white ocellations, and three paler bands on the back. Linn.

Inhabits the American ſeas.

Histrio. Shell ovate, ſlightly turbinated, with ſublivid ocellations; beneath flat and white; ſides thickened, black, ſpotted with brown; dorſal line livid; throat violet. Gmel.

Native of the Indian ſeas.

Aurantium. Shell ſomewhat turbinated; orange with white immaculate margin. Gmel.

One of the moſt beautiful and elegant ſpecies of its genus, and well known to Engliſh collectors under the title of cypræa aurora, or morning-dawn cowry. This ſpecies was firſt diſcovered by captain Cook at the Friendly Iſlands, where they were obſerved to conſtitute part of the finery and ornaments of the dreſſes worn by the chiefs and principal natives. Only a few ſhells of this ſpecies have hitherto been brought to Europe, and of courſe bear a high price.

Ferruginosa. Shell thin, elongated, yellowiſh or blueiſh, with ferruginous ſpots; within blue. Gmel.

The native places of this and ſeveral of the following ſpecies have not been hitherto aſcertained.

Livida. Shell thin, elongated, uniformly ſtraw-colour, pale yellow or reddiſh; beneath dotted with brown; teeth ſubulate. Gmel.

Gibba. Shell thin and gibbous; back clouded and banded tranſverſely. Gmel.

Turbinata. Shell turbinated, ovate, and glaucous, with pale angulated ſpots. Gmel.

Venerea. Shell oblong and fuſcous, with ſtriped golden ſpots; within blue. Bonann.

Purpurascens. Shell oblong, purpliſh; beneath ſurrounded with a white line. Gualt.

Albida. Shell oblong, whitiſh; ends of the lips ſpotted with fulvous. Gualt.

Rufescens. Shell oblong, reddiſh-brown, beneath whitiſh. Gualt.

Translucens. Shell cylindrical, cinereous, with pellucid bands. Gualt.

Punctulata. Shell cylindrical, fragile, white, with tranſverſe bands of reddiſh dots. Gualt.

Tigrina. Shell obtuſe, ovate, ſlightly turbinated, with a longitudinal teſtaceous line. Seba.

Dubia. Shell oblong, ferruginous, with paler bands. Seba.

Trifasciata. Shell turbinated, thin, blueiſh-brown, with three yellowiſh bands varied with brown at each end. Knorr.

A very rare ſpecies.

Conspurcata. Shell turbinated, blueiſh-white, dotted and clouded with brown. Born.

Bifasciata. Shell oblong, ſhaded with purpliſh, with a ſtraw-coloured band, and another narrower white one, and a brown border. Born.

Length four inches.

Cylindrica. Shell cylindrical, above pale violet, and ſpotted with brown at the ſides, and marked at each end with two brown ſpots. Born.

Teres. Shell cylindrical, milk-white, one ſide bordered and varied with a few pale yellow narrow marks; back with three browniſh waved bands. Schroet.

Ovata. Shell ovate, a little depreſſed, one ſide ſlightly bordered; back whitiſh, with crowded yellowiſh-brown dots and waves, and three obſolete darker bands. Schroet.

Minuta. Shell oblong, above tinged with bloom; beneath dotted with white; border on one ſide and teeth of the lip white; above yellow at each end; ſpire black at the tip. Schroet.

Sanguinolenta. Shell thin, oblong, barred with brown, and dotted at the ſides with red. Martini.

Fasciata. Shell turbinated, glaucous margined, above gibbous, with tranſverſe browniſh bands; throat glaucous. Chemn.

Regina. Shell gibbous, glaucous brown, with triangular teſtaceous and whitiſh ſpots, and three tranſverſe bands; throat blackiſh. Seba.

Undulata. Shell turbinated, undulated with browniſh, clouded with pale ochre, and marked with deeper bands.

* *Obtuſe, and without diſtinct Spire.*

Caput Serpentis. Shell triangularly gibbous, and rather obtuſe behind. Liſt.

Inhabits Mauritius, and Nuſſatella iſlands. Length an inch and half.

Reticulatum. Shell roundiſh, gibbous, brown, with white confluent reticulated eyes, and a white horizontal line in the middle of the back; beneath white. Liſt.

Mauritiana. Shell triangularly gibbous, behind depreſſed and acute, beneath black. Rumpf.

Native of the Aſiatic iſles.

Vitellus. Shell livid, with ſmall white ſpots. Rumpf.

Inhabits the Indian ocean.

Mus. Shell retuſe, gibbous, cinereous, with a longitudinal brown band; teeth of the aperture blackiſh. Rumpf.

Native of the American and Mediterranean ſeas. This ſhell is ſolid and ſlightly gibbous.

Tigris. Shell ovate, obtuſe behind and rounded before, ferruginous, with deep brown ſpots, and a yellowiſh longitudinal dorſal line. Liſt.

Inhabits the Indian and Aſiatic ocean.

Flammea. Shell ovate, obtuſe behind, and rounded before with waved yellow ſpots. Valenti.

A rare ſpecies; the native place unknown.

Olivacea. Shell ovate, olive, clouded with yellow, and ſpotted

ſpotted with brown; beneath flat, pale brown; within blueiſh; teeth of the lip white. Martini.

FÆMINEA. Shell ovate, very thin, white, with greeniſh-yellow dots diſpoſed in rows; within violet. Liſt.

LYNX. Shell oblong-ovate with brown dots and a yellowiſh line; the hind part rather acute, with a ruſous mouth. Liſt.

ISABELLA. Shell ſubcylindrical, with pale yellow extremities. Liſt.

Native of Madagaſcar.

AMBIGUA. Shell pyriform, duſky with paler clouds and ſpots. Seba.

SCURRA. Shell ovate-oblong, beneath flat, yellowiſh with greeniſh and livid confluent drops; the ſides varied with ſcattered brown dots. Martini.

Native of India.

* * *Umbilicate, or perforated.*

ONYX. Shell beneath brown, above whitiſh. Rumpf.

A ſmall ſhell found in the Aſiatic ſeas.

CLANDESTINA. Shell with very fine tranſverſe lines, ſome concurrent. Gmel.

Native of India.

SUCCINCTA. Interior lip rounded at each extremity. Linn.

ZICZAC. Shell beneath pale yellow with brown dots, and two ſpots of the ſame at the extremities. Liſt.

HIRUNDO. Shell above blueiſh, the extremities marked with two brown ſpots. Linn.

Inhabits the Maldiva iſlands.

ASELLUS. Shell white, with three fuſcous bands. Linn. *Aſellus*, Rumpf.

ERRONEA. Shell with an equal teſtaceous ſpot. Linn.

URSELLUS. Shell oblong white, above ſmooth varied with brown, and marked with two brown dots at the umbilicus or perforation. Linn.

PYRUM. Shell pale brown with paler bands and ochraceous ſpots, beneath and at the ſides fulvous, within blue. Gualt.

MACULOSA. Shell narrow, long, with fleſh-coloured ſpots, above varied with pale fulvous and glaucous ſpots, the ſides cheſnut. Bonan.

PULLA. Shell thin, with the ſides ruſſet-brown; above white or pale brown with tranſverſe bands or a paler horizontal line. Martini.

INDICA. Shell cylindrical, marked above with characters, ocellations, and a pale horizontal line; the ſides bloom coloured, dotted with black; teeth of the lip brown. Rumpf.

OVUM. Shell thin, oblong, olivaceous, with ſcattered ferruginous ſpots; beneath white. Mart.

FELINA. Shell oblong, narrow, plumbeous with ferruginous dots and ſpots, and paler bands marked at each end with two brown ſpots. Seba.

ATOMARIA. Shell oblong, ſnowy dotted with brown; each end marked with two duſky dots. Martini.

NEBULOSA. Shell oblong, gibbous, brown with cheſnut ſpots. Liſter.

OCHROLEUCA. Shell thin, ochraceous with paler ſpots. Bonan.

STELLATA. Shell thin, cinereous dotted with brown, and marked with tranſverſe elevated ſtriæ. Bonan.

FULVA. Shell ſolid, oblong, fulvous with brown ſpots diſpoſed in rows, and two duſky bands; the ſides and under ſurface ſaffron. Gualt.

LEUCOSTOMA. Shell oblong, gibbous, clouded with brown and blue, the ſides ſpotted with black; mouth white. Gualt.

LUTEA. Shell browniſh with two white bands, beneath pale yellow dotted with brown. Gronov.

ZONARIA. Shell ovate, ſmoothiſh, yellowiſh with four brown lunules. Chemn.

Inhabits the ſhores of Guinea, and is very rare.

* * * *Margined.*

CRIBRARIA. Shell umbilicate, pale yellow with round white ſpots. Linn.—*Argus minor.* Argenv.

MONETA. Shell whitiſh, with nodulous margin. Linn. *Moneta Congo*, Argenv. *Moneta nigritarum*, Liſt. *Thoracicum vulgare*, Rumpf.

Inhabits the Mediterranean, Atlantic, Æthiopic, and Indian ſeas. This is the ſpecies which is fiſhed up in vaſt numbers by the negro females, three days before or after the full moon, and is uſed by the native blacks in many parts inſtead of money.

ANNULUS. Shell ſurrounded on the back with a yellow ring. Rumpf.

Inhabits Aſia.

CAURICA. Shell with gibbous, unequal, whitiſh margin, dotted with brown, the back marked with teſtaceous clouds. Liſt.

EROSA. Shell with a jagged margin, yellow dotted with white, the ſides with a browniſh ſpot. Liſt.

Found in the Mauritius and Aſcenſion iſlands.

DEROSA. Shell with a jagged margin; fleſh colour, with a greeniſh back marked with fulvous dots, the ſides dotted with brown. Gmel.

Inhabits the Mediterranean.

FLAVEOLA. Shell with a jagged margin, yellow dotted with white; the ſides marked with ſcattered obſolete brown dots. Linn.

SPURCA. Shell ſlightly margined; yellow, with deeper ſpecks, the ſides dotted with brown. Linn.

Native of the Mediterranean ſea.

OBLONGA. Shell oblong ovate, above blueiſh dotted, and ſpotted with brown; beneath, and at the ſides white. Born.

STOLIDA. Shell cinereous, variegated with teſtaceous. Linn.

Length an inch and a half. This ſpecies inhabits Amboyna.

HELVEOLA. Shell triangularly gibbous, dotted with white, jagged behind, beneath yellow and immaculate. Liſter.

OCELLATA. Shell ſlightly margined, pale yellow, with black eyes. Liſt.

PORARIA. Shell pale violet dotted with white. Born.

PEDICULUS. Shell with numerous tranſverſe furrows, ſome furcated. Linn. Donov. Brit. Shells, &c.

A ſmall ſhell found on moſt ſea coaſts.

NUCLEUS. Shell margined each ſide, ſlightly produced and rugged, with raiſed tubercles above. Liſt.

MADAGASCARIENSIS. Shell whitiſh, and produced each ſide; the back tuberculated and marked tranſverſely with waved ſtriæ. Liſt.

STAPHYLÆA. Shell ſomewhat produced, with elevated dots, and without ſtriæ; the extremities pale yellow. Argenv.

CICERCULA. Shell produced each ſide, and ſprinkled with raiſed dots. Liſt.

Native of the Mediterranean and Indian ſeas.

Globulus. Shell produced each ſide and ſmooth. Rumpf.

Inhabits Amboyna.

Affinis. Shell oblong, ſlightly produced, ſmooth, yellow, ocellate each ſide before. Knorr.

Reſembles the laſt, but is more oblong.

Squalina. Shell thin, oblong, white, with ferruginous dots and ſpots. Liſt.

Fimbriata. Shell white, or grey, with obſolete ferruginous ſpots, and tranſverſe bands; lips of the mouth marked with violet ſpots. Martini.

Cruenta. Shell gibbous, above blueiſh, with rufous dots; beneath and at the ſides white; lips citron. Gualt.

Rubiginosa. Shell oblong, white, within violet; back with a ferruginous blotch; each end marked with two pale yellow ſpots; teeth of the lips yellowiſh. Martini.

Miliaris. Shell thin, ſhort, yellowiſh green, with milk-white ocellations, and a lateral horizontal line. Liſt.

Acicularis. Shell ſolid, above yellowiſh, dotted with brown, and marked with a pale horizontal line; beneath milk-white, with impreſſed dots at the margin. Martini.

Crassa. Shell thick, yellowiſh, with three whitiſh bands; mouth blueiſh. Liſt.

Vinosa. Shell above white, with a claret ſtain, and marked with purpliſh eyes, ſurrounded with a black circle, and an horizontal white line; within blue. Bonan.

Native of the Mediterranean.

Angustata. Shell narrow, brown, with reddiſh ſpots at the ſides. Gualt.

Similis. Shell oblong, gibbous, yellowiſh, dotted with white, and marked at the margin with a black ſpot. Gualt.

Striata. Shell convex, blueiſh-white, dotted with brown; beneath yellow, ſtriated on one ſide. Gualt.

Chinensis. Shell oblong, ſolid, variegated, with orange lips. Argenv.

Pusilla. Shell blueiſh, ſpotted with brown, and triſaſciated. Argenv.

CYPRESS. See Cupressus.

Cypress, *Summer*. See Chenopodium.

CYPRESSETA, in *Ancient Geography*, a place of Gaul, between Avenio and Arauſio, according to the Itinerary of Antonine. M. d'Anville ſuggeſts that it was ſituated towards the bridge of Sorgue.

CYPRIÆ Insulæ, three barren iſlands mentioned by Pliny, and placed near the iſland of Cyprus.

CYPRIAN, Abraham, in *Biography*, born at Amſterdam about the year 1656, received the rudiments of his knowledge in medicine from his father, who practiſed ſurgery in that city. At a proper age he went to Utrecht, where he was created doctor in medicine in 1680. Having practiſed medicine and ſurgery for twelve years at Amſterdam, he was called thence to take the chair of anatomy at Franeker. In 1700 he publiſhed an account of an extra-uterine fœtus, taken from one of the Fallopian tubes, where it had lain, before the parts apoſthemated, twenty-one months. The woman recovered, but dying ſome years after, and opportunity being given to Cyprian to diſſect the body, he diſcovered the part in which the fœtus had been detained. Cyprian is ſaid to have been very ſkilful and ſucceſsful in cutting for the ſtone, having performed the operation, it is ſaid, on no fewer than 1400 perſons. In 1724 was publiſhed, in quarto, Cyſtitomia Hypogaſtrica, in which he gives an account of his method of operating. Haller Bib. Anat. Eloy Dict. Hiſt.

CYPRIANUS, Thascius Cæcilius, was a native of Africa, and as ſome ſay of Carthage, where he was biſhop in the third century. He was born, probably, before the end of the ſecond century, and in the former part of his life taught rhetoric at Carthage with great applauſe. Such was his reputation in the exerciſe of his profeſſion, that his ſchool was frequented by a great number of young perſons, who had any fortune, and who intended to be magiſtrates and judges, or to appear as pleaders at the bar. He was not only well acquainted with the principles and rules of eloquence, but he was alſo eloquent himſelf: and very probably compoſed for others arguments or pleadings, harangues or panegyrics, or ſuch other diſcourſes, for which he received an adequate recompence; and he thus acquired not only a competence, but a conſiderable degree of affluence. Upon his converſion to Chriſtianity about the year 246, in conſequence of the inſtruction of Cæcilius, a preſbyter of Carthage, whoſe name he afterwards aſſumed, he ſold his eſtate and diſtributed the produce of it among the poor. Soon after his converſion, probably in the year 247, he was made preſbyter, and in the following year biſhop, of Carthage. Such are the dates aſſigned to theſe events by biſhop Pearſon. Others, however, are of opinion, that he was baptized in the year 244 or 245, and advanced to the epiſcopate in 248 or 249. His advancement, whatever was the period at which it took place, was an honour which he accepted with great reluctance, at the general and earneſt deſire of the people of Carthage, though his election was oppoſed by ſeveral preſbyters of that church, who afterwards gave him great uneaſineſs. Soon after the commencement of the Decian perſecution, A. D. 250, he became extremely obnoxious to the heathen people; and they often clamorouſly demanded in the theatre, and other public places, that he ſhould be thrown to the lions. This treatment conſtrained him to retire to ſome place of ſafety, where he continued about 14 months, and where he was diligently employed in writing thoſe epiſtles, many of which are ſtill extant. As the place of his abode was unknown, ſo that the hoſtile government was not able to find him, he was proſcribed, and proclamation was made at Carthage, that if any one had any goods of Cæcilius Cyprian, biſhop of the Chriſtians, he ſhould diſcover them. When the heat of the perſecution abated, in the year 251, Cyprian returned to Carthage; and reſuming the exerciſe of his epiſcopal office, he held ſeveral councils, two of which regulated the treatment of thoſe who had lapſed in the perſecution; and others were engaged in ſettling the queſtion concerning the baptiſm of heretics; with regard to which Cyprian was of opinion, that all baptiſm out of the catholic church was null and void, and that they who had received ſuch baptiſm only, ought to be baptized when they came over from heretics to the church. In one of theſe councils there were preſent 85 or 87 biſhops, beſides preſbyters and others. It was held in 256, and its acts are ſtill extant. About this time a peſtilential diſtemper waſted the Roman empire, and extended its deſtructive ravages to Carthage. During the prevalence of this calamity, Cyprian was indefatigable in the duties of his function; and exerted himſelf by his diſcourſes and influence in recommending compaſſion and liberality to thoſe who were diſtreſſed. On another occaſion, the virtue of Cyprian and of the people under his care, was eminently conſpicuous. Several Chriſtians were carried captives by ſome barbarous people of Africa, who made inroads into Numidia; for whoſe relief and redemption Cyprian promoted a collection, and raiſed a conſiderable ſum of money, which was diſtributed for this purpoſe. His diſtinguiſhed character, however, was no ſecurity againſt the violence of his enemies.

When the emperor Valerian became a perſecutor of the Chriſtians, Cyprian was apprehended; and having made an undiſguiſed confeſſion of the Chriſtian faith before the proconſul Paternus, avouching himſelf, upon examination, to be a Chriſtian and a biſhop, and declaring that he knew no other gods, beſides the one true God, who made the heaven, and the earth, and the ſea, and all things therein; he was baniſhed to Curubis in the year 257. On this occaſion he had many fellow-ſufferers, ſeveral of whom were ſent to the mines, as we learn from a letter of Cyprian, written during his exile. When Galerius Maximus ſucceeded Paternus as proconſul of Africa, Cyprian was recalled from baniſhment; and reſtored to the poſſeſſion of his gardens, or country-houſe, near Carthage, which he had previouſly ſold for a ſum of money that had been diſtributed by him among the poor. Soon after his arrival, he was ordered to appear before the proconſul at Utica, about 40 miles diſtant from Carthage; but having reaſon to apprehend a ſentence of condemnation, and being deſirous of dying in the preſence of his own people, he abſented himſelf from his country reſidence, and retired into ſome place of concealment. Upon the proconſul's return to Carthage, Cyprian came back to his gardens, where he was viſited by ſeveral citizens of rank, who adviſed him to ſeek ſome retreat, in which he might be ſecure from the malignity of his enemies. Cyprian, however, was fully prepared for the event that awaited him; and being apprehended by a band of ſoldiers commiſſioned by the proconſul for this purpoſe, he attended them to the palace at Sextii, about 6 miles from Carthage. Refuſing to ſacrifice at the command of Galerius, the proconſul, with the advice of his council, charged him with being an enemy to the gods, and a ſeducer of the people, and then pronounced ſentence that he ſhould be beheaded; upon which Cyprian ſaid "God be thanked," and he was then led away to an adjacent field, encompaſſed with trees, the boughs of which were loaded with ſpectators, where he calmly ſubmitted to the execution of the proconſul's ſentence, September 14, A. D. 258. The whole tenor of Cyprian's life after his converſion, which was peaceable, charitable, and beneficial to men of every character in diſtreſs, and the manner of his death, in which he appeared to be undaunted, ready, and willing, without ſeeking it, afford a very valuable teſtimony in behalf of the truth and excellence of the principles of the Chriſtian religion. His character was held in ſuch high eſtimation by his contemporaries and by poſterity, that the day of his martyrdom was obſerved as a feſtival not only at Carthage, but alſo in other places both in and out of Africa. His works conſiſt of treatiſes on a variety of ſubjects, and of Epiſtles. Cave. Le Clerc. Lardner.

CYPRIANUS, in *Ichthyology*, a name given by Ariſtotle to the carp. He alſo called it *cyprinus;* and Athenæus, Oppian, and many other writers, uſe indifferently the one or the other of the words.

CYPRINE, in *Mythology*, a ſurname of Venus, becauſe the iſland of Cyprus was conſecrated to her.

CYPRINOIDES, in *Ichthyology*, a ſpecies of *Clupea;* which ſee.

CYPRINUS, a genus of the abdominal kind, diſtinguiſhed by having the mouth ſmall and deſtitute of teeth: the gill membrane with about three rays; the body ſmooth and generally whitiſh: ventral fins often containing nine rays.

Moſt of the ſpecies feed on worms, inſects, ſmaller fiſh, ſeeds, and earth, uſually ſpawn about April or May, and are generally conſidered as palatable and wholeſome food. Some are of the migratory kind, inhabiting both the freſh and ſalt waters, while others remain in freſh waters throughout the year.

Species.

BARBUS. Anal fin with ſeven rays; beards of the mouth four; ſecond ray of the firſt dorſal fin ſerrated both ſides. Linn. Donov. Brit. fiſhes.

A common inhabitant of moſt freſh waters in Europe, and eaſily diſtinguiſhed from the other ſpecies of carp by the upper jaw being advanced far beyond the lower, and in having four appendant beards from which the appropriate name of barbus, *Angl.* Barbel, is derived. This fiſh during ſummer prefers the rapid currents and ſhallows of rivers, and retires at the approach of winter to the more ſtill and deeper places. They ſubſiſt chiefly on worms, ſmall fiſhes, and aquatic inſects, and live in ſocieties. Sometimes theſe fiſhes grow to the length of two or three feet, and we have inſtances on record of their attaining to a much larger ſize in ſome rivers in the ſouth of Europe. Vide Donov. Brit. fiſhes.

CARPIO. Anal fin nine-rayed; beards four; ſecond ray of the dorſal fin ſerrated behind. Linn. Carp, Willugh. Donov. Brit. fiſhes, &c.

There are two principal varieties of this fiſh, one having half the body covered with ſcales, four times as large as thoſe of the common ſort, and the other having the body deſtitute of ſcales. Theſe fiſh inhabit the ſlow and ſtagnant waters of Europe and Perſia, and according to popular report were introduced into England in the year 1514. The uſual length of the carp in our own country is from 12 to 18 inches, but in warmer climates it often arrives at the length of two or three feet or even more. Its general colour is yellowiſh olive, much deeper, or browner on the back, and accompanied with a ſlightly gilded tinge on the ſides; the fins violet brown, except the anal which is tinged with reddiſh.

The uſual food of the carp conſiſt of worms and aquatic inſects, or when in a courſe of fattening for the table, bread and milk. It is an extremely prolific fiſh, and the quantity of roe is ſo great, that it is ſaid ſometimes to exceed the weight of the emptied fiſh itſelf. This fiſh is known to be extremely tenacious of life, and to live to a vaſt age, even to that of 100 or 150 years, and ſome writers ſcruple not to affirm to the age of 200 years.

The ſale of carp conſtitutes a part of the revenue of the nobility and gentry in Pruſſia, Pomerania, Brandenburgh, Saxony, Bohemia, Mecklenburgh, and Holſtein, in all which countries the cultivation of the carp is for this reaſon regarded with particular attention.

GOBIO. Anal fin 11-rayed; cirri two. Linn. Gudgeon, Will. Penn. Donov. Brit. fiſhes, &c.

Inhabits gentle ſtreams and lakes of northern Europe: is tenacious of life and remarkably fertile. The length of this fiſh is about 10 inches at the utmoſt, or rarely exceeding ſeven or eight, and its principal food conſiſts of herbs, worms, inſects, and the fry of other fiſh. The colours vary according to its age, or the nature of the waters in which it lives.

TINCA. Anal fin, with about 11 rays; tail entire; body mucous; cirri two. Linn. Tench. Penn. Donov. Brit. fiſhes, &c.

This fiſh appears to be a native of moſt parts of the globe, inhabiting chiefly large ſtagnant waters with a muddy bottom, and varying much in the tinge of its colours according to the ſituation in which it reſides. Its general length is about 12 or 14 inches, but grows ſometimes to the length of two or three feet. The uſual colour is a deep blackiſh olive gloſſed with gold, the ſides and abdomen yellower, belly white, and the fins dirty violaceous. The ſcales are very ſmall and cloſely affixed to the ſkin. The head is rather large, the eyes ſmall, and on each ſide the mouth is ſituated a ſmall beard. The fleſh is white and ſoft, though well flavoured.

The ſuppoſed variety *Cyprinus Tinca auratus* of Bloch is a very beautiful fiſh, and is cultivated in ſome parts of Germany. The colour is a rich orange yellow variegated with ſmall black ſpots; fins thin, tranſparent, and of a bright red colour; and the head rather ſmaller than the common tench. It is found in a ſtate of nature in Sileſia and Bohemia, and is from thence tranſplanted into other parts of Europe, and kept as an ornamental fiſh in the waters of gardens and pleaſure-grounds. Like the common carp this fiſh delights in warmth, and is very tenacious of life.

BYNNI. Dorſal fin with 13 rays, the third thick and horny; tail linear and bifid, cirri four. Linn. Forſk.

Length about 12 inches; ſhape oblong, with the head rather compreſſed; back and abdomen ſloping; colour ſilvery; lateral line curving upwards; anal and cordal fin red, with the baſe white; the reſt whitiſh with a thickiſh dull-red margin. This ſpecies is a native of the Nile. The Egyptians know it by the name of Bynni, and eſteem it an excellent fiſh for the table.

BULATMAI. Anal fin eight-rayed; ſecond ray of the dorſal fin very large, and not ſerrated; cirri four. Gmel.

Inhabits the Caſpian ſea, and is a rare ſpecies. Its ſize is that of a common carp; the colour ſteel blue with a gloſs of gold beneath, inclining to a ſilvery caſt; ſcales middle ſize; head oblong, browniſh above; lateral line ſtraight; dorſal fin blackiſh; pectoral greyiſh with reddiſh tips; ventral white at the baſe, and red at the tip; anal red, with whitiſh baſe; tail reddiſh brown and furcated.

CAPOETA. Anal fin nine-rayed: third ray of the dorſal and anal fin very long, the former ſerrated downwards; cirri two. Gmel.

Inhabits the Caſpian ſea, and aſcends rivers in the winter; its length is about 12 inches, the body compreſſed and oblong, ſcales rounded, moderate, ſmooth, ſtriated, ſilvery dotted with brown, thoſe on the belly ſmaller and white.

MURSA. Anal fin ſeven-rayed, the firſt very long; third ray of the dorſal fin long, thick ſerrated backwards beyond the middle; cirri four. Guldenſt.

About 12 inches long; its habit reſembles that of a pike; colour olive gilded, ſhaded above with duſky: abdomen white; anal and ventral fins white, ſpotted on the upper part with brown; the reſt of the fins brown. Inhabits the Caſpian ſea.

CAPITO. Cirri four; third ray of the dorſal fin ſerrated behind; ſides and lower fins whitiſh. Guldenſtadt.

Much allied to the barbel, but rather more compreſſed, and with a longer and broader head in proportion; ſnout more obtuſe; beards longer, and eyes larger; and the dorſal fin ſituated lower than in the barbel. Found in rivers running into the Caſpian ſea, particularly the Cyrus.

* *Tail nearly even at the end.*

CARASSIUS. Anal fin 10-rayed; lateral line ſtraight. Linn. Crucian carp.

Length from eight to ten inches, of a deep form, very thick, colour deep olivaceous yellow with a ſlight ſilvery tinge on the abdomen; fins dull violet; the tail ſlightly lunated with obtuſe lobes. This is a native of many parts of Europe, and inhabits ponds and large ſtagnant waters. The Crucian carp is conſidered as a coarſe fiſh for the table in this country.

CEPHALUS. Anal fin eleven-rayed; body nearly cylindrical. Gmel.

Inhabits freſh waters of Europe, frequents deep holes of rivers, and is very ſhy; its principal food conſiſts of worms and inſects. Grows to the weight of five or ſix pounds.

GIBELIO. Dorſal fin with twenty rays: tail lunulate. Bloch.

Native of Germany and other midland parts of Europe, inhabiting lakes and rivers, and ſeldom exceeding eight or ten ounces in weight. The body is broad, and elongated, above blueiſh, the ſides dull, beneath ſilvery, and the ſcales large; it is very fertile, and tenacious of life, and from its habits is an eaſy prey to ducks and water-fowl.

SERICEUS. Dorſal fin with ten rays; anal eleven; tail reddiſh brown. Gmel.

Found in great abundance in the ſlow and ſtagnant waters of Dauuria. This is a ſmall ſpecies meaſuring an inch and a half in length; the body ſhaped like the Crucian carp; the colour ſilvery blueiſh or pale violet, with a broad greeniſh-blue ſtripe each ſide, and pale roſy abdomen.

*** *Tail quadripartite.*

QUADRILOBUS. Sanguineous; fins roſy; tail four-lobed. Cepede.

Deſcribed and figured by Cepede as a ſpecies: this kind may however prove to be only a variety of the following.

**** *Tail tripartite.*

AURATUS. Anal-fin double. Gmel., &c.

This beautiful fiſh is a native of the ſouthern parts of China, and is particularly found in the province of Kiang, where it exiſts in a natural ſtate in a large lake ſituated near a mountain at a ſmall diſtance from the town of Tchanghou. From this ſpot it is diſperſed into all parts of that extenſive empire, and is conſidered as one of the moſt elegant ornaments which can be introduced into the gardens and houſes of perſons of diſtinction. The Chineſe ladies in particular are ſaid to ſpare no pains in the cultivation of this beautiful animal.

No fiſh is ſubject to ſo many variations in its domeſtic or cultivated ſtate as the gold fiſh. The moſt general colour is a rich and ſplendid golden hue, tinged with ſcarlet above and ſilvery beneath; in ſome the back is marked with large patches of black or blue, or ſometimes the whole back is uniformly tinged with a duſky hue. The back fin is occaſionally wanting, or conſiſting only of a few rays, and the tail varies extremely in its general form.

The gold fiſh has long been a favourite in this country, and breeds in our climate with almoſt equal facility with the carp. In a domeſticated ſtate it is fed with bread crumbs, ſmall worms, and aquatic ſnails, or the yolk of eggs dried and powdered. Theſe fiſhes ought not to be expoſed to ſevere cold; they muſt alſo be ſupplied with a change of water, and ſhould be kept in veſſels of ſufficient width to permit a free acceſs of air, and yet ſo formed by curving inwards at the edges as to prevent the fiſh from eſcaping.

The gold fiſh is ſaid to have been firſt introduced into England about the year 1691, though it was not generally known till the year 1728, when a number were brought over and preſented to Sir Matthew Decker, by whom they were diſtributed into various parts of the kingdom.

MACROPHTHALMUS. Scarlet; eyes protuberant; fins half white. Bloch. Teleſcope carp. Shaw, Nat. Miſc.

Allied to the gold fiſh and equally beautiful; its general colour ſanguineous red; head ſhort; eyes extremely protuberant, and appearing in ſome degree extenſile; body covered with very large ſcales. This is a native of China, where it is kept in a ſimilar manner with the gold fiſh, and may perhaps with propriety be conſidered as a variety of that fiſh.

***** *Tail bifid.*

Regius. Anal fin eleven-rayed; dorſal fin extending the whole length of the back. Gmel.

About the ſize of a herring, the body cylindrical; ſcales above golden, ſides ſilvery. Inhabits the ſea round Chili.

Caucus. Anal fin thirteen-rayed; body tuberoſe, and a little ſilvery. Gmel.

Inhabits the freſh waters of Chili, and meaſures about eighteen inches in length.

Malchus. Anal fin eight-rayed; body conic and bluiſh. Gmel.

Length twelve inches. Inhabits ſame waters as the laſt.

Rivularis. Anal and dorſal fins eight-rayed; body ſpotted with brown. Gmel.

Found in ſmall ſtreams running down the Altaic mountains. The length of this fiſh is two inches; the body rather compreſſed and ſilvery; ſcales ſcarcely viſible.

Labeo. Anal fin ſeven-rayed, dorſal eight-rayed, and pectoral nineteen. Gmel.

Inhabits the rapid and ſtony rivers round Dauuria which diſcharge themſelves into the Eaſtern ſea. This fiſh ſwims rapidly and is highly prolific; its uſual length rarely exceeds three feet. The body is roundiſh, ſomewhat compreſſed, and coated with large ſcales. Fleſh excellent.

Leptocephalus. Anal fin nine-rayed; dorſal eight-rayed. Gmel.

Found in the ſame rivers as the laſt, and is about the ſame ſize as the laſt.

Chalcoides. Anal fin nineteen-rayed; dorſal twelve. Gmel.

Native of the Caſpian ſea; about twelve inches in length; the body of a compreſſed form, and oblong; ſcales rounded and ſtriated; colour above greyiſh and ſilvery-green, ſpotted with brown; the ſides ſhining ſilvery, beneath milk-white.

Galian. Anal fin with ſeven, dorſal eight, and pectoral fourteen rays. Gmel.

Length three inches; body olive, ſpotted with brown; beneath bright red; fleſh good when fried. This inhabits the ſtony rivers in Siberia.

Nilotus. Anal fin with ſeven, dorſal eighteen rays. Gmel.

This kind inhabits the Nile; body reddiſh.

Gonorynchus. Anal fin eight-rayed; body cylindrical. Gmel.

Inhabits the Cape of Good Hope.

Phoxinus. Anal fin with eight rays; body pellucid; tail with a duſky ſpot near the baſe. Gmel.

Found in gravelly ſtreams in Europe and Siberia, and keeps in ſhoals near the ſurface. The ſpecies is ſmall, ſcarcely ever exceeding the length of three inches; it feeds on herbs and worms, grows ſlowly, is very fertile, and is the favourite food of pikes.

Aphya. Anal fin with nine rays; iris red; body pellucid. Gmel.

Inhabits the northern ſeas of Europe; length from about two inches to four inches and a half.

Leuciscus. Anal fin with ten, dorſal fin with nine rays. Linn. Dace. Penn.

Lives in ſtill deep rivers of England, France, the ſouth of Germany, Italy, and Siberia. The caſual length is about ſix or eight inches, but it ſometimes grows to the length of eighteen inches. It feeds on worms and inſects, is very fertile, and the prey of more rapacious fiſhes. The fleſh is white, and in ſome eſtimation.

Dobula. Dorſal and anal fins ten-rayed. Gmel.

Inhabits the freſh-water lakes of Denmark, Germany, and France; and in the ſpring aſcends rivers, and feeds on leeches, as well as herbs. The body is narrow, oblong, above greeniſh, beneath ſilvery-blueiſh; the young males in milting-time ſpotted with black; ſcales moderate, and dotted at the edges with black. Length ten inches.

Grislagine. Anal fin eleven-rayed; fins whitiſh. Gmel.

Inhabits European lakes.

Idbarus. Anal fin twelve-rayed; ventral fins deep red. Gmel.

Found in lakes in Sweden.

Rutilus. Anal fin twelve-rayed and reddiſh. Gmel., Roach, Penn., &c.

Inhabits deep ſtill rivers with a ſandy bottom, in Europe, and adjacent parts of Aſia. This fiſh ſeldom exceeds the weight of a pound and a half. It ſpawns in May, is very fertile, and feeds on worms and herbs; the eggs are greeniſh, and become red by boiling. The body is greeniſh-black, beneath paler; ſcales large and eaſily deciduous; fleſh white and well-flavoured.

Idus. Anal fin thirteen-rayed and red. Gmel.

Inhabits clear freſh waters in northern Europe, chiefly the larger lakes, from whence it migrates up rivers in the ſpring, and is ſometimes found in the Caſpian ſea. Length from eighteen inches to two feet.

Orfus. Anal fin thirteen-rayed; gill covers ſpotted with red. Gmel.

Lives in clear ſtreams of England, Ruſſia, and Germany; feeds on worms, inſects, fat earth, and the ſpawn of other fiſhes; body above ſaffron; ſides and belly golden-yellow, with red marks.

Buggenhagia. Anal fin with nineteen rays. Gmel.

Inhabits lakes of Germany and Sweden. The body above blackiſh, ſides compreſſed; ſcales large and ſilvery; fleſh white. Length from twelve to fourteen inches.

Erythrophthalmus. Anal fin fifteen-rayed; fins red. Gmel.

Native of northern Europe and the Caſpian ſea; length about twelve inches; the back greeniſh-black, ſides greeniſh above the line, beneath ſilvery. This ſpecies is fertile, and feeds on worms, inſects, and aquatic herbs. Scales large, thin, and ſilvery.

Jeses. Anal fin with fourteen rays; ſnout rounded. Gmel.

Inhabits the moſt rapid parts in France, Germany, Hungary, and Ruſſia; it ſwims with great ſwiftneſs, and is exceedingly fertile. The body is blue above, the ſides paler; the ſcales large, and blue at the lower edge.

Nasus. Anal fin with fourteen rays; ſnout prominent. Gmel.

Found in the larger lakes of Pruſſia, Germany, Italy, and the Caſpian ſea; aſcends rivers in ſhoals in the ſpring; and weighs from one to two pounds. The body is oblong; blackiſh above, beneath ſilvery; the belly black within.

Aspius. Anal fin ſixteen-rayed; lower jaw longer and incurved. Gmel.

Native of Europe and the Caſpian ſea; it delights in freſh and gentle ſtreams, and grows to the weight of about twelve pounds. The fleſh is white, ſoft, fat, and well-taſted.

Bipunctatus. Anal fin with ſixteen rays; lateral line red, with black ſpots in a double row. Gmel.

Inhabits ſtony rivers of Germany. This ſpecies is ſmall, and feeds on worms and herbs; the upper part of the body is duſky-green, the ſides greeniſh-white; ſcales ſmall, and dotted with black.

Amarus. Pectoral and ventral fins with ſeven bony rays. Gmel.

This inhabits the ſame country as the preceding; the body is pellucid, ſilvery, above greeniſh-yellow, the ſides above the lateral line yellow; ſcales dotted with black. The fleſh of this fiſh is bitter.

Americanus. Anal fin with eighteen rays. Gmel.

Native of Carolina. The body blue and ſilvery; lateral line arched towards the belly; tail bifid.

Alburnus. Anal fin with twenty rays. Linn. Bleak, Penn. Donov. Brit. Fiſhes.

The bleak is abundant in many of our rivers, and in thoſe of the north of Europe in general; the fleſh is in ſome eſteem, but it is chiefly taken for the ſake of its beautiful ſilvery ſcales, which artiſts make uſe of in the manufactory of artificial pearl.

This fiſh grows to the length of five or ſix inches, or ſometimes even more. At certain times in the ſummer it is infeſted with a ſpecies of gordius, which increaſes in a ſhort time to a vaſt ſize, and oftentimes deſtroys it. Fiſhes ſo infeſted riſe to the ſurface of the water, where they leap and tumble about in the greateſt agonies, and are known in this ſtate to the fiſhermen by the name of mad bleaks.

The ſmall fiſh called the white bait, and which appears in immenſe numbers, during the month of July, in the Thames, near Blackwall, is generally believed to be the fry of this fiſh; but has been lately aſcertained by Mr. Donovan to be the young of the common ſhad. Vide Donov. Brit. Fiſhes. See article Clupea.

Vimba. Anal fin with twenty-four rays; ſnout truncated and prominent. Gmel.

Inhabits the Baltic ſeas, and migrates in ſummer into the rivers of northern Europe. The body is ſilvery, above blueiſh, beneath tinged with green.

Brama. Anal fin twenty-ſeven-rayed; fins brown. Linn. Bream.

Inhabits lakes and ſtill rivers in Europe and the vicinity of the Caſpian ſea. This fiſh feeds on worms and aquatic plants. In ſpring it approaches the ſhores, and aſcends rivers in vaſt ſhoals with a ruſhing kind of noiſe. The body is blackiſh, tinged more or leſs with green on the upper part, the ſides yellowiſh, belly white. The fleſh is inſipid, and not therefore in requeſt.

Cultratus. Anal fin with thirty rays; lateral line ſloping; belly very ſharp. Bloch.

Native of Sweden, Pruſſia, and Germany. Its length is eighteen inches; the colour above grey, beneath ſilvery; fleſh white. The ſpecies is rather ſcarce.

Björkna. Anal fin with thirty-five rays. Gmel.

Inhabits the lakes of Sweden, and grows to the length of five inches.

Farenus. Anal fin with thirty-ſeven rays; iris yellow. Gmel.

Ballerus. Anal fin with forty rays. Gmel.

The body of this ſpecies is thin; above duſky-blue; ſides yellow, beneath ſilvery; belly reddiſh. Inhabits the lakes of Europe, and the Caſpian ſea.

Latus. Very broad; anal fin with twenty-five rays. Gmel.

Inhabits in vaſt ſhoals the lakes and ſtill rivers of northern Europe. This ſpecies is very fertile, and feeds on worms and herbs; the body thin, white, above blueiſh; weight about a pound; the back is arched and carinated at the anterior part.

Cyprinus *Muranula*, a name given to the Salmo *Muranula*; which ſee.

CYPRIPEDIUM, in *Botany*, (from Κυπρις, *Venus*, and ποδιον, *a ſhoe.*) Ladies' ſlipper. Linn. Gen. 464. Schreb. 606. Willd. Sp. Pl. v. 4. 142. Juſſ. 65. Swartz. Orchid. 101. Claſs and order, *gynandria diandria*. Nat. Ord. *Orchideæ*.

Gen. Ch. *Cal.* Perianth of two leaves, one of which is erect, the other dependent; the latter often cloven. *Cor.* Petals two, alternate, with the calyx declining, often twiſted; lip large, inflated, hollow, ventricoſe, obtuſe. *Stam.* Filaments two, very ſhort, inſerted into the ſtyle, under two oppoſite lobes; anthers two-celled, roundiſh. *Piſt.* Germen inferior, obovate, gibbous, twiſted, with ſix angles; ſtyle cylindrical, with a terminal lobe, variouſly ſhaped, covering the hollow triangular ſtigma. *Peric.* Capſule obovate, obtuſely triangular, of one cell, and three valves. *Seeds* numerous, minute, ranged along three linear receptacles.

Eſſ. Ch. Calyx two-leaved, ſpreading; lip large, inflated, hollow.

The moſt magnificent and admired genus of the orchis family, and diſtinguiſhed from all the reſt by being truly diandrous, as well as by its inflated bladder-like lip. Eight ſpecies are now enumerated by Swartz. C. *calceolus*, Engl. Bot. *t.* 1, is the only Engliſh one. This grows ſparingly in the counties of Durham and Yorkſhire; more frequently in Switzerland, in rocky, mountainous, rather ſhady places. C. *parviflorum*, an American kind, *Redouté Liliac, t.* 20, is nearly related to it. The laſt-mentioned country probably affords ſeveral ſpecies, beſides C. *ſpectabile* ſo often figured in botanical works. C. *acaule.* Curt. Mag. *t.* 192, is another American ſpecies, diſtinguiſhed by a cleft in its lip. C. *ventricoſum* of Swartz. Gmel. Sib. *t.* 1. *f.* 2, and C. *macranthos* of the ſame author; Amm. Ruth. *t.* 21, both natives of Siberia, have been confounded with C. *calceolus*, but very improperly, as has his C. *guttatum*. Amm. Ruth. *t.* 22, of which we have never ſeen ſpecimens, except in Pallas's rich Siberian herbarium, now in the poſſeſſion of A. B. Lambert, eſq. V.P. L.S. C. *japonicum* is known only by Thunberg's deſcription and figure in his Ic. Plant. Jap.

Such ſpecies of this beautiful genus as have been introduced into our gardens ſucceed tolerably well in a mixture of bog-earth with much loam, in a ſhady moiſt ſituation. C. *ſpectabile* will bear more ſun, and even artificial warmth, than the reſt.

CYPRIUS, or Colbertinus *Codex*, in *Biblical Hiſtory*, a copy of the four goſpels, brought from the iſland of Cyprus, and referred by Simon to the 10th century. He collated it, and his extracts were inſerted in Mill's edition. Wetſtein, who notes it K, in the firſt part of his New Teſtament, ſays, that it is a latinizing MS.; but Michaelis denies the charge. Montfaucon has deſcribed this MS. in his "Palæographia Græca," and has given a fac-ſimile of its characters. He refers it to the 8th century. It is written in uncial letters, with certain marks over them. It is at preſent in the royal library at Paris, where it is marked 63. Michaelis's Introd. by Marſh, vol. ii. and iii.

Cyprius *Lapis*, a kind of adamant brought from Cyprus, with which the ancients uſed to perforate other gems.

CYPRON, in *Ancient Geography*, a place of Judæa, in the tribe of Benjamin, built by Herod in honour of his mother, and ſituated in the plain of Jericho, near that city. Joſeph. Antiq. l. lxi. c. 9.

CYPRUS, in *Geography*, an iſland of the Mediterranean ſea, ſituated in the great gulf which terminates this ſea to the Eaſt. N. lat. 35°. E. long. 33°. The length of this iſland is about 70 leagues from Eaſt to Weſt; its greateſt breadth from N. to S. is 30 leagues; and its circumference is nearly 180. Towards the north, and at no conſiderable diſtance, are the winding coaſts of Caramania, formerly Cilicia; thoſe of Egypt, more remote, face it to the ſouth; and the ſhores of Syria, on which the Mediterranean ſtops, are not far from it to the weſt. Some of the ancients thought that it formed a part of the latter continent, from which it was detached by ſome violent commotion of the globe, ſimilar to that which ſeparated Sicily from Italy, and ſeveral other iſlands from different parts of the continent. Dr. Woodward, however, conſiders this to have been an iſland ever ſince the deluge of Noah. (Nat. Hiſt. of the Earth, p. 112.) Pliny (H. N. l. v. c. 31.) enumerates ſeveral of the many names by which this iſland was diſtinguiſhed. It was called Aeamis, from one of its promontories; Amathus, Paphia, and Salaminia, from three of its ancient cities; Macaria, or the fortunate iſland, from the fertility of its ſoil, the mildneſs of its climate, the inexpreſſible beauty of its plains, and the richneſs of its productions; Colinia, or Collinia, from its many hills; Sphecia, from its ancient inhabitants, the Spheces; Æroſa, or Copper iſland, from its copper-mines; Ceraſtis, or Ceraſtia, horn iſland, from the multitude of narrow capes or points, by which its coaſts are ſurrounded, and which bear ſome reſemblance to long horns projecting into the ſea; and Cyprus, known to the Greeks under the appellation of Kupros and Kupris, which they gave to Venus, indicating that the worſhip of this goddeſs came to them from this iſland. This latter name has been derived by ſome from the Greek *cryptos*, ſignifying hidden, becauſe the iſland was often concealed by the waves of the ſea from the eye of the ſailor; by others it is ſuppoſed to have been formed from Cyrus, who is ſaid to have founded here the city of Aphrodiſia; but 600 years before the age of Cyrus, in the age of Homer, it was known by the name of Cyprus. Some are of opinion, that the abundance and beauty of the copper contained in the boſom of this iſland occaſioned its receiving the name of a metal, which, being found formerly in metallic maſſes, and leſs difficult to melt than iron, was employed, long before, for fabricating weapons and implements of agriculture. Others have diſcovered the origin of Kupros, in the name of a ſhrub, celebrated by the ancients, ſtill much uſed among the modern Orientals, and in which the iſland of Cyprus carried on a conſiderable traffic. This tall ſhrub, called *kopher* by the Hebrews, and by the Greeks *kupros*, is the *henné*, or *hanna*, of the Arabs, and the *kanna* of the Turks; the *Lawſonia inermis, foliis ſubſeſſilibus ovatis, utrinque acutis* of the Linnæan ſyſtem. This ſhrub embelliſhes and perfumes with its bloſſoms the gardens of the iſland of Cyprus, like thoſe of Upper Egypt. See the above-mentioned articles.

The principal cities of Cyprus were, according to Ptolemy and Strabo, on the north ſide of the iſland, Arſinoe, deriving the name from a queen of Egypt, to which country Cyprus had been long ſubject; Solæ or Soli, ſo called, from reſpect to Solon, the famous Athenian lawgiver, in which was a famous temple conſecrated to Venus and Iſis; Lapithus, or Lapathus; Aphrodiſias, Carpeſia, Cerines or Cerdunia, and Tremitus:—on the eaſtern coaſt were Salamis, afterwards called Conſtantia, ſuppoſed to be the ſite of the preſent Famagoſta, and the ſmall iſlands Clides—two, according to Strabo, and three, according to Pliny;—on the ſouth coaſt were Throni, Citium, Malum, and Amathus, conſecrated to Venus, and having in its vicinity copper-mines, and a famous temple conſecrated to Venus and Adonis;—on the weſt ſide of the iſland were Palæpaphos, or Old Paphos, where Venus is ſaid to have firſt appeared after ſhe was formed out of the froth of the ſea, peculiarly ſacred to this goddeſs, and where the young women proſtituted themſelves to ſtrangers that came on ſhore, in order to raiſe money for their portions, and Neapaphos, or New Paphos, famous for its harbour, and a ſtately temple dedicated to Venus, ruined by an earthquake, but re-built by Auguſtus, and called Auguſta. The inland towns mentioned by Ptolemy are three; *viz.* Chybrus, Trimethus, and Tamathus, or Tamuſius, to which Strabo adds Limenia. The following cities, whoſe preciſe ſituation is now unknown, are mentioned by Pliny, Diodorus Siculus, Pauſanias, Stephanus, and others; *viz.* Cingria, Marium, having a king of its own, Golgi, where Venus was worſhipped, Epidarum, Creſium, Eryſthen, Lacedæmonia, Tegeſſus, Meſina, Hyle, Tembro, Ledrum, or Leuteon.

By the ancient geographers, Cyprus was divided into four diſtricts, or provinces; *viz.* Paphia to the weſt, Amathuſa to the ſouth, Lapitha to the north, and Salaminia to the eaſt. It was afterwards divided into 12 provinces by the princes of the Luſignan family, who were put in poſſeſſion of it by Richard I. of England, and held it for 17 generations. Theſe twelve diviſions were denominated Nicoſia, Famagoſta, Paphia, Audima, Limiſſa, Maſorum, Salines, Meſſoria, Cruſocus, Pentalia, Carpaſſus, and Cerines; ſo called from the chief cities of each diſtrict; beſides which cities, and ſeveral other towns of leſs note, the iſland contained no fewer than 800 villages.

This iſland was firſt diſcovered by the Phœnicians, as we learn from Eratoſthenes (apud Strabonem, lib. xiv.) about two or three generations, according to ſir Iſaac Newton's computation, (Chronology apud Oper. vol. v.) before the time of Aſterius and Minos, kings of Crete; or about the year 1045. B. C. When the iſland was firſt diſcovered, it was, as Eratoſthenes repreſents it, ſo overgrown with wood, that it could not be tilled; and the Phœnicians firſt cut down the wood for melting copper; but afterwards, when they began to navigate the Mediterranean without fear, they applied this wood to the conſtruction of ſhips, and even large fleets. Herodotus alſo ſuppoſes that this iſland was firſt peopled by the Phœnicians. But Joſephus ſays, that the deſcendants of Cittim, the ſon of Javan, and grandſon of Japhet, were the original inhabitants of Cyprus, and that they laid the foundations of the city of Citium, the moſt ancient in the iſland. The learned Bryant, likewiſe, intimates, that the Cuthites (ſee Cúsh) were among the firſt ſettlers in this iſland. Sir Iſaac Newton alſo intimates, that the Phœnicians were accompanied in their migration by a ſort of men who were ſkilled in the religious myſteries, arts, and ſciences of Phœnicia, and who ſettled in ſeveral places under the names of Curetes, Corybantes, Telchines, and Idæi Dactyli, about the period above-mentioned. In proceſs of time, other nations, invited by the fertility of the ſoil, came and ſettled here, *viz.* the Phœnicians, Athenians, Salaminians, Arcadians, and Ethiopians; for Herodotus ſays (lib. vii.) that Cyprus was inhabited by colonies from theſe different countries. The government of Cyprus was, without doubt, monarchical; for we find that kings reigned here in the earlieſt ages. The firſt monarch mentioned in hiſtory is *Cinyras.* (See his article.) However, Cinyras, and his ſucceſſors, whoſe names are unknown, were not kings of the whole country, but only of Paphos, and the adjoining province. At an early period, the realm of Salamis was the moſt powerful in Cyprus; the Salaminian princes having, in proceſs of time, ſubdued the whole iſland. Till the time of Cyrus the Great, the iſland was parcelled out among ſeveral petty kings, each of whom reigned with an uncontrouled authority. Cyrus ſubdued them by his lieutenants, and leaving them in poſſeſſion of their

their reſpective dominions, impoſed upon them an annual tribute, and obliged them to ſupply him and his ſucceſſor, with men, money, and ſhips, whenever they were required. The Cyprians continued in ſubjection to the Perſians till the reign of Darius, the ſon of Hyſtaſpes, when they made an attempt to throw off the yoke; being inſtigated to this revolt by a king of Salamis, about the year 460 B. C. Cimon (ſee his article) received a commiſſion from the Athenians to drive the Perſians from the iſland of Cyprus, and, in purſuance of his victories and of the articles ſtipulated between Artaxerxes and the Athenians, the Perſians withdrew all their garriſons from the iſland, leaving the ſeveral kings, among whom it was parcelled out, to govern their reſpective kingdoms, without any dependence on the kings of Perſia. Accordingly Cyprus remained free from any foreign yoke till the 18th year of Artaxerxes Mnemon, king of Perſia; when it was again ſubjected to the Perſians, together with all the Greek cities in Aſia. In the year 387 B. C. Euagoras II. ſon of Nicocles, who had been raiſed to the throne of Salamis, eminently diſtinguiſhed by his natural and acquired talents, recovered the throne from which his father had been driven by a treacherous uſurper; and by his valour and activity, made himſelf maſter of the greater part of the iſland. This prince having been aſſaſſinated by one of his eunuchs, was ſucceeded by his ſon Nicocles; and Nicocles again by his ſon Euagoras, who was expelled from the throne by his uncle Protagoras. On this occaſion Euagoras joined the Perſians, in hopes of recovering his crown. Cyprus had at this time nine kings, ſubject and tributary to the king of Perſia, who all joined in the confederacy for ſhaking off the Perſian yoke, and making themſelves independent, each of them in his own city. Protagoras made a vigorous defence, and by a compromiſe with Ochus, the king of Perſia, was confirmed in the throne of Salamis. From this time, to the reign of Ptolemy I., no mention of the Cyprian kings occurs. They all, without doubt, ſubmitted to Alexander, upon the ſame terms which had been granted them by the Perſian monarchs, as Arrian (De Exped. Alex.) ſeems to inſinuate. Upon the death of that conqueror, and the partition of his conqueſts, Cyprus fell to Antigonus. But, during his abſence, Ptolemy, the ſon of Lagus, having invaded the iſland with a powerful fleet, reduced the greateſt part of it, and obliged the kings, who reigned there, to do him homage. From this time, 311 B. C. the kings of Cyprus ſhould rather be called governors than ſovereigns, being ſubjects and mere vaſſals to the Egyptian monarchs. Ptolemy was not long in poſſeſſion of Cyprus, before Antigonus, apprized of its fertility and value, commiſſioned his ſon Demetrius to attempt the recovery of it. Accordingly, Demetrius, having raiſed a conſiderable army, and equipped a numerous fleet, invaded the iſland; and, after gaining ſeveral advantages, he totally defeated Ptolemy in a naval engagement, ſo that he was compelled to return to Egypt with the ſmall and ſhattered remnant of his fleet. Upon his retreat, the whole iſland of Cyprus, with all the forces, ſhipping, and magazines, belonging to Ptolemy, fell into the hands of Demetrius. As ſoon as Antigonus received the news of his ſon's ſucceſs, he aſſumed the title of king, and conferred it likewiſe on his ſon.

After an interval of eleven years, Ptolemy again recovered the iſland of Cyprus; and from this time, 293 B. C., it continued ſubject to Egypt, and for a ſhort interval to Syria, till it was unjuſtly ſeized by the Romans in the year 58, B. C. Founding their pretended claim to the iſland on a teſtament of Alexander, late king of Egypt, who died at Tyre, and made the Roman people his heirs, but really wiſhing to gratify the private revenge of Clodius and to indulge their own inſatiable avarice; the ſenate paſſed a decree for ſeizing Cyprus; and Cato was deputed to execute it by dethroning the king, who had been declared a friend and ally of Rome, and had never done any thing to incur the diſpleaſure of the haughty and imperious republic. Cato, on his arrival, took unoppoſed poſſeſſion of the iſland in the name of the republic, and ſeized the treaſury which he found amounting to 7000 talents, or about 1,356,250*l.* ſterling, which were carried to Rome, and lodged in the public treaſury. From the emperors of the weſt, this iſland paſſed to thoſe of the eaſt, and became a part of the Byzantine empire. From them it was taken by the Arabs, under the reign of Heraclius. Iſaac, a prince of the Comneni family, who governed it with the title of duke, fired with ambition, ſeized on the whole iſland, and eſtabliſhed himſelf as its ſovereign, aſſuming the magnificent title of emperor. The weakneſs of the empire for a long time favoured the views of the uſurper; but in 1191, Richard I., king of England, expelled him from the ſovereignty, threw him into priſon, where he was confined with ſilver fetters, and, as ſome ſay, deprived him of his life. Being afterwards ſold by this monarch to the templars, difference of religion cauſed the inhabitants to revolt and take up arms againſt their new ſovereigns; upon which the knights apprehending that they ſhould not be able to retain poſſeſſion of it, ſurrendered it back to Richard, who conferred it on the houſe of Luſignan, as a compenſation for the loſs of Jeruſalem. In 1460, Charlotte, the laſt heireſs of Guy de Luſignan, was expelled from it by James, her natural brother. She married Louis of Savoy; and on this account the dukes of that country aſſume the title of king of Cyprus. After the death of James, Catharine Cornaro, his widow, having no male children, transferred the kingdom in 1480 to the republic of Venice. But the Venetians did not long enjoy their acquiſition; for Sultan Selim wreſted it from them in 1570; and ſince that epoch it has made a part of the Ottoman empire. This change of proprietors and rulers was accompliſhed on the part of the Ottoman forces with an attendant circumſtance of ſavage cruelty. After having ſuſtained ſix aſſaults and experienced the ravages of 500,000 ſhells, the valiant Bregadino, commander of the Venetian army, being forced to yield, capitulated Aug. 1. 1571. The conditions, previouſly ſettled, were honourable to the beſieged, and worthy of their prolonged and brave reſiſtance; but at the moment when the European general went into the tent of Muſtapha, the general of Selim, in order to announce his departure, and take leave of him, the barbarian cauſed him to be ſeized, and delivered up to the moſt cruel tortures. He was ſkinned alive; then impaled; and his ſkin, ſtuffed with ſtraw, was hung to the yard-arm of a galley, as an eternal teſtimony of the horrible inhumanity of the Turks, and a ſignal of vengeance to civilized nations.

This beautiful and productive iſland is divided lengthwiſe by a chain of mountains, the moſt remarkable of which is mount Olympus, or as it is called by the Greeks, Trogodos, Trobodos, or Trobos. The principal towns are Famaguſta and Nicoſia, the latter of which is its capital and the reſidence of its governor. Other towns of ſome note are Larnica, where the conſuls and merchants of European nations fix their reſidence, and near which are Chiti, the ancient Citium, and the hamlet of Salterna, ſo called from a large lake near the ſea in which ſalt is made; Limaſſol, formerly Nemoſia, frequented merely on account of its harbour, in the environs of which the beſt wines are made, and which is the emporium of all thoſe in the iſland who are concerned in trade; and Baffa or Bafo, the ancient Paphos; Cerines, the ancient Ceraunia, with a bad harbour which ſerves, however, for the trade of the iſland with Caramania. On a ſurvey of the preſent ſtate of this iſland, and on comparing it with the accounts of former times, one cannot forbear regretting the pernicious and deſolating influence of a deſpotic government. Sonnini very juſtly obſerves, that the riches which are contained in its boſom, are more deeply buried by deſpotiſm than by the earth with which they are covered. The ſearch after mines is ſtrictly prohibited; and copper, of which it was formerly ſo productive, remains uſeleſs in the bowels of the mountains that contain it, as well as zinc, tin, iron, and other minerals, to the abundance of which it owed its celebrity. The mines of this iſland in ancient times afforded gold, but they have been for ages abandoned, and tradition can ſcarcely aſſign the places where they were found. The copper of Cyprus was in former ages the fineſt in the world, and its rich and primordial mines furniſhed the firſt blocks of that metal which were brought into uſe. The blue or azure vitriol, which ſtill retains the name of Cyprus vitriol, was found in abundance in the copper mines. The ancient Tamaſſus furniſhed a great quantity of it, but the beſt was drawn from Cheruſocco, a village near a gulf of the ſame name occupying the ſite of Acamantis; the vitriol mines of which were wrought towards the end of the 17th century. The iron mines lie ſcattered, and in a quantity ſufficient for the ſupply of the Cypriots themſelves and the trade of the neighbouring countries. In the rocks is alſo found a very fine rock-cryſtal called the Baffa or Paphian diamond, from the place where it is procured. But the place is always ſurrounded by Turkiſh guards, who prevent its being carried away. Some of this cryſtal is likewiſe found in the mountains that lie in the vicinity of cape Chromachiti and of cape Alexandretta. The bowels of the high mountains contain alſo emeralds, amethyſts, peridots, opals, &c. The Scythian jaſper was deemed the beſt among the ancients, next to that was the Cyprian, and laſt of all the Egyptian. The river Pedicus, which has its ſource in the mountains near Nicoſia, rolls down, with its limpid waters, fragments of very fine red jaſper. The quarry which furniſhes aſbeſtos lies in the mountain of Acamantis, near cape Chromachiti, and it is ſtill as plentiful as ever. Talc is common, eſpecially near Larnica; and there are numerous quarries of plaiſter. The quarries of marble afford it in quantity ſufficient for building; but ſcarcely any are now worked but thoſe which yield a common white marble, of little conſiſtence. The Turk allows the unfortunate iſlander to trade in none of the treaſures which the earth conceals but yellow ochre, umbre, and terre verte, ſubſtances common in Cyprus, and which are employed in coach-painting. The trade of coarſe ſalt was formerly a ſource of conſiderable revenues. The ſalt-marſh, near the hamlet called Salterna, where it is found, was formerly three leagues in circumference; but the trade being diminiſhed, the lake is reduced by drainage and culture to about a league in circuit. Some few country barks ſuffice for the conveyance of the quantity which enters into the export-trade, whereas the Venetians annually farmed of it the cargo of 70 large ſhips. The effects of deſpotiſm are no leſs apparent in the productions of the ſurface than thoſe of the bowels of the earth. Olive trees, in conſequence of languiſhing culture, are much leſs common than they were in former times, their fruits no longer afford ſufficient oil for the ſupply of the inhabitants, whereas it was formerly a very conſiderable branch of commerce. Immenſe reſervoirs, in the form of ciſterns, and coated with an impenetrable cement, ſtill ſubſiſt in the environs of Larnica. Mulberry trees ſtill form ſmall woods in certain quarters of the iſland; but in ſeveral others the culture of them is utterly abandoned. The ſilk trade, however, though leſs flouriſhing than it was before the invaſion of the Turks, is ſtill of ſome importance. At Famaguſta, where the market for this commodity is held, there are annually ſold about 25,000 bales, of 300lbs. each, including white ſilk, gold, yellow, ſulphur-yellow, and orange-coloured. The floſs is likewiſe thrown into trade, and like the ſilk itſelf, it is diſpatched to the ports of Turkey or Europe. The carob, or St. John's bread-tree, furniſhes pods, which are an article of conſiderable commerce to Syria and Alexandria. Theſe trees are cultivated in great abundance in the environs of Limaſſol. Moſt of the plains, of which cotton conſtituted the wealth, ſtill preſerve ſome traces of that culture; the whole iſland now affords to commerce about 3, 4, or 5000 bales of cotton, according to the goodneſs of the ſeaſon; whereas under the government of the Venetians, the annual quantity of theſe bales amounted to 30,000. Cyprus cotton is the moſt eſteemed, as the fineſt of the whole Levant, and bearing a higher price. In Cyprus, the ſeeds of the cotton tree are ſown in the month of April; when the plants appear above ground, they are thinned and weeded, and the earth is looſened about them in the courſe of the ſummer; towards the month of October the pods ripen, and the ſilky down which they afford is then ſeparated from the ſeeds which it ſurrounds. A moiſt atmoſphere, and frequent or long continued rains, are unfavourable to the cotton-tree; whereas a ſtrong heat is very ſuitable to it; ſerving to promote the dazzling whiteneſs of the down, and contributing to the fineneſs, and ſubſtance of the ſilk.

At the time when the Venetians poſſeſſed the iſland of Cyprus, they made large plantations of ſugar-canes, which ſucceeded as well as in Egypt, in the beſt diſtricts of the iſland, ſuch as that of Pincopia, on the road from Limaſſol to Baffa, where the beſt cotton in the country alſo grows, and near Laſca in the gulf of Pantala. Proper buildings were erected on the ſame ſpots for refining the ſugar, and great advantages muſt have been derived from theſe plantations, and theſe ſugar-refineries, in a ſituation ſo near Europe. The ſoil of Cyprus in various parts of it is alſo favourable to the vegetation of the coffee-tree, and Sonnini thinks it might be here cultivated with ſucceſs. The goodneſs of the ſoil is evinced by various circumſtances. The gardens are full of pot herbs of a very good quality; cauliflowers are excellent, and vegetables are ſo abundant as to ſupply ſhips with an ample ſtock. Orange-trees, lemon-trees, pomegranate, and other fruit trees abound, and form groves round the habitations. Wheat and barley were formerly ſome of the principal articles of exportation; but now they hardly ſuffice for the ſubſiſtence of the inhabitants, even when they eſcape the deſtructive ravages of the graſshoppers which flock in thick clouds over the fields and dart on their produce. On their approach every kind of verdure diſappears, and they even gnaw the very bark of the trees. It is therefore partly to the oppreſſion of the government and partly to the deſolating ravages of theſe inſects, the deſtruction of which the Turks forbid, becauſe they regard them as ſent by the Almighty, that we are to aſcribe the ſtate of languor and almoſt decay of the agriculture of Cyprus. Theſe ſwarms of graſshoppers, ſays Sonnini, arrive from the continent, where, according to the opinion of M. Haſſelquitz, they muſt be formed in the midſt of the deſarts of Arabia, whence they depart ſupported and impelled by the winds. The ſtrait which they have to croſs from the coaſt of Syria to cape Saint Andrea, the moſt eaſtern point of the iſland of Cyprus, is not more than from 20 to 25 leagues; and a gale of wind may eaſily carry light inſects, aſſiſting themſelves with their wings, and poſſeſſing much ſtrength and agility.

In the iſland of Cyprus they alſo gather madder, called in the Levant *ali-zary*, with which cottons are there dyed red; coloquintida, which cover many fields without culture; a ſmall quantity of cochineal; and opium, cultivated at the foot of mount Olympus, and purified and packed up at Nicoſia. The ſandy ſoil of Cape Cromachiti is covered with ſoda, which is burnt in ſummer, in order to ſend the aſhes to Europe, where it is employed in ſoap-manufactories. The foreſts alſo afford a fine wood for building and for planks; thence are likewiſe drawn tar and pitch; and the turpentine of Cyprus is more eſteemed than that of any other country.

The flocks of Cyprus, that might be more numerous, afford to commerce a tolerably large quantity of wool, which paſſes into Italy and France. One of the productions which the Cypriots rear with the greateſt attention, and which has been a beneficial branch of trade, is the famous wine which is yielded them by vines with twiſting and creeping ſtems, and large delicious fruit. The beſt vines, which ſupply the yellowiſh fruits, and perfumed wine that is ſo much valued, occupy a diſtrict called the "Commandery," becauſe it made a part of the great commandery of the templars, and of the knights of Malta. It is compriſed between mount Olympus and the towns of Limaſſol and Paphos. Among the Greeks of Cyprus, there ſubſiſts a very ancient cuſtom, which is, that when a child is born, they bury large veſſels filled with wine, and cloſely ſtopped; theſe are not taken out of the ground but on occaſion of the marriage of that ſame child. Part of this which remains unconſumed, is ſold to Europeans, and admired for its peculiarly excellent quality. Cyprus wine is conveyed to Europe either in caſks, or in thoſe large glaſs bottles covered with ruſh or wicker, which are called *dames-jeannes*. When Cyprus wine is ſhipped in caſks, and the price is not conſidered, in order to have that of the beſt quality, the purchaſer procures caſks in which has been left a certain quantity of lees, which have the property of improving the wine. Accordingly, the caſks, thus provided with lees, fetch four times the price of thoſe which are deſtitute of them. The wines yearly made in this iſland amount to near 40,000 gallons. The arts, both liberal and mechanical, find little encouragement in Cyprus. With the exception of the preparation of the leather called "Turkey-leather, or Morocco," there are ſcarcely any that deſerve attention. This leather is prepared at Nicoſia, and in the neighbouring villages: the workmen pretend to have a particular proceſs, which they keep ſecret; however this be, it is certain that the leather which has paſſed through their hands is more lively and more brilliant in colour, and is, in general, better dreſſed than in other parts of Turkey. The workmen of Nicoſia and its environs know how to apply dyes that are equally brilliant and durable. They alſo manufacture printed calicoes, the colours of which become brighter by wear and bleaching. Other cloths, half ſilk and half cotton, are likewiſe manufactured in the ſame places; but they fetch a high price, and are of little importance as articles of trade. In return for theſe productions of nature and art, the Cypriots receive woollen cloths, ſatins, light ſtuffs, laces, ſome metals, Indian ſpices, and commodities from European colonies, &c. &c. Theſe articles of the import trade are not ſo numerous as they would be, if the worſt of governments had not ſingularly diminiſhed the population and reſources of one of the fineſt countries of the Eaſt. Cyprus was formerly ſtocked with deers, roebucks, aſſes, wild boars, and a great number of very beautiful pheaſants; but they are now all deſtroyed. No wild animals are ſeen here but foxes and hares; the odoriferous herbs on which the latter feed give their fleſh an agreeable flavour. The moſt common of the winged tribe are rails, partridges, ſnipes, quails, and thruſhes. Of water-fowl there is great plenty. The becaficos and ortolans are remarkably fat, and ſo numerous that they may be procured at the rate of a penny for a dozen. The oxen are lean and ſmall; the mutton is tender and juicy; Cyprus has ſerpents, harmleſs and noxious, and alſo a kind of ſpider called tarantula.

The climate of Cyprus has been reckoned inſalubrious on account of its heat and long continued drought and infrequency of rain. The heat, partly owing to the vicinity of Syria, is in ſummer exceſſive; but it is different in different parts of the iſland, which, being interſected from eaſt to weſt by a chain of mountains, affords two different regions as well as temperatures. To the north, the winds that blow from the high mountains of Caramania, checked and repelled by thoſe with which the iſland is croſſed in its length, temper the heat of the ſummer, produce piercing colds during the winter, and preſerve frozen ſnow on the moſt lofty ſpots, through the greater part of the year. This northern region is alſo, generally ſpeaking, the moſt hilly, the moſt wooded, the moſt rural, and the leaſt fertile. In the plains of the ſouth, on the contrary, the heat of the ſun, reflected by the ſhelves of rocks, which, in a great meaſure, form on this ſide the back of the mountains, there acts at full liberty. The north winds not being able to clear the natural barrier which the middle of the iſland oppoſes to them, do not cool the atmoſphere; and without the light ſea breeze which occaſionally ſprings up and moderates the heat, it would be inſupportable in certain days of the ſummer. Rain here is alſo very rare in this ſeaſon, and long droughts ſometimes baniſh an agreeable verdure, deſtroy the plants, attract cloſe and innumerable columns of graſhoppers, and with the avidity thus occaſioned, introduce a diſtreſſing ſcarcity. The irrigation of the lands is neglected by the oppreſſed and ſpiritleſs inhabitants, while, in ſome diſtricts, ſtagnant waters render them an unwholeſome abode. Running ſtreams are ſcarce, and moſt rivers that flow here are mere torrents, formed by the winter rains, and the melting of the ſnow on the mountains, and whoſe beds are dry during warm weather. The abbé Mariti, who ſeems unwilling to acknowledge the inſalubrity of Cyprus, allows that the inhabitants are very ſubject to intermittent fevers; but theſe, he obſerves, are eaſily avoided by care and temperance. In order to cure them, the Greeks take a draught of their oldeſt wine when they feel the acceſs of the cold fit; and many of the Cypriots live to a very advanced age.

The Greeks, who inhabit this iſland, are tall and well made; their countenances and their manners are equally noble and agreeable. But their moral character is not thought to correſpond with theſe external good qualities. They are ſaid to be the moſt cunning and knaviſh of all the Greeks; qualities which ſome have aſcribed to the oppreſſed and ſlaviſh ſtate to which they are reduced; and even theſe obliquities of diſpoſition and character are ſaid to be counterbalanced by the hoſpitality, for which they are diſtinguiſhed. The Cypriot is gay, ſays Sonnini, and a great friend to ſhow and pleaſure; but he is not the only ſlave whom we have ſeen dancing in his fetters. The women have fine eyes, but, in other reſpects, as Mariti informs us, are far from being beautiful:—they do not, however, degenerate from their anceſtors, as votaries of that goddeſs, whoſe favourite habitation this iſle was ſuppoſed to have been. In their attire they are choice; being exceſſively fond of flowers, as the moſt natural and elegant accompaniment of their other attractions; they do not diſſemble their wiſh to pleaſe, but they manifeſt it with an amiable frankneſs. Although enjoying, perhaps, leſs liberty than they formerly poſſeſſed, the reſtrictions to which cuſtom, or the caprice of the men ſubjects them, does not amount to conſtraint; and at leaſt they no longer compoſe the diſgraceful tribute which their anceſtors paid to the queens of Perſia, of 50 among them, whoſe duty, in a haughty and deſpotic court, conſiſted in throwing themſelves between the wheels of the cars, and preſenting their backs to the queen, who made uſe of them as a footſtool.

Like moſt places in the Levant, Cyprus is ruined by the oppreſſive deſpotiſm of the Turks, which counteracts the bounty of nature, and the productions of the ſoil, and which extends its baneful influence over fields, arts, and men; ſo that the curious traveller every day ſees commerce fail, induſtry decay, lands dry up, and agriculture reſtrained and impoveriſhed. Vallies, once fertile and productive, are either marked by traces of ſterility, or, for want of culture, overrun with brambles and other uſeleſs or noxious plants. Population declines, and men quit a deſolated country, and ſeek other abodes. This iſland was formerly governed by a *baſhaw;* but the poor inhabitants, weary of his extortions, which, as they deluſively imagined, were increaſed in order to maintain the ſplendour of his ſtation, petitioned the Ottoman court to ſend them a *muhaſſil*, or governor of inferior rank:—their requeſt was granted; but they ſoon found that the change of title made no alteration in the rapacity of their plunderer. The revenues are enjoyed by the grand vizir, but he farms them to the governor, who, of courſe, is always the higheſt bidder. When the iſland was firſt taken by the Turks, it contained, beſide women and children, above 70,000 men, ſubject to annual capitation, which produced a revenue of 400,000 piaſtres; the ſum now exacted is much greater, though the number of contributors is ſcarcely a ſixth part of what it then was. When a new tax is to be raiſed, the governor does not immediately call on the people, but ſends his order by his interpreter to the archbiſhop, who communicates it to the biſhops, and theſe muſt obtain the ſum demanded from the inhabitants of their ſeveral dioceſes. Theſe taxes are often of the moſt abſurd kind; ſometimes they are laid on Chriſtian names. The poor people are treated with the moſt unſufferable inſolence by the governors, who do not even condeſcend to give their exactions a decent appearance of equity. This violence in the year 1764, occaſioned an inſurrection, in which the governor met with the death which he deſerved from the fury of the injured people. The conſequence of this was a civil war which laſted two years; but the people, being at length obliged to ſubmit to thoſe whom the ſultan ſent to ſucceed the deceaſed, their attempt to ſhake off the yoke only ſerved to exaſperate their tyrants, and to render their own ſervitude more ſevere. In this iſland there are ſeveral reſident conſuls; among theſe we find, from Mariti's account, that the Britiſh conſul is inveſted with authority to baniſh any of his countrymen who ſhall embrace the Mahometan religion. Sonnini's Travels in Greece. Abbe Mariti's Travels in the Iſland of Cyprus, &c.

CYPRUS, an order of knights, called alſo knights of *Silence*, and knights of *the Sword;* inſtituted by Guy de Luſignan, king of Jeruſalem and Cyprus, in 1192.

The enſign of this order was a collar interwoven in manner of true lovers' knots, garniſhed with precious ſtones, and intermixed with the letters S and R; pendant to which was a medal of gold enamelled, with a ſword, the blade environed with the letter S; round the medal was this motto, “Securitas Regni,” expreſſing the deſign of the inſtitution, which was to oppoſe the inroads and irruptions of the infidels in that iſland.

CYPRUS *Bird*, in *Ornithology*, a common name for the *atricapilla*, or *black-cap*, a very ſmall bird, well known in England, and much more plentiful in the iſland of Cyprus, where it is eſteemed a very delicate bird at table. See MOTACILLA.

CYPRUS *Vitriol*. See CYPRUS and VITRIOL.

CYPRUS *Wood*, in the *Materia Medica*, a name given by ſome authors to the *roſe-wood*, becauſe much of it is brought from the iſland of Cyprus.

CYPSELA, or CYPSELLA, in *Ancient Geography*, a town of Thrace, in the province of Rhodope, according to Thucydides, Appian, Livy, Mela, and Steph. Byz.; the laſt of whom places it near the river Hebrus. In the Itinerary of Antonine, it is marked between Trajanopolis and Syracella. It had been epiſcopal. Bellonius deſcribes alum-works, at a place called Cypſella or Chypſilar; and he ſays, that the alum in commerce was called *alumen Leſbium*, or *di metelin*. “In ſome maps,” ſays Beckmann (Hiſt. Inv. v. i.), “I find the names *Ypſala* and *Chipſilar* on the weſtern ſide of the river Mariza, Maris, or Maricheh, which was the Hebrus of the ancients; in others ſtands the name *Scapſiler* on the weſt bank of the ſea Bouron; and it is not improbable that theſe may be all derived from the old *Scaptaſyle* or *Scapta Hyla*, where, according to the account of Theophraſtus, Pliny, and others, there were conſiderable ruins.”

CYPSELA, a place of the Peloponneſus, in Arcadia. Thucyd. Steph. Byz.—Alſo, a town of Spain, near the Mediterranean ſea, and a mountain named *Celebanticum jugum*.

CYPTASIA, a town of Aſia Minor, in Galatia. Ptol.

CYRA, an iſland of the Perſian gulf. Steph. Byz.—Alſo, a mountain of Africa, in the Cyrenaic territory.

CYRACTICA, a name given by Strabo to an iſland of the Adriatic gulf, called by Ptolemy, Pliny, and others, *Curicta*.

CYRANO DE BERGERAC, SAVINIEN, in *Biography*, a French author, born at Bergerac, in Perigord, in 1620. He was initiated in the art of war, and diſplayed a daring temper, in the number of duels which he fought. He obtained, by his general conduct, the name of “The Intrepid.” At the ſieges of Mouſſon and Arras he was wounded, which, together with his paſſion for literature, induced him to quit the army, for the ſtudy of philoſophy and the belles lettres. Gaſſendi, Chapelle, and Moliere, were his inſtructors; and he became an author, diſtinguiſhed, however, rather for the peculiarity of his works, than for thoſe qualities which give a man diſtinction. He publiſhed a tragedy and a comedy, which were well received; but he is known chiefly for his “Comic Hiſtory of the States and Empires of the Moon:” a burleſque piece, in which philoſophy is blended with ſatire. In a ſimilar ſtyle he wrote “A comic Hiſtory of the States and Empires of the Sun.” He left behind him, likewiſe, “Letters,” “Diſcourſes,” and a ſmall piece on “Phyſics.” In his youth his conduct was licentious, and his opinions ſeemed to accord with his manners. An accident led him to reflection, and to a reformation of his life: but its conſequences were the cauſe of his death, which happened in the year 1655. Moreri.

CYRASSENSIS, in *Ancient Geography*, an epiſcopal ſee of Aſia Minor, in Lydia; mentioned in the Council of Chalcedon.

CYRAUNIS, a name by which Herodotus (l. iv. c. 195.) mentions an iſland ſituated on the coaſt of Libya, near the country of the Gyzantes; it was very narrow, and 200 ſtadia in length, and covered with olives and vines: it had alſo a lake, concerning which ſome fabulous ſtories are related.

CYRBA, a town of Aſia, in Pamphylia. An epiſcopal ſee of this name is mentioned in the Acts of the Council of Nice.

CYRBASIA, Κυρβασια, among the Greeks, a kind of caps with high tops, in form of a cone, which were worn by the prieſts.

CYRE, in *Ancient Geography*, a fountain conſecrated to Apollo, in Africa, on the ſpot where the town of Cyrene was built, to which it gave its name.

CYRENAICA, a country of Africa, bounded on the eaſt by Marmarica, on the weſt by the Regio Syrtica, on the north by the Mediterranean, and on the ſouth by the Sahara. The ancient geographers are ſomewhat divided in opinion as to the extent of this country. Ptolemy ſays, that it extended from the promontory of Cherſoneſus Magnus to the gulf of the greater Syrtis; but Pliny makes its extent more conſiderable, bounding it by mount Catabathenos, and on the weſt by the Smaller Syrtis, and making it 800 miles broad. Strabo alſo aſſerts it to have extended as far as Egypt, and maintains that Marmarica lay between theſe two regions. This country has alſo been called *Pentapolis*, from its having included the five cities, Cyrene, Arſinoe or Teuchira, Berenice, Ptolemais, and Apollonia; however, this canton was only a part of Cyrenaica. Its metropolis was *Cyrene*, which ſee. Berenice, Teuchira, Ptolemais, Apollonia, and Adriane or Hadrianopolis, lay along the coaſt of the Mediterranean; and their inhabitants carried on a conſiderable trade.

Although a great part of Cyrenaica and the Regio Syrtica was a perfect deſert, yet in both countries there were ſome fruitful plains. The inhabitants were ſubject to fevers, which have been aſcribed to the inſalubrity of the air. The Lathon, placed by ſome in Mauritania, was the only conſiderable river of Cyrenaica. The Montes Valpi and Anagombri are the only mountains of note; and the Palus Paliuri is the only fountain or lake. Some parts of the Cyrenaica and Regio Syrtica were famous for the production of the ſilphium, a plant or ſhrub much celebrated by the ancients. Great quantities of this vegetable were imported into Greece, and many other countries. The ancients had various modes of preparing it, both for food and for phyſic, as we learn from Athenæus and Hippocrates. Cyrenaica alſo abounded with a rich oil, as we are informed by Theophraſtus. Athenæus relates, that the roſes, violets, and all other flowers growing in this country, except ſaffron, were famous for the fragrant odours they emitted; and that, in the time of Berenice, a moſt valuable ointment was made of the Cyrenean roſes.

The principal nations inhabiting this tract, or contiguous to it, were the Barcæi, ſo called from Barce or Barca, their capital, the Pſylli, and the Naſamones. The firſt occupiers of this country, as we learn from Herodotus, conſiſted of a colony brought by Battus, the Theræan, from his own country, the iſle of Thera, to Platæa, an iſland on the coaſt of Libya. Hence they removed to that part of the continent that was oppoſite to this iſland, and took poſſeſſion of a delightful province, watered by two rivers, and called Aziriſtus. By the Libyans they were conducted to Iraſa, a charming country to the weſt of Aziriſtus, and here it is ſaid, by Euſebius, they built Cyrene, about the third year of the 37th Olympiad, 630 years B. C. Ariſtotle ſays, that in his time Cyrene was a republic; and we learn from Salluſt, that the people were free, when the contention took place between them and the Carthaginians about their reſpective limits; and that they were governed by their own laws, till the Macedonians ſubdued Egypt, we find aſſerted by Strabo. After ſeveral conflicts with invaders, Cyrenaica was ceded to Ptolemy, and it remained ſubject to the kings of Egypt, till Ptolemy Phyſcon transferred it to his natural ſon, ſurnamed Apion, who, in the year of Rome 657, the 97th year B. C., left it by will to the Romans. The ſenate, inſtead of accepting it, permitted all the cities to be governed by their own laws; a permiſſion which filled the country with a number of petty tyrants, who contended for power, and threw the country into confuſion: but Lucullus in a great meaſure reſtored the public tranquillity, on his arrival, during the firſt Mithridatic war, 89 years B. C. The deſcendants of thoſe Jews who had been ſettled here by the firſt Ptolemy, are ſaid to have greatly contributed to theſe diſturbances. The troubles of the country, however, did not terminate till it was reduced to the form of a Roman province, about 20 years after the death of Apion, and 77 B. C. Strabo ſays, that in his time Crete and Cyrenaica formed one Roman province. Upon a revolt, Cyrene was deſtroyed by the Romans; but they afterwards rebuilt it. In proceſs of time it fell to the Arabs, and afterwards to the Turks, who are the preſent poſſeſſors of it.

CYRENAICI, a ſect of ancient philoſophers; ſo called from the native city of their chief, Ariſtippus of Cyrene, a diſciple of Socrates. See ARISTIPPUS.

The diſtinguiſhing tenets of the Cyrenaic ſyſtem, as far as they can be collected from the caſual, and perhaps unfair, repreſentations of prejudiced contemporaries, and from the adulterated and vague reports of later writers, are as follow:

"Perceptions alone are certain; of the external objects which produce them we know nothing. No one can be aſſured, that the perception excited in his mind by any external object is ſimilar to that which is excited by the ſame object in the mind of another perſon. Human nature is ſubject to two contrary affections, pain and pleaſure; the one a harſh, the other a gentle emotion. The emotions of pleaſure, though they may differ in degree, or in the object which excites them, are the ſame in all animals, and univerſally create deſire. Thoſe of pain are, in like manner, eſſentially the ſame, and univerſally create averſion. Happineſs conſiſts not in tranquillity or indolence, but in a pleaſing agitation of the mind, or active enjoyment. Pleaſure is the ultimate object of human purſuit; it is only in ſubſerviency to this that fame, friendſhip, and even virtue, are to be deſired. All crimes are venial, becauſe never committed but through the immediate impulſe of paſſion. Nothing is juſt or unjuſt by nature, but by cuſtom and law. The buſineſs of philoſophy is to regulate the ſenſes, in that manner which will render them moſt productive of pleaſure. Since pleaſure is to be derived, not from the paſt or the future, but the preſent, a wiſe man will take care to enjoy the preſent time, and will be indifferent to life or death." Such a ſyſtem, we may naturally ſuppoſe, would engage temporary admirers and votaries; but we may no leſs reaſonably conclude, that, whilſt it provided merely for the gratification of the ſenſes and paſſions, and left human nature deſtitute of its nobleſt ornaments and higheſt pleaſures, it would ſoon fall into the contempt which it deſerved.

Cicero makes frequent mention of Ariſtippus's ſchool; and ſpeaks of it as yielding debauchees.

Three diſciples of Ariſtippus, after his death, divided the ſect, the doctrine of which was for ſome time taught by his daughter *Arete*, into three branches; under which diviſion it languiſhed and ſunk: the firſt called the *Hegeſiac* ſchool; the ſecond the *Annicerian*, and the third the *Theodoran*; from the names of their authors.

Hegeſias, gloomy in his temper, and deriving from his principles no ſufficient ſources of happineſs, became ſo thoroughly diſſatisfied with life, that he thought it the only concern of man to avoid miſery; and wrote a book to prove, that death, as the cure of all evil, is the greateſt good: hence he obtained the appellation of πεισιθανατος, the advocate for death. *Anicerris* receded from the doctrine of his maſter ſo far as to acknowledge the merit of filial piety, friendſhip, and patriotiſm, and to allow that a wiſe man might retain the poſſeſſion of himſelf in the midſt of external troubles; but he inherited ſo much of his frivolous taſte, as to value himſelf upon the moſt trivial accompliſhments, particularly upon his dexterity in being able to drive a chariot twice round a courſe in the ſame ring. *Theodorus* was a diſciple of Anicerris, and, for the freedom with which he ſpoke concerning the gods, was ſtigmatized with the name of atheiſt, and baniſhed from Cyrene. At Athens, where he took refuge, his impiety would have terminated fatally to him, if Demetrius Phalereus had not interpoſed in his favour, and introduced him to the court of Ptolemy Lagus. After a long interval he returned to Athens, and is ſaid to have ſuffered death by hemlock; but it has been much diſputed whether his offence was atheiſm or contempt of the Grecian ſuperſtitions. Sextus Empiricus (Adv. Math. l. ix. c. 57.) joins him to thoſe who maintained, that the reputed gods were men, who had poſſeſſed great power on earth; and Clemens Alexandrinus (Protrept. p. 24.) expreſſes his ſurpriſe, that Eumerus, Nicanor, Diagoras, Theodorus, and others, who had lived virtuouſly, ſhould be pronounced atheiſts for their oppoſition to Gentile polytheiſm. Laert. lib. ii. Brucker's Hiſt. Philoſ. by Enfield, vol. i.

CYRENE, now called *Cairoan*, or *Corune*, in *Ancient Geography*, a town of Africa, and capital of the country called Cyrenaica. It derived its name from the fountain Cyre, near which it ſtood; at the diſtance of 11 miles from the ſea, according to Pliny, 24 ſtadia from Apollonia, which was its port. It was large and populous, and abounded with all the elegancies as well as neceſſaries of life. Its territory produced a great number of excellent horſes; a circumſtance which probably induced the Cyreneans, whether Libyans or Greeks, to apply themſelves to the ſtudy and practice of every thing that related to thoſe animals. The inhabitants of Cyrene worſhipped their king, Battus, the founder of their kingdom. Herod. l. iv. c. 161. See Cyrenaica.

CYRESCHATA, a name given by Ptolemy to two towns of Cyropolis, in Media, and in Sogdiana.

CYRETIÆ, a town of Macedonia, in Perrhæbia; ſo called by Livy, and named Chyretiæ by Ptolemy.

CYRIA, an epiſcopal town of Aſia, in Syria.

CYRIL, biſhop of Jeruſalem, was born about the year 315, ordained preſbyter in 344 or 345, and biſhop in 350 or 351, and died in 386. Whilſt Cyril was biſhop of Jeruſalem, the emperor Julian is ſaid to have propoſed to the Jews the rebuilding of their temple, and as ſome writers have aſſerted, made preparations for this purpoſe: but the biſhop, as we learn from Rufinus (l. i. c. 37), conſidering the prophecies of Daniel, and the words of our Lord recorded in the goſpels, confidently aſſerted, that it could not be, that the Jews ſhould be able to lay there, one ſtone upon another.

His works, now extant, are his "Epiſtle to the emperor Conſtantius," mentioned by Sozomen, with "18 Catechetical Diſcourſes," in which he treats of the principal ſubjects of the chriſtian faith, compoſed in 347 or 348, and his "5 Myſtagogic Catecheſes," in which he diſcourſes concerning the two ſacraments of the church. Cave's H. L. vol. i. Lardner's works, vol. iv.

Cyril, biſhop of Alexandria, was a native of this city, and ſucceeded Theophilus as biſhop of it in the year 412. The authority which had been uſurped by this ſee, was enlarged and confirmed by Cyril; for as ſoon as he obtained the epiſcopate, he baniſhed the Novatians, ſhut up their churches, and took away all their ſacred veſſels and ornaments, and deprived their biſhop Theopemptus of his whole property. Soon after, when the Jews committed ſome outrages in the city, the biſhop put himſelf at the head of the people, aſſaulted them in their ſynagogues, drove them out of the city, and permitted the chriſtians to plunder their eſtates. This conduct of Cyril diſpleaſed Oreſtes the governor, whoſe authority was thus invaded, and occaſioned frequent ſkirmiſhes in the city. Cyril was alſo charged with having been acceſſory to a ſedition, in which Hypatia, a famous heathen philoſopher, reſpected and conſulted by Oreſtes, was cruelly murdered; but this charge has been repelled by the advocates of the biſhop. However, Cyril owed his chief fame to his diſpute with Neſtorius, againſt whom he maintained, that the virgin Mary ought to be called the mother of God. This diſpute, trivial and unintereſting in its origin, terminated in a ſevere conteſt, and a general council was ſummoned at Epheſus in order to decide it. Cyril diſtinguiſhed himſelf by a defence of the chriſtian religion againſt the emperor Julian, conſiſting of 10 books, and dedicated to Theodoſius the younger. He died in the year 444. His works are very numerous; they have been collected together and printed in Greek and Latin at Paris in 1538, in 6 large volumes fol. They conſiſt of the commentaries upon the Pentateuch, called "Glaphyra, &c." Iſaiah, the 12 leſſer prophets, and St. John's goſpel; 17 books on the adoration and worſhip of God in ſpirit and truth, compoſed in form of a dialogue; dialogues on the holy and conſubſtantial trinity, and on the incarnation; a diſcourſe of the orthodox faith; homilies, letters, and apologies. Cave's H. L. vol. i. Dupin's E. H. vol. iv. Lardner's works, vol. iii. iv. viii.

CYRILLA, in *Botany*, (named by L'heritier in honour of Domenico Cyrillo M. D. Profeſſor of botany at Naples, and a very eminent phyſician there, who fell a ſacrifice in the ſtormy times of the French revolution. Linnæus had previouſly named a *cyrilla*, which proves a ſpecies of *Itea*. See Itea.) L'herit. Stirp. 147. *t.* 71. Willd. Sp. Pl. v. 3. 229. Claſs and order, *didynamia angioſpermia*. Nat. Ord. *Perſonatæ*, Linn.

Gen. Ch. *Cal.* Perianth ſuperior, of five narrow leaves, permanent. *Cor.* monopetalous, funnel-ſhaped; tube cylindrical, curved, ſlightly compreſſed; limb ſpreading, five-cleft, rounded, the three lower lobes largeſt. *Stam.* Filaments four, inſerted into the tube and included in it; the two lowermoſt longeſt, at length ſpiral; the others with a barren filament between them; anthers ovate, two-celled, at length confluent, whitiſh. *Piſt.* Germen inferior, turbinate, downy; ſtyle thread-ſhaped, ſhorter than the tube; ſtigma two-lobed. *Peric.* Capſule imperfectly two-celled. *Seeds* numerous, minute.

Eſſ. Ch. Calyx five-leaved. Corolla funnel-ſhaped, with a ſpreading, five-cleft, unequal border. Anthers confluent. Capſule inferior, imperfectly two-celled, with many ſeeds.

Only one ſpecies is known, C. *pulchella*, Curt. Mag. *t.* 374. (Achimenes Brown. Jam. *t.* 30. *f.* 1.) a native of moiſt hilly places in Jamaica. It is herbaceous and perennial. Roots granulated and ſcaly. Flowers of a moſt vivid ſcarlet, extremely beautiful. Leaves ovate, ſerrated;

ſtained with purple beneath, as well as pale and poliſhed, like thoſe of *Fuchſia coccinea*. It requires great ſtove heat, and flowers late in autumn.

CYRIUS, in *Ancient Geography*, town of Macedonia, in Emathia, inhabited by a people called Cyrrheſtæ. Ptolemy.

CYRMIARÆ, a people of Thrace, mentioned by Herodotus.

CYRNABA, a gulf of Aſia, placed by Pliny in Serica.

CYRNUS, an iſland of Greece, placed by Pliny in the vicinity of Etolia.

CYROCEPHALUS, in *Botany*, the name given by ſome authors to the *antirrhinum*, the calves-ſnout, or ſnapdragon.

CYROPOLIS, in *Ancient Geography*, a town of Aſia in that part of Media, called Atropatene; between the Cyrus and the Amardus; aſcribed by Ptolemy to the Caduſians.—Alſo a town of India, mentioned by Ælian and ſaid to have been built by Alexander.—Alſo, a town of Aſia, in Sogdiana. Arrian ſays that it was built by Cyrus on the banks of the Jaxartes, and that it was taken by Alexander. He adds, that it was very large, and that its walls were very high; but that it was utterly deſtroyed to its very foundations. It is called *Cyra* by Strabo, and *Cyreſchata* by Ptolemy.

CYRRHA, a port belonging to Criſſa, a town of the Locrians, near a gulf of the ſame name.

CYRRHADÆ, a people of Aſia in Sogdiana, who inhabited the banks of the Oxus. Ptolemy.

CYRRHÆUS, a people of Æthiopia, placed by Claudian on the banks of the Nile.

CYRRHESTICA, a ſmall country of Aſia, being one of the diviſions of Syria; which lay between Seleucia, Commagene, and the Euphrates. It was ſo called from its metropolis Cyrrhus; and had 20 towns according to Ptolemy.

CYRRHUS, or CYRUS, a town of Aſia in Syria, and capital of Cyrrheſtica. Procopius ſays, that it was founded by the Jews, and called by its name Cyrus, in honour of Cyrus their deliverer from the captivity in Aſſyria. It was re-eſtabliſhed and adorned by Juſtinian.—Alſo, a town of Greece, in Macedonia, near Pella-Thucydides.

CYRTA, a river of Gallia Narbonnenſis, in the territory of the Maſſilians.

CYRTÆA or CYRTÆ, a town ſituated on the banks of the Red Sea.

CYRTANTHUS, in *Botany*, (from κυρτος, curved, and ανθος, a flower), Ait. H. Kew. *v.* 3. 510. Willd. Sp. Pl. *v.* 2. 48. Claſs and order, *hexandria monogynia*. Nat. Ord. *Narciſſi*, Juſſ.

Gen. Ch. *Cal.* none. *Cor.* monopetalous, club-ſhaped, curved; its border in ſix ſmalliſh, ovate-oblong, ſegments, of which the three outermoſt are rather the largeſt, and each tipped with a point. *Stam.* Filaments ſix, inſerted into the tube, ſhorter than the corolla; anthers oblong, erect. *Piſt.* Germen inferior, ovate, obtuſely triangular; ſtyle thread-ſhaped, as long as the corolla; ſtigma three-cleft. *Peric.* Capſule of three cells. *Seeds* numerous.

Eſſ. Ch. Corolla tubular, club-ſhaped, curved, its limb in ſix ovate-oblong ſegments. Stamens inſerted into the tube, approximated at the top.

C. *anguſtifolius*, Curt. Mag. *t.* 271. (Crinum anguſtifolium. Linn. Suppl. 195); and C. obliquus, Ait. H. Kew. *v.* 1. 414, Andr. Repos. t. 178. (Crinum obliquum, Linn. Suppl. 195, Amaryllis Umbrella, L'herit. Sert. t. 16.), are beautiful bulbous-rooted plants found at the Cape of Good Hope. The former has drooping ſlender ſcarlet bloſſoms; the latter large penduious ones, variegated with orange and green. Both are cultivated, either in the greenhouſe or ſtove, like other Cape bulbs, and flower in the ſummer.

CYRTANTHUS, in *Gardening*, compriſes plants of the bulbous rooted perennial kind; of which the ſpecies moſtly cultivated are, the narrow leaved cyrtanthus, (C. *anguſtifolius*;) and the oblique leaved cyrtanthus.

Method of Culture.—Theſe are a ſort of plants which are capable of being multiplied either by off-ſets from the roots, or by ſeeds; but the former is much the beſt method.

In the off-ſet method, they ſhould be ſeparated from the roots at the time the ſtems begin to decay, and be planted out in ſeparate pots, being then put under the protection of a greenhouſe or garden frame.

In the ſeed method, they ſhould be ſown in pots in the ſpring ſeaſon, being immediately plunged in a moderate hot bed. And when the plants appear, and have attained ſufficient growth, they ſhould be removed into ſeparate pots.

The plants afterwards require ſimilar management in the different methods of raiſing them to other bulbous rooted kinds from the ſame place.

They afford a pleaſing variety in greenhouſe collections.

CYRTII, a people of Aſia, in Media, mentioned by Strabo and Livy.

CYRTOMA, a bunch or curvity of the back. See GIBBOUS.

CYRTONE, in *Ancient Geography*, a town of Greece, in Bœotia, built on a mountain, according to Pauſanias, who ſays that it had a temple of Apollo, and a wood conſecrated to that deity, and alſo a ſtatue to Diana.

CYRTUS, a town ſituated in the interior of Egypt.

CYRUS, in *Biography*, the famous founder of the Perſian monarchy, and the reſtorer of the Jews to their country, their temple, and their former ſtate, was the ſon of Cambyſes, and was born about 600 years before the Chriſtian era. It is agreed by all writers, that the mother of Cyrus was Mandana, the daughter of Aſtyages, the Median king; but hiſtorians are not unanimous as to the quality and deſcription of his father. Herodotus conſiders him only as a private perſon of high rank; but Xenophon makes him ſovereign of Perſia, ſubject however to the Medes. Dr. Prideaux, who has examined with much attention the two accounts of Herodotus and Xenophon, and who is well qualified to appreciate their different merits, follows decidedly the facts detailed by the latter, becauſe he not only wrote at all times, and on all ſubjects with much conſideration, and a clear judgment, but having lived at the court of the younger Cyrus, was well qualified for the taſk which he undertook. Rollin alſo concurs with Xenophon in his hiſtory of this illuſtrious prince. Cyrus, beautiful in his perſon, and more amiable for the qualities of his mind, lived with his father during the firſt twelve years of his life, and was educated after the Perſian manner in hardſhip and toil, and all ſuch laborious exerciſes, as would tend to fit him for the fatigues of war in which he unqueſtionably excelled all his contemporaries. At this early period he ſurpaſſed all of his age, not only in aptneſs to learn, but in the courage and addreſs with which he executed whatever he undertook. After this he was ſent to Media to the court of Aſtyages, his grandfather, with whom he lived about five years. Here his conduct was ſo excellent and amiable, notwithſtanding the pride, luxury, and magnificence which prevailed in the court of Media, that he was generally ly beloved, and laid the foundation of that attachment to his perſon which enabled him afterwards to perform the exploits which are recorded of him. He was gentle, affable, beneficent and generous. Whenever the young lords had any favour to aſk of the king, Cyrus was their ſolicitor. If the king had any ſubject of complaint againſt them, Cyrus was their mediator; and he always managed their affairs ſo well, that he never failed of obtaining what he deſired. When he was ſixteen years of age, he accompanied Aſtyages in an attack upon the Aſſyrians, who had made inroads upon the Perſian territories; his behaviour on this occaſion was ſuch, that the victory obtained was imputed to his energy and ſuperior prowеſs. Soon after this he returned to his father, with whom he reſided till he had attained the age of forty, when he was called forth to the aſſiſtance of his uncle Cyaxares, by whom he was appointed generaliſſimo of the Medes and Perſians. This led to the eſtabliſhment of that vaſt empire, of which he was the founder, and which he erected upon principles of ſo much wiſdom, that it exiſted, in ſpite of the weakneſs, and the wickedneſs of his ſucceſſors, for a period of 200 years. In this ſketch we ſhall not attempt to follow the hero in all his conteſts; we have already viewed him in his conduct with regard to Crœſus, and in every inſtance, where valour and wiſdom were required, he was found poſſeſſed of all thoſe qualities that can render a man and a prince truly great. After a ſignal victory obtained by Cyrus over the Aſſyrians, aided by Crœſus, a young princeſs of exquiſite beauty was found among the priſoners of war; and in the diviſion of the ſpoil, ſhe was reſerved for Cyrus. Her name was Panthea, the wife of Abradates, king of Suſiana. Upon the report made to Cyrus of her extraordinary beauty, he refuſed to ſee her; fearing (as he ſaid) that ſuch an object might engage his affection more than he deſired, and divert him from the proſecution of the real deſign which he had in view.

When he had dethroned the Lydian king, he completed the reduction of all Leſſer Aſia, and Syria, and then turning his arms againſt the king of Aſſyria, he inveſted Babylon, which he took after a ſiege of two years, and thus put an end to that great and powerful monarchy, B. C. 538. See Babylon.

The deſtruction of Babylon forms a very intereſting event both in profane and ſacred hiſtory; and, more particularly, in its reference to the predictions of Scripture and the ſubſequent ſtate of the Jews. To the particulars that have been recited under the article Babylon, we ſhall here ſubjoin ſome other facts that ſerve to aſcertain the preciſe accompliſhment of the prophecies, pertaining to this event, both as to the cauſes that produced it, and the conſequences that reſulted from it. Iſaiah, who began to deliver his predictions in the year 757 B.C., and who was put to death about the year 696 B. C., and Jeremiah, who died about the year 577 B. C. expreſsly foretold the deſtruction of this city, together with ſeveral circumſtances that attended it, and that marked it as a very important era in the hiſtory of the world. Both theſe prophets ſpeak with ſuch aſſurance of its deſtruction, and of the manner in which it would be brought about, that they ſeem to deſcribe a future event as if it had already occurred, and they had been witneſſes of the cataſtrophe. "Babylon," ſays Iſaiah (xxi. 9.), "is fallen; and all the graven images of her gods he hath broken unto the ground." "Babylon," ſays Jeremiah (li. 8.). "is ſuddenly fallen and deſtroyed, howl for her, take balm for her pain, if ſo ſhe may be healed." (See Iſ. xiii. 6, 9, 15, 18, 19, 22; xiv. 23, 24. Jer. l. 18, 29, &c.) Cyrus, who was the deſtined conqueror of Babylon, and who transferred the empire from the Babylonians to the Medes and Perſians, was foretold by name above an hundred years before he was born; and that the world might not be ſurpriſed at the prodigious rapidity of his conqueſts, God condeſcended to declare, that he himſelf would be his guide, and that in all his expeditions he would lead him by the hand, and would ſubdue all the princes of the earth before him. It was promiſed that he ſhould be a great conqueror, ſubduing nations before him, &c.; and accordingly he ſubdued kings and took ſeveral cities, extending his conqueſts over the whole of Aſia, from the river Indus to the Ægean ſea. It was alſo promiſed that he ſhould find rich ſpoil among the conquered nations; and according to Pliny's account (H. N. l. xxxiii. c. 15.) the treaſure he found in his conqueſts amounted to a prodigious value; nor is this ſurpriſing when we conſider that thoſe parts of Aſia at that time abounded in wealth and luxury; that Babylon had been heaping up treaſures for many years; and that the riches of Crœſus, king of Lydia, conquered and taken priſoner by Cyrus, were in a manner proverbial. "Thus ſaith the Lord to his anointed, to Cyrus," &c. &c. Iſ. xlv. 1—4. The time of the reduction of Babylon was ſpecifically marked out by the prophet Jeremiah (xxv. 11, 12.) "Theſe nations," ſays he, referring to the Jews and neighbouring nations, "ſhall ſerve the king of Babylon 70 years; and it ſhall come to paſs, when 70 years are accompliſhed, that I will puniſh the king of Babylon, and that nation, ſaith the Lord." This prophecy was delivered, as appears from the 1ſt verſe of the chapter, "in the 4th year of Jehoiakim, the ſon of Joſiah king of Judah; that was the firſt year of Nebuchadnezzar king of Babylon," and from that time 70 years elapſed to the taking of Babylon and the reſtoration of the Jews. Several circumſtances relating to the ſiege and taking of Babylon are likewiſe preſignified by the prophets. It was foretold that God would ſtir up the Medes and Perſians againſt it (Iſ. xxi. 2. Jer. l. 11); and accordingly it was beſieged by the united forces of the Medes and Perſians under the command of Cyrus the Perſian, the nephew and ſon-in-law of the king of the Medes. It was foretold that various nations ſhould unite againſt Babylon (Iſ. xiii. 4. Jer. li. 27.); and accordingly Cyrus's army conſiſted of various nations. Moreover it was predicted that the Babylonians ſhould be terrified, and hide themſelves within their walls (Jer. li. 30.), which was actually the caſe, both at his firſt and ſecond ſummons. It was alſo foretold, that the river ſhould be dried up before the city ſhould be taken, an event very unlikely to happen, becauſe it was more than 2 furlongs broad, and deeper than the height of 2 men, ſtanding upon one another. (Iſ. xliv. 27. Jer. l. 38. li. 36.); and it is well known that Cyrus turned the courſe of the river Euphrates, which ran through the midſt of the city, as we have already ſtated under the article Babylon. It was foretold, that this city ſhould be taken by ſurpriſe during a feaſt, (Jer. l. 24. li. 39. 57.) and accordingly the city was taken in the night of a great annual feſtival. It was predicted that the king would be inſtantaneouſly ſeized with horror and perturbation of mind (Iſ. xxi. 3, 4.) and this, we know, was the ſtate of Baltazar or Belſhazzar, when the event occurred. (Dan. v. 6.) The prophecies above cited were delivered by Iſaiah and Jeremiah, and the facts are related by no leſs hiſtorians than Herodotus and Xenophon; and Iſaiah lived above 250 years before Herodotus, and near 350 before Xenophon; and Jeremiah lived above 150 years before the one, and near 250 before the other. As Cyrus took Babylon in the year 538 B.C. Iſaiah delivered his prophecies at leaſt 160 years before the taking of Babylon; and Jeremiah ſent his prophecies concerning Babylon to Babylon by the hands of Seraiah,

“ in the 4th year of the reign of Zedekiah,” (Jer. li. 59.) which was 56 years before the taking of Babylon, for the 4th year of Zedekiah coincides with the year 594 B.C. That the deſtruction of Babylon was complete and final is no leſs expreſsly foretold and minutely deſcribed than other circumſtances attending this event. For the prophecies ſee Iſ. xiii. 19, &c. xiv. 22, 23. Jer. l. 13, 23, 39, 40. li. 13, 26, 29, 37, 42, 43; and for the manner in which they were accompliſhed, ſee the article Babylon.

After Cyrus had ſettled his affairs at Babylon, he went into Perſia to make a viſit to his parents who were ſtill living, and on his way thither through Media, he there married the daughter of Cyaxares, (called in Scripture Darius the Mede) having with her as a dower the kingdom of Media in reverſion, and then with his wife went to Babylon. He now (*viz.* in the year 536 B. C.) iſſued an edict, which has given celebrity to his name, permitting ſuch of the Jews as were remaining from the Babyloniſh captivity, to return to Jeruſalem and rebuild their temple. This decree was certainly obtained by the interceſſion of the prophet Daniel, who was already highly famed for his wiſdom and integrity, in a licentious and truly infamous court. In Daniel, Cyrus ſeems to have placed the higheſt degree of confidence; which the prophet turned to the advantage of his oppreſſed countrymen. From concurring teſtimony, he no doubt pointed out to the prince the prophecies of Iſaiah, in which himſelf was pointed out by the finger of heaven, as deſtined for the moſt important purpoſes; as deſignated to be a great conqueror, and the reſtorer of the Jews to their native land.

The learned Prideaux offers many reaſons that might have concurred to induce the conqueror to comply with the urgent ſolicitations of the prophet, his friend and principal miniſter. Nor does the form of the edict, mentioned in the firſt book of Eſdras, appear to us liable to the objection framed againſt it by an excellent biographer. Though Cyrus was born and brought up as an idolater, the interpoſition of providence muſt occaſionally have made an impreſſion on his mind, which Daniel ſeems to have converted to the beſt ends.

He ſpeaks in his decree in the name of the lord of Iſrael; he was too wiſe to believe in the gods which his countrymen and the world in general were accuſtomed to worſhip, and was probably too much enlightened to refer the paſſing events of life, and the revolutions of empires, to what the ignorant would denominate chance. He had heard of the hand-writing on the wall, which none but Daniel could explain, and he only, according to his own profeſſion, by the interpoſition of his God. He had been informed of the deliverance of the ſame excellent man from the lion's jaws, and he might be almoſt, if not altogether perſuaded, that the God of Iſrael was the God that had made him “ king of the whole world.”.

Cyrus not only permitted and encouraged the Jews to return to their own country, but readily reſtored all the ſacred veſſels and furniture which Nebuchadnezzar had brought from Jeruſalem, and depoſited in the temple of Baal. Having eſtabliſhed his empire, which was bounded on the eaſt by the river Indus, on the north by the Caſpian and Euxine ſeas, on the weſt by the Ægean ſea, and on the ſouth by Ethiopia and the ſea of Arabia, upon a foundation not eaſily ſhaken; he fixed his reſidence in the midſt of all theſe countries, ſpending generally 7 months of the year at Babylon in the winter ſeaſon, on account of the warmth of that climate, 3 months at Suſa, in the ſpring of the year, and 2 months at Ecbatana during the heat of the ſummer. Seven years being ſpent in a ſtate of tranquillity, as he was equally beloved by his own natural ſubjects, and by thoſe of the conquered nations, he returned into Perſia, which was the ſeventh time from his acceſſion to the whole monarchy. At this time he was about 70 years of age; 30 of which had elapſed ſince his having been firſt made general of the Perſian forces, and from the capture of Babylon, and 7 from his beginning to reign alone after the death of Cyaxares. His life had been uniformly ſober and temperate, and he therefore enjoyed to the laſt a vigorous ſtate of health. When he perceived that the time of his death was drawing near, he ordered his children and the chief officers of the ſtate to be aſſembled near him; and, after having thanked the gods for all their favours to him during the courſe of his life, and implored ſimilar protection and favour on behalf of his children, his country, and his friends, he declared his eldeſt ſon, Cambyſes, his ſucceſſor, and left the other, whoſe name was Tanaoxares, ſeveral very conſiderable governments. He gave them both excellent inſtructions, and repreſented to them that the main ſtrength and ſupport of the throne were neither the vaſt extent of countries, nor the number of forces, nor immenſe riches; but a due reſpect for the gods, a good underſtanding between brethren, and the art of acquiring and preſerving true and faithful friends. After having given his hand to be kiſſed by all who were preſent, finding himſelf at the point of death, he added theſe laſt words: “ Adieu, dear children, may your lives be happy; carry my laſt remembrance to your mother. And for you, my faithful friends, as well abſent as preſent, receive this laſt farewell, and may you live in peace!” Having cloſed this addreſs, he covered his face, and died, according to Xenophon, quietly in his bed; but if Herodotus is to be credited it was in battle, occaſioned by the invaſion of the Scythians. To the former opinion Dr. Prideaux, Rollin, and the writers of the Univerſal Hiſtory, are decidedly inclined, and by this account he was at his death ſeventy years of age. Xenophon ſays that he was buried at Paſargarda, and that his monument was to be ſeen in the time of Alexander the Great.

Cyrus, ſays M. Rollin, may be juſtly conſidered as the wiſeſt conqueror, and the moſt accompliſhed prince whoſe name occurs in prophane hiſtory. He poſſeſſed all the qualities requiſite to form a great man; wiſdom, moderation, courage, magnanimity, noble ſentiments, a wonderful ability in managing men's tempers and gaining their affections, a thorough knowledge of all the branches of the military art, as far as that age had carried it, a vaſt extent of genius and capacity for forming, and an equal ſteadineſs and prudence for executing the greateſt projects. As real merit was the foundation and ſupport of his greatneſs, he affected no ſelf-importance and haughtineſs of demeanour, but ſtudied to render himſelf affable and eaſy of acceſs; and he was amply compenſated by the cordial affection and reſpect of his people. He was beloved, and had many friends, becauſe his ſentiments were kind and liberal, and he was friendly in his diſpoſition and conduct. Cicero obſerves (lib. 1. epiſt. 2. ad. Q. fratrem), that during the whole time of Cyrus's government he was never heard to ſpeak one rough or angry word; and this ſhewed a very ſingular degree of ſelf-command. It was his invariable perſuaſion, that all his purpoſes and labours ſhould tend to the happineſs of his people. Whilſt he was one day diſcourſing with his courtiers upon the duties of a king, he obſerved that a prince ought to conſider himſelf as a ſhepherd; and that he ought to have the ſame vigilance, care, and goodneſs. Many great and good characters have been formed by adverſity and affliction; but Cyrus was great and good without this kind of diſcipline. He himſelf informs us, that during the whole courſe of his life, the happineſs of it was never interrupted by any unfortunate accident, and that in all his deſigns the ſucceſs had anſwered his utmoſt expectations. He adds, however, that in the midſt of his uninterrupted proſperity, he ſtill reſerved in his heart a ſecret fear, proceeding from the changes and misfortunes that might happen; and this prudent fear was not only a preſervative againſt inſolence, but even againſt intemperate joy. As to the nature and motives of his wars and victories, M. Rollin conſiders Cyrus as having maintained a very different character from thoſe conquerors who are influenced by ambition and avarice, and who are chargeable with violence and injuſtice. Although Cyrus was not in every reſpect juſtifiable, yet he reverenced the laws, and well knew that there are unjuſt wars, which being undertaken without juſt foundation, render the perſon concerned in exciting and producing them accountable for the blood that is ſhed. Cyrus's conqueſts were the conſequences of the victories he obtained over Crœſus, king of Lydia, who was maſter of the greateſt part of Leſſer Aſia, and over the king of Babylon, who was maſter of all Upper Aſia, and many other countries; both which princes were the aggreſſors. With good occaſion, therefore, is Cyrus repreſented as one of the greateſt princes recorded in hiſtory; and his reign juſtly propoſed as the model of a perfect government, which it would not be, unleſs juſtice had been the baſis and foundation of it; "Cyrus à Xenophonte ſcriptus ad juſti effigiem imperii." Cic. l. i. epiſt. 1. ad Q. fratrem. Prideaux's Connection. Univerſal Hiſt. Rollin's Anc. Hiſt.

Cyrus, ſecond ſon of Darius Nothus, king of Perſia, was born about the year 423 before Chriſt. He was ſent at the age of ſixteen to govern the provinces of Aſia Minor. In this ſituation he aſſumed all the haughtineſs of royal birth, and inflicted the puniſhment of death on ſome of his own relations, who approached him without a due regard to the cuſtoms and ceremonies of the times. For this he was called ſeverely to account by his father, who, on the preſent, and on ſome other occaſions, was with difficulty reconciled to him. He engaged in a conſpiracy againſt his elder brother, for which he was condemned to death, but the ſentence was commuted into baniſhment to the provinces; being, however, of a reſtleſs diſpoſition, as well as cruel and ambitious, he raiſed an immenſe army, under falſe pretences, but really with a view of attacking his brother. On the plains of Cunaxa, in the province of Babylon, he came in ſight of Artaxerxes at the head of 100,000 men. Cyrus was attended by Clearchus, who adviſed the prince to remain in the rear; but prudence and fear were not among his qualities; he poſted himſelf in the van; and ſo great was his ſucceſs at the outſet of the buſineſs that he was ſaluted king by thoſe around him. Ruſhing, however, too far into danger, he was ſlain, at the moment when victory appeared to be deciding the fate of the day. This battle is ſuppoſed to have been fought B. C. 400. Univerſal Hiſtory. Prideaux and Plutarch.

Cyrus, in *Ancient Geography*, one of the largeſt rivers in Aſia. Strabo ſays, that it had its ſource in Armenia, that it ran through this country, Iberia, and Albania, and that after having received the waters of the Araxes, and of ſeveral other rivers, it diſcharged itſelf by two mouths into the Caſpian ſea. Ptolemy calls it *Cyrrhus*, and Plutarch *Cyrnus*. The former ſays that it was only a branch of the Araxes that flowed into this river, and that the other branch ran into the Hyrcanian ſea. Strabo, Plutarch, and Appian ſay that it had two mouths; but Herodotus gives it 40.—Alſo, a river of Aſia, in Media. Ptolemy places its mouth between the Cambyſes and the Amardus.—Alſo, a river of Aſia, which ran through the vallies of Perſis, near the Paſſagardæ, according to Strabo; who adds that the king had given it the name of Cyrus inſtead of its ancient appellation of Agradate. It diſcharged itſelf into the Perſian gulf.—Alſo, an ancient town of Syria, called Cyrrhus; which ſee.—Alſo, a town of Greece, in the iſland of Eubœa.

CYSSUS, a town and port of Aſia, oppoſite to and eaſtward of the town of Chios, in an iſland of the ſame name. This port is known by the victory which the Romans gained here over the fleet of Antiochus, in the year of Rome, 561. Livy, l. xxxvi. c. 44.

CYST, in *Surgery*, the bag, or membrane, in which an encyſted tumor of the ſteatomatous, atheromatous, or ſarcomatous kind, is included. In extirpating theſe tumors, if, by neglect, or accident, the cyſt, or any conſiderable part of it be left behind, the tumor will not fail to return. Indeed, if the tumor be a ſchirrhus, the contents are hard enough to make a clear extirpation of it, notwithſtanding its including coats be wounded; but when the matter of the tumor is ſoft, or fluid, by its eſcaping the tumor will become flaccid; ſo that it will be hardly poſſible to make a clear extirpation of the cyſt without leaving ſome fragments of it behind, which muſt, in that caſe, be brought away afterwards by ſuppuratives, digeſtives, and a proper treatment; and when the ſinus is, by this means, cleared, the wound may be ſafely healed, without any danger of the return of the complaint.

CYSTICA Arteria; is a branch of the hepatic artery, which ſupplies the gall-bladder. See Artery.

CYSTICAPNOS, in *Botany*. See Fumaria.

CYSTICS, denote medicines againſt diſtempers of the bladder. See Stone, Lithontriptic, &c.

CYSTICUS Ductus, in *Anatomy*, is the tube of communication between the gall-bladder and the hepatic duct. See Liver.

CYSTIRRHÆA. See Catarrhus *veſicæ*.

CYSTIS Fellea, a Latin term for the gall-bladder.

Cystis, in *Botany*, a name by which many authors have called the *alkekengi*, or *winter-cherry*. It had this name cyſtis, from the remarkable character of its fruits being contained in a ſkinny bladder, or bag. It was generally, however, called *halicaccabum*.

Cystis, the ſame with veſica or bladder.

The word is κυϛις, which ſignifies the ſame.

Cystis *choledocha*, the ſame with felliculus, or veſicula fellis.

CYTA, Cutatis, in *Ancient Geography*, a town of Aſia, in the kingdom of Colchis (now Mingrelia) ſituated at the mouth of the river Cyaneus, N. E. of Tynderis. It is ſaid to have been the birth-place of the famous Medea, denominated from thence, by the poets, Cytæis.

Cyta, or *Cytæa*, an ancient town of Scythia. Steph. Byz.

CYTÆUM, Soudag, a town of the Tauric Cherſoneſus, near the ſea, N. E. of the promontory.—Alſo, a town ſituated on the northern coaſt of the iſle of Crete; now called *Corax Settia*. It had been epiſcopal.

CYTAIS, a country of Aſia, in Carmania.

CYTHARA, in *Muſic*. See Cithara.

CYTHEORUM, in *Ancient Geography*, a town of Aſia, in the Pontus Polemoniacus; the *Cotyorum* of Pliny, and *Cotyora* of Xenophon.

CYTHERA, now Cerigo, one of the Greek iſlands, ſituated in the Laconic gulf, oppoſite to Malea, or promontory of Laconia, from which it is diſtant, according to Strabo, 40 furlongs. Stephanus ſays, that it derived its name Cythera, from a Phœnician, called Cytherus, who ſettled here. Before his arrival it was called Porphyris, or Porphyriſſa, as ſome ſay, becauſe it abounded with porphyry; or, as others affirm, on the authority of Ariſtotle, becauſe the beſt ſcarlet was dyed here. It is about 60 miles in compaſs, bleſſed with a fruitful ſoil, and has ſeveral havens, one of them very ſafe and ſpacious, called anciently Scandea, about ten furlongs from the city of Cythera, ſituated on the ſouthern coaſt of the iſland, and once famous for the temple of Venus, ſurnamed Urania, or heavenly; the moſt ancient and moſt reſpected temple in Greece. See Cytherea.

Cythera, a town of the iſland of Cyprus, ſuppoſed by ſome to be the preſent village, *Conucha.*—Alſo, a town of Greece, in Theſſaly.

CYTHEREA, in *Mythology*, the ſurname of Venus, ſo called from the iſland Cythera, into which her worſhip was brought by the Phœnicians, and where ſhe had a temple eſteemed the moſt ancient in Greece. In this temple was a ſtatue of the goddeſs, in complete armour, holding, like Pallas, a javelin in her hand. Upon her firſt ſpringing out of the froth of the ſea, for ſuch was her origin, ſhe is ſaid to have been borne to the ſhores of this iſland by the Zephyrs, ſurrounded by the Loves, the Tritons, and Nereides, reclining in a languiſhing poſture, in a ſea-ſhell. They give the name of *Cytheriades* to the Graces which attended her on the ſhore without quitting her, except on thoſe occaſions, when ſhe rather choſe to be waited on by the Pleaſures. From this iſland ſhe was carried to Cyprus; and this iſland, as well as Cythera, was in a peculiar manner ſacred to her.

CYTHERIUM, in *Ancient Geography*, a town of Italy, ſituated in the interior of Oenotria; ſuppoſed to be the preſent *Cyriſano.*

CYTHERON, a mountain of Greece, in Bœotia, conſecrated to Jupiter Cytheronius. (Pauſan. l. ix. Bœotic.) In a defile of this mountain Oedipus is ſaid to have ſlain his father Laius.

CYTHERUS, a river of the Peloponneſus, in the Elide, where it watered the town of Heraclea.—Pauſanias ſays that at the ſource of this river there was a temple conſecrated to the nymphs called *Ionides.* This river is called *Cytherius* by Strabo.

CYTHINON, in *Botany*, a name given by the ancient Greeks to the yellow wood, called alſo thapſum and chryſoxylon, a wood uſed in dyeing cloths, &c. See Cymene. It was alſo called *Scythicum lignum,* Scythian wood, from the country whence it was brought; and from this laſt name it is eaſy to deduce the name cythinon. The old Greeks often wrote cythinon for ſcythinon, and the leaving out the initial ſ, which was a common practice among them, reduces this word to cythinon. Familiar inſtances of this practice occur to us in the words milax for ſmilax, maragdus for ſmaragdus, &c.

CYTHIUM, in *Ancient Geography,* a town of the iſland of Cyprus, in which Cimon died.

CYTHNUS, one of the Greek iſlands, diſtant about 12 miles E. of Ceos, and eſteemed by Strabo to be one of the moſt fruitful iſlands of the Ægean ſea. It was the birthplace of Cyadias, an eminent painter, mentioned by Dionyſius, and his commentator Euſtathius. The cheeſe of Cythnus was, according to Stephanus and Julius Pollux, in great eſtimation among the ancients. This iſland is now called Thermia; which ſee. On the ſouthern coaſt there are ſome remains of an ancient and very magnificent city. Cythnus was alſo called *Ophiuſſa* and *Dryopis.*

CYTINA, a town of Greece, in Theſſaly. Steph. Byz.

CYTINIUM, a town of Greece, in the Doride, according to Strabo, who adds, that it was one of the cities which cauſed the country in which they were ſituated to be called *Tetrapolis.*

CYTINUS, in *Botany*, (perhaps, as Martyn ſuggeſts, "from κυτινοι, a name given by Theophraſtus to the bloſſoms of the pomgranate," whoſe calyx the flower in queſtion reſembles in ſhape.) Linn. Gen. 878. Schreb. 609. Willd. Sp. Pl. v. 4. 589. Juſſ. 73. Claſs and order, *gynandria octandria.* Nat. Ord. *Ariſtolochiæ,* Juſſ.

Gen. Ch. *Cal.* Perianth of one leaf, tubular, ſomewhat bell-ſhaped, coloured, permanent; its border four-cleft. *Cor.* none. *Stam.* 8; anthers ſeſſile on the ſtyle under the ſtigma, oblong, 2-celled. *Piſt.* Germen inferior, roundiſh; ſtyle cylindrical, thick, rather ſhorter than the calyx; ſtigma in 8 lobes. *Peric.* Berry globoſe, crowned with the calyx, of 8 cells. *Seeds* numerous, minute.

Eſſ. Ch. Style 1. Calyx ſuperior, 4-cleft. *Cor.* none. Anthers 8. Berry of 8 cells. Seeds many.

The only known ſpecies is C. *hypociſtis*, Rape of Ciſtus, a fleſhy pale-yellowiſh plant, paraſitical on the roots of ſeveral ſpecies of *Ciſtus* in the ſouth of Europe. It is figured in the wooden cuts of many old authors, alſo in *Cavan. Ic. t.* 171. Its qualities are ſaid to be of an aſtringent nature.

CYTIS, in *Ancient Geography*, the name given by Pliny to an iſland which he places at the entrance of the Red ſea.

CYTISO Genista, in *Botany*. See Genista.

CYTISUS, (κυτισος of the ancient Greeks.) Linn. Gen. 378. Schreb. 499. Willd. Sp. Pl. v. 3. 1118. Juſſ. 354. Claſs and order, *diadelphia decandria.* Nat. Ord. *Leguminoſæ,* Juſſ.

Gen. Ch. *Cal.* of 1 leaf, bell-ſhaped, obtuſe at the baſe; upper lip of 2, lower of 3 teeth. *Cor.* papilionaceous; ſtandard ovate, erect, reflexed at the ſides; wings as long as the ſtandard, ſtraight, obtuſe; keel ſwelling, pointed, of 2 petals. *Stam.* Filaments in 2 ſets (ſingle and nine-cleft), aſcending; anthers roundiſh. *Piſt.* Germen oblong, compreſſed; ſtyle aſcending; ſtigma obtuſe. *Peric.* Legume oblong, taper at the baſe, of 1 cell. *Seeds* ſeveral, kidney-ſhaped, compreſſed.

Eſſ. Ch. Calyx 2-lipped; the upper of 2, lower of 3, teeth. Legume of 1 cell, with ſeveral ſeeds, taper at the baſe.

The ſpecies are very numerous, ſhrubby, without thorns; their leaves ternate; their flowers copious, generally yellow; except C. *purpureus*, an elegant Auſtrian ſpecies, frequent in our gardens. C. *Laburnum*, ſo commonly cultivated, even in towns, is a native of Auſtria, Switzerland, &c. Its wood is hard and valuable; its bunches of flowers moſt ornamental; but its ſeeds bitter and poiſonous. Hares and rabbits are particularly fond of the leaves and bark. C. *ſeſſilifolius* is a ſmaller, but very pretty and alſo hardy ſpecies. C. *Cajan* is a tropical ſhrub, which but ill accords with this genus.

Cytisus of Virgil. See Medicago *arborea.*

Cytisus, in *Gardening*, comprehends plants of the evergreen and deciduous flowering ſhrubby kinds; of which the ſpecies chiefly cultivated are, the laburnum, (*C. laburnum*) the common cytiſus, (*C. ſeſſilifolius*), and the hairy evergreen cytiſus, (*C. hirſutus.*)

Method of Culture.—Theſe are plants which are all capable of being increaſed by ſeeds, and many of them by cuttings and layers likewiſe.

In the firſt mode the ſeeds ſhould be ſown, either on beds, or, where the plants are to remain, in the ſpring, as about March, being in this way, when of ſufficient growth, tranſplanted into nurſery-rows, to remain till of a proper ſize for being planted out in the ſituations where they are to grow. When ſown where they are to remain, they only require to be kept perfectly free from weeds, and trimmed to one good plant in a place, giving the tender ſorts the protection of mats during the ſeverity of the winter-ſeaſon.

The trees of moſt of the ſorts affords ſeeds in abundance in the autumnal ſeaſon. In the cuttings method, they ſhould be made from the young ſhoots, ten or twelve inches in length, and planted out in a rather moiſt, ſhaded ſituation, either in the early autumn or ſpring months, in rows twelve or eighteen inches apart, and eight or ten in the rows. They moſtly become well rooted in the courſe of twelve months; and would then be kept perfectly clear of ſeeds till removed.

The layers may be laid down either in the ſummer, autumn, or ſpring ſeaſons; and when the plants are well rooted, they ſhould be taken off, and planted out in nurſery-rows, as deſcribed above, for the other methods.

In the management in the nurſery they only require to be preſerved from the injury of weeds, and to have the land dug well between the rows annually in the autumn, till they are removed; being ſuffered to take their natural growth in a great meaſure while there.

Moſt of the ſorts are hardy, and ſucceed well in almoſt any ſoil or ſituation. The third ſort ſhould have a dry ſoil, and ſheltered ſituation, as it is liable to be injured by froſt. It may alſo be planted in pots, and placed in the green-houſe, during the winter-ſeaſon, when neceſſary.

They are all plants which are very ornamental for the borders, clumps, and other parts of ornamented grounds; affording much variety by their numerous beautiful bunches of flowers. The large ſorts ſhould be placed towards the back parts, and thoſe of leſs growth towards the fronts and more conſpicuous parts of ſuch ſituations.

CYTNI, in *Ancient Geography*, a people placed by Ptolemy in the eaſtern part of the Upper Pannonia.

CYTONIUM, a town of Aſia Minor, on the confines of Lydia and Myſia.

CYTORUS, or Cytorum, a town ſituated on a part of the coaſt of Paphlagonia, which is inclined from the ſouth-weſt to the north-eaſt, between the promontory Carambis and Amaſtris. It is thought to have been founded by a colony of Mileſians. According to Strabo, it had been a port of the inhabitants of Sinope. In its vicinity was a mountain, which produced a beautifully-veined box-tree. Its foundation is aſcribed to Cytor, ſon of Phryxus; and it was one of the four towns which formed the eſtate of Amaſtris, ſiſter of Darius, and wife of Dionyſius, tyrant of Heraclea, at the time of the deſtruction of the Perſian empire. It is mentioned by Pliny, Virgil, Suidas, and Xenophon, the latter of whom ſays that it was a ſea-port, where the Greeks embarked; and after having navigated a day and night, they arrived at Sinope.

CYTTIUM, a town ſituated on the ſouthern part of the iſland of Cyprus; called by Pliny and Ptolemy *Citium*.

CYULES, a name given by William of Malmeſbury, Gildas, and others, to the long galleys in which the Saxons, under the command of Cerdic, were tranſported to Britain. Of theſe galleys there were five, and the number of men conveyed by them was 15,800; and therefore they muſt have been very capacious, and the barbarians muſt have been ſatisfied with very inconvenient accommodations.

CYZICENE Æcus, or hall: a name given to apartments of a particular conſtruction in the ancient villas, and thus explained by Vitruvius. "They are ſituated towards the north, generally have a view of the garden, and have valved doors in the middle. They are of ſuch a length and breadth, that two triclinia, with their ſurrounding appendages, may be placed oppoſite to each other. They have alſo valved windows on the right and left, that the garden may be ſeen through their openings, and their height is equal to one and a half their breadth. Theſe Cyzicens, or Cyzicena, were, among the ancient Greeks, what the *triclinia* and *cœnacula* were among the Romans.

CYZICUM Marmor, a ſpecies of marble, ſo called by the ancients from the great uſe made of it by a ſtatuary called Cyzicus. It was white, with fine narrow veins of black, and was called alſo Proconnesium *marmor*.

CYZICUS, or Cyzicum, in *Ancient Geography*, a town in that part of Aſia Minor which lay on the Propontis, ſeated on an iſland of the Propontis, bearing the ſame name, but joined to the continent with two bridges by Alexander the Great. It had two ports, which were formed ſo as to cloſe themſelves: one of them, called *Panormus*, was the work of nature, the other, the production of art, was called *Chytus*, from the Greek κυτος, denoting a work formed by digging; ſomewhat ſimilar to the oriental *Cothon*. One part of this city was on a plain, another towards mount Arctos. According to Pliny, it conſiſted of a colony of Mileſians. It is ſaid to have borrowed its name from Cyzicus, king of that iſland and the adjacent continent, who is ſaid to have been killed through miſtake by Jaſon, the Argonaut. When this city became firſt known to the Romans, it was one of the richeſt and largeſt in Aſia; and hence was ſtyled by Florus, the Rome of Aſia, and celebrated for its walls, bulwarks, haven, marble towers, &c. Among its magnificent buildings, the chief temple is particularly celebrated by the ancients;—the whole ſtructure was of poliſhed marble, and the joinings covered with lines of gold; the pillars were four cubits thick, and fifty high, each of one piece. The ſtatue of Jupiter, which ſtood in the temple, was of ivory, and moſt exquiſite workmanſhip. In ſubſequent ages, this city made a glorious ſtand againſt Mithridates, who loſt under its walls no fewer than 300,000 men, and after all failed to reduce it. At this time it was diſtinguiſhed by wiſe laws, a naval power of 200 gallies, and three arſenals of arms, of military engines, and of corn. (Strabo, l. xii.) But in the year 365, the city and iſland of Cyzicus were conſtrained after an honourable defence, to yield to the power of Procopius, aided by the Gothic princes. However, the ancient inhabitants of this city and iſland were generally deemed a cowardly and effeminate race; inſomuch that a man of a timorous diſpoſition was contemptuouſly called a "Cyzican." Cicero repreſents them as a quiet and inoffenſive people, unaccuſtomed to ambitious machinations againſt the neighbouring nations, and willing to ſacrifice every thing to the enjoyment of the ſweets of peace.

The current coins of this iſland, called ſtater, weighing 18 drams, were engraved with ſuch exactneſs, nicety, and ſkill, that they were looked upon in ancient times as a miracle of art. Thence originated the Greek proverb Κυζικηνοι στατηρες, an expreſſion uſed in commending any eminent performance in the art of engraving; as if the Cyzican ſtatues were the utmoſt effort of that art. This coin repreſented on one ſide Cybele, the great mother of the gods, and a lion on the other; which has induced ſome to think that the above-mentioned proverb was a taunt on thoſe who boaſt of their prowеſs, and affect to appear like lions, though they be in reality as timid and fearful as women. (Eraſm. Chiliad.)

The inhabitants of Cyzicus made pretenſions to very high antiquity; and believed that their city had been given by Jupiter to Proſerpine for her dowry, on which account they worſhipped her as their chief deity. Appian (in Mithrid.) has particularly deſcribed the beauty, magnitude, riches and laws of this city. It was ruined by an earthquake; and the fallen marbles and pillars were conveyed to Conſtantinople, for the embelliſhment of that city. Under the Romans it was the metropolis of the conſular Helleſpont, and a metropolitan ſee under the patriarchate of Conſtantinople; but it is now little better than a village, known under the names of Chizico, Spiga, and Palormi.

CZACHEC, in *Geography*, a town of Lithuania, in the palatinate of Brzeſc; 28 miles E.N.E. of Brzeſc.

CZACSANICH, a town of Poland, in the palatinate of Braclaw, 38 miles S. of Braclaw.

CZAR, a title of honour aſſumed by the grand-dukes, or, as they are now ſtyled, emperors of Ruſſia.

The natives pronounce it *tzar*, or *zaar;* and this, as ſome have ſuppoſed, by corruption from Cæſar, emperor; from ſome fancied relation to the Roman emperors; on account of which they alſo bear the eagle as a ſymbol of their empire.

When the czar, Peter I., required his imperial title to be acknowledged by the court of Vienna, there was great difficulty made about it: but the czar ſhewing them, by his ambaſſador, an original letter of Maximilian I. to the czar John Baſilowitz, the count Zinzendorff, grand chancellor of the court of Vienna, cauſed the archives of the houſe of Auſtria to be ſearched for the original of that letter; but no ſuch letter was found: however, the hand-writing of the ſecretary, and the ſignature of Maximilian, being known and acknowledged, the title of emperor was allowed to Peter and his ſucceſſors, which they continue to enjoy. This anecdote, M. l'Abbé Langlet acknowledges to have received from count Zinzendorff himſelf, 1722. Encycl.

It is generally affirmed, that John Baſilowitz, or Iwan Vaſſilievitch, declared himſelf czar in the year 1547; though this title is expreſsly attributed in hiſtory to Ruſſian ſovereigns of a period far more remote; whether it was actually borne by them, or whether the old annaliſts added it merely to ſignify, indiſcriminately, a monarchical dignity, or modern hiſtorians have arbitrarily applied it to them without ſufficient reaſon. We are told by Lomonoſof, in his ancient Ruſſian hiſtory, that Vladimir, the Saint, who died in 1015, on his marriage with the Greek princeſs, took upon him the title of czar. The ſame author ſays, in his abridged chronicle, that not only Vladimir Vſevolodovitch Monomachus, who began his reign in 1114, was crowned czar of all Ruſſia; but alſo that Vaſſilly Ivanovitch, who died in 1535, firſt wrote himſelf in the laſt year of his reign, czar and ſelf-holder of all Ruſſia. With regard to the derivation of the term czar or tzar, it has been alleged, that, in the Ruſſian bible, it denotes a king; yet the ancient Ruſſian writers make uſe of it alſo when ſpeaking of the Greek emperors. Moreover, the derivative tzarſtvo means kingdom; thus, in the pater-noſter, tzarſtvoe tvoe, thy kingdom; but alſo, in general, it ſignifies empire; and it is even uſed in the kingdoms of nature.

M. Sperlingius, in his diſſertation on the majeſty of the name *konning*, obſerves, that the Ruſſian princes never bore the name *czar*, till their people had embraced the Greek faith: before that time, he ſays, they were called *konger*, KING.

The Ruſſians are the only perſons who by czar denote a ſovereign; and Mr. Tooke, as to the etymology of the word, thinks it ſcarcely imaginable that it has been formed by an abbreviation of Cæſar and Tzeſar; for, throughout the New Teſtament, where the word occurs, it was rendered by keſar, perhaps from the Greek Bible, which came into Ruſſia with the Chriſtian religion; this was afterwards changed into tzeſar, and that again has been altered into imperator. Mr. Tooke farther obſerves, that, in the old Ruſſian year-books, mention is frequently made of Tartarian and Siberian tzars, and tzarevitches (tzar's ſons); thus we find, among many other inſtances, the tzar of the golden horde, the tzar of the krim, the tzar of Kazan. This title has not been negligently introduced, and appropriated by the Ruſſian hiſtorians; for the ſovereigns of Ruſſia have borne it ſince the conqueſt of thoſe kingdoms, to this day, as it ſtands in the imperial title; "tzarina of Kazan, tzarina of Siberia, &c." We may, therefore, ſuppoſe, ſays Mr. Tooke, with the higheſt probability, that the Ruſſian nation, on finding theſe tzars among the neighbouring people, borrowed the title from them, and adopted it into the Ruſſian language, to which it is entirely foreign. Tooke's Life of Catharine II. vol. iii.

CZARLAKOW, in *Geography*, a town of Poland, in the palatinate of Kaminiec; 34 miles W.N.W. of Kaminiec.

CZARNAKI, a town of Poland, in the palatinate of Podolia; 60 miles N.N.E. of Kaminiec.

CZARNEWECYZE, a town of Lithuania, in the palatinate of Brzeſc; 10 miles N.E. of Brzeſc.

CZARNKOW, a ſmall town of the grand duchy of Warſaw, which, ſince the peace of Tilſit, belongs to the kingdom of Saxony. It is ſituated in the palatinate of Poſen; 26 miles N. of Poſen.

CZARNOKOZYNECZIE, a town of Poland, in the palatinate of Kaminiec; 12 miles W. of Kaminiec.

CZARSKOEZELO, the famous ſummer reſidence of the ſovereigns of Ruſſia, about 30 miles from Peterſburg, is ſituated in an open pleaſant country, diverſified by little hills, meadows, and woodlands. The verſts, or diſtances, are marked on the ſide of the road by columns of marble, jaſper, and granite; and there are 1100 globular lamps, which are lighted when the court is there.

Czarſkoezelo owes its origin to the empreſs Catherine I. its embelliſhments to Elizabeth, and its preſent taſteful magnificence to Catherine II., grand mother to the emperor Alexander. The gardens are laid out in the Engliſh manner. Their principal curioſities are a ſmall temple, containing an exquiſite collection of antique and modern ſtatues, a magnificent bath, pictureſque artificial ruins, and a ſmall town in commemoration of the acquiſition of the Taurida. Storch's Picture of St. Peterſburg.

CZARTORYSK, a ſmall town of Auſtria, in the kingdom of Gallicia and Lodomeria, or that part of Poland, which, at the final partition of the country, was allotted to the houſe of Auſtria. It has an old caſtle, and is ſituated in Volhinia, in the diſtrict of Luck, or Luceorien.

CZASLAU, a ſmall town of Auſtria, ſituated in Bothnia, on the river Crudimka; 51 miles S.E. of Prague. It is the capital of the circle of the ſame name, and was built in 796. The principal church has the higheſt ſteeple in Bohemia; it contains the aſhes of John Ziſca, the founder of the Huſſites, who was buried here in 1424.

CZASNIKI, a ſmall town of Ruſſia, in Lithuanian Ruſſia, which formerly was part of Poland, in the diſtrict of Polock.

CZASTAWSK, a town of Bohemia, in the circle of Czaſlau; 12 miles S.W. of Ledetſch.

CZATORISKO, a town of Poland, in the palatinate of Volhynia; 42 miles N.N.E. of Lucka.

CZATZA, a town of Hungary, on the river Kuſſutſha; 104 miles N.N.E. of Vienna, and 48 N. of Cremnitz.

CZAY-KOWKA, a town of Poland, in the palatinate of Volhynia; 38 miles N.E. of Zytomiers.

CZAZIN, a town of Croatia; 20 miles S.S.W. of Novi.

CZCRAZAN, a town of Poland, in the palatinate of Braclaw; 64 miles N.W. of Braclaw.

CZCZANOW, a town of Poland, in the palatinate of Belz; 36 miles S.W. of Belz.

CZEBRYN, a town of Poland, in the palatinate of Kiov; 44 miles S.S.E. of Czerkaſy.

CZECHTITZ, a town of Bohemia, in the circle of Czaſlau; 10 miles S.W. of Ledetſch.

CZECZORA, a town of European Turkey, in the province of Moldavia; 14 miles E. of Jaſſy.

CZEILTE, a town of Hungary; 20 miles W. of Topoltzan.

CZEMER, in *Medicine*, a name given by the people of Hungary, and ſome of the neighbouring nations, to a very troubleſome diſtemperature of the wriſts, and lower part of the arms, to which the people of this part of the world are very ſubject. It conſiſts of a tumour not hard, but very painful to the touch. The general method of cure is, by giving firſt a ſtrong emetic, and then confining the patient to his bed, and to the uſe of ſudorifics, which in ſome days carry it off. Phil. Tranſ. N° 243.

CZENSTOCHAU, or Czenstochow, *Czenſtokowa*, in *Geography*, a ſmall town of the grand duchy of Warſaw, which, from the laſt partition of Poland, until the peace of Tilſit, belonged to Pruſſia, and is a province of the kingdom of Saxony. It is ſituated on the river Warta; 90 miles S.E. of Breſlau, and 60 N.W. of Cracow. Near this place, on the Clarenberg, is a ſmall fortreſs, with a convent of monks, of the order of St. Paul, the Hermit, celebrated for a picture of the Virgin Mary, which, it is pretended, was painted by the evangeliſt St. Luke, and which is ſtyled the "Treaſure of the Virgin," becauſe it draws pilgrims from all quarters. Czenſtochau was conſidered as the *Loretto* of Poland.

CZERNETZ, or Tscherinck, a town of Walachia, near the north ſide of the Danube; 44 miles E. of Belgrade, and 106 W. of Buchoreſt.

CZERNIKOW, Czernikof, or Tshernigow, *Tſhernigof*, a town of Ruſſia, in Europe, formerly in the government of Kiew, but which, ſince the year 1781, conſtitutes a ſeparate government. It is ſituated on the river Deſna; 90 miles N.E. of Kiew, and is the ſee of an archbiſhop. N. lat. 51° 20.

CZERNITZ, a ſmall town of Walachia, in that part of the country which belongs to the empire of Auſtria.

CZERNOMITZ, a town of Hungary, on the river Gran; 11 miles N.N.W. of Bakan.

CZERNOWITZ, a town of Auſtria, in the kingdom of Gallicia and Lodomiria, and chief place of that part of the country called the Buckowina, which became an Auſtrian province in 1777. It is ſituated on the river Pruth.

CZERNVODA, a town of European Turkey, in the province of Bulgaria; 42 miles N. of Ternovo.

CZERSKO, or Czersk, a handſome town of the grand duchy of Warſaw, which, ſince the peace of Tilſit, is a province of the kingdom of Saxony. It is the chief place of a diſtrict of the ſame name, and ſituated on the Viſtula; 24 miles S.E. of Warſaw. N. lat. 51° 58′.

CZERWENITZA, a poor miſerable village of Auſtria, in upper Hungary, a ſhort day's journey from Caſchau, remarkable only for its opal mines. The rocks are formed of decompoſed porphyry and traſs. The hill is ſome miles in extent, and has been opened in ſeveral places, and moſt ſucceſsfully in three particular ſpots, where guards are ſtationed to prevent ſtrangers from digging. Theſe mines yield ſeveral different kinds of opal, ſome of no value to the jeweller. It is, however, ſuppoſed, that the moſt valuable opals which paſs in commerce under the name of oriental opals are really from the mines of Czerwenitza. Tavernier, part ii. p. 293, ſays; "Pour ce qui eſt de la Hongrie, il y a une mine d'où l'on tire des Opals, et il ne ſ'en trouve en aucun lieu de la terre qu'en celui là." Mr. Fichtel, in his "Mineralogiſche Bemerkungen von den Carpathen," that is to ſay, mineralogical obſervations on the Carpathian mountains, page 595, is of the ſame opinion, and aſſures us there are papers in the archives at Caſchau, which ſhew that, about four centuries ago, 300 men were engaged in theſe mines, which circumſtance would account for the quantity of opals that has been for ſo long a time in the market.

The mines of Czerwenitza produced, perhaps, that very opal, to obtain which Anthony could proſcribe a Roman ſenator, and to keep which a Roman ſenator could ſuffer baniſhment. Townſon's Travels in Hungary.

CZESTIN, a town of Bohemia, in the circle of Czaſlau; 13 miles from Czaſlau.

CZETEZUTA, a town of European Turkey, in the province of Moldavia; 6 miles S. of Jaſſy.

CZETNEK, a town of Hungary; 26 miles W. of Caſchau.

CZETWERNIA, a town of Poland, in the palatinate of Volhynia; 16 miles N. of Lucko.

CZIEZER, a town of Hungary; 21 miles E. of Caſchau.

CZIFFEN, a ſmall town of Auſtria, in Lower Hungary, ſituated on an extenſive plain, and formerly a place of ſome conſequence.

CZIGLED, a town of Auſtria in Lower Hungary, in the diſtrict of Ketſkemet. It is ſituated in a very fertile country, and belongs to the nuns of St. Clara at Buda. After the battle of Sicambria, it became the reſidence of the Zuklers, who were among the principal leaders or chiefs of the Tranſylvanians.

CZIGLIN, a town of Sclavonia; 7 miles N.W. of Brod.

CZIRKNITZ. See Cirknitz.

CZIRNIECHOW, a town of Poland, in the palatinate of Volhynia; 12 miles W. of Zytomiers.

CZIROKOGRODNA, a town of Poland, in the palatinate of Braclaw; 54 miles N.N.W. of Braclaw.

CZNICLOW, a town of Poland, in the palatinate of Sandomirz; 24 miles N.W. of Sandomirz.

CZOCHWIACE, a town of Poland, in the palatinate of Kiow; 4 miles S. of Bialacerkiev.

CZONGRAD, or Czongrodt. See Csongrad.

CZORNOW, a town of Lithuania, in the palatinate of Brzeſc; 18 miles S.S.W. of Brzeſc.

CZUCKERMANDEL, a ſmall town of Auſtria, in Lower Hungary, in the diſtrict of Preſburg, not far from Preſburg caſtle, inhabited chiefly by Jews.

CZUDNATZ, a town of Poland, in the palatinate of Lublin; 40 miles N.W. of Lublin.

CZUDNO, a ſmall town of Turkey, in Europe, in Upper Moldavia, on the river Pruth.

CZUGUR, a river of European Turkey, in the province of Moldavia; which runs into the Pruth, near Stephanowze.

CZUWACHIANS, a tribe of Tartars diſperſed over the right bank of the Wolga, in the government of Kaſan, and extending as far as Uſa, in that of Orenburg; and, on this account, denominated Uſian Tartars. They are a very laborious people; and their number is ſaid to amount to upwards of 100 thouſand perſons, inhabiting ſmall towns, and a great number of villages. Their two chief places are Siliſgorod and Kobſhatſk. They acknowledge the god, named Tor, but pay almoſt an equal worſhip to the ſun. They have no temples; but, in the midſt of foreſts, pay their homage to Tor, and offer ſacrifices, conſiſting of black lambs, which, in the lamb-ſeaſon, they ſlaughter in ſuch numbers as their jumak, or high prieſt, has ordered. The yumaſki, who are prieſts ſubordinate to the jumak, poſſeſs the greateſt authority among the Uſian Tartars. Theſe are their only phyſicians, when any are ill; the only judges to whom they appeal for deciding their diſputes; and the only counſellors to whom they apply for advice in affairs of moment. Like the other Tartars, they abſtain from hog's fleſh, and from working on Friday. They annually celebrate a kind of Eaſter, at a place, and on the day determined by the grand jumak. Every family repairs thither with the moſt profound meditation, carrying their lamb, which is killed in the name of Tor, and after the ſacrifice it is eaten by thoſe who brought it. All of them uſe nearly the ſame kind of dreſs, and the ſame kind of food with the Barſchkirians, whom they alſo reſemble in their manners. Chantreau's Travels.

CZYRCASSY, Czyrkassy, or *Czircaſſi*, in Latin *Czircaſſia*, a ſmall town of Ruſſia, in Europe, in the Ukraine, ſituated on the Dnieper, in the government of Kiew, or Kiow; 105 miles S.E. of Kiow. It has an old caſtle.

END OF VOL. X.

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